



CLEAN COOKSTOVES FOR RURAL INDIA



Project title	Clean Cook stoves for Rural India
Project ID	2944
Monitoring period	01-January-2023 to 31-December-2023 (Inclusive of both dates)
Original date of issue	30-January-2024
Most recent date of issue	25-August-2024
Version	04
VCS Standard Version	4.5
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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.

As the target population was unable to afford these stoves (ICS) due to their financial constraints, project promoters have distributed ICS free of cost.

The installed ICS substitutes the currently common cooking on open fire. The baseline scenario is the continued use of non-renewable biomass (fire wood) by the target population to meet similar thermal energy needs as provided by project cook stoves in absence of project activity.

The project locations for initial Project Activity Instances are in Assam & Madhya Pradesh states of India and may expand further to other parts 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 latest monitoring survey for the grouped project activity was conducted from 03-January-2023 to 27-February-2023 (inclusive of both the dates). The emission reductions achieved in this monitoring period are 705,715 tCO₂e during the monitoring period from 01-January-2023 to 31-December-2023.

The last ICS distribution was completed on 31-December-2022.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Validation & Verification	11-May-2022 to 31-December-2022	VCS	LGA Technological Center, S.A. (Applus+ Certification)	0.64 year
Verification	01-January-2023 to 31-December-2023	VCS	VKU Certification	01 year

Total	11-May-2022 to 31-December-2023	VCS		1.64 years
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1.3 Sectoral Scope and Project Type

Sectoral scope ¹	03 - Energy demand
Project activity type	II – Energy efficiency improvement projects

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 99075 34900
Email	manish@enkingint.org and registry@enkingint.org

1.5 Other Entities Involved in the Project

Bishikha LLP, Envro Queen Pvt Ltd, JPS Enterprise, and Aransh Agro are associated with EKI energy for ICS distribution in Assam and MP and GHG Reduction Technologies Pvt LTD is the manufacturer of the ICS deployed under the project activity.

Organization name	Bibikha LLP
Role in the project	Distributor
Contact person	Bibek Bora
Title	Director – Owner
Address	Khongia Goon near Borkhongia High School Dist- Jorhat – 785616 Assam
Telephone	7002513935
Email	Bibek@bibikha.in

¹ 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>

Organization name	Envro Queen Pvt. Ltd.
Role in the project	Distributor
Contact person	Sameer Bagchi
Title	Owner/ Partner
Address	130 MG Road Dhar MP – 454001
Telephone	8871965144
Email	Sg65410@gmail.com

Organization name	JPS Enterprise
Role in the project	Distributor
Contact person	Yogesh Sharma
Title	Owner/ Partner
Address	S-2, G8 Prem Nagar, Jaipur – 302019
Telephone	9057244624
Email	jpsenterprises111@gmail.com

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

Organization name	GHG Reduction Technologies Pvt Ltd.
Role in the project	Manufacturing
Contact person	Mr. Soumitra Kulkarni
Title	Director
Address	A-11/2/3, Nagargoje Industries PVT LTD, SUMMET Compound Ambad, Nashik Maharashtra – 422010
Telephone	982287213
Email	nilesh.deshpande@ghgreductiontech.com

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) by Bibsikha LLP (Distributor). Hence, this date adheres to the definitional requirements for the ‘Project Start Date’ of VCS Standard 4.5.

1.7 Project Crediting Period

Crediting period	☒ Seven years, twice renewable
Start and end date of first or fixed crediting period	11-May-2022 to 10-May-2029 (Inclusive of both 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:

- Assam²

Latitude - 26° 14' 38.9616" N

² Where is Assam, India on Map Lat Long Coordinates

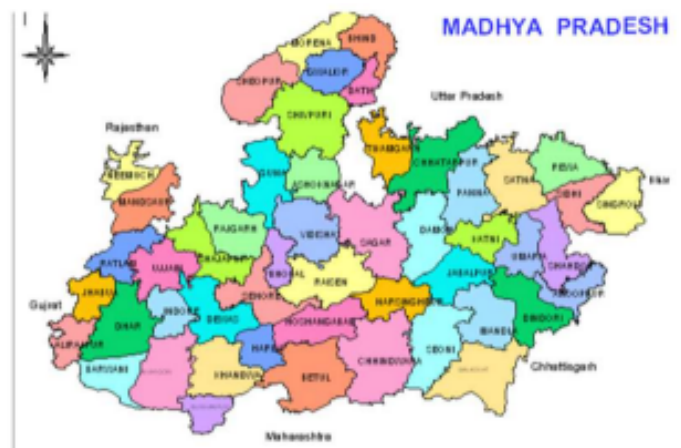
Longitude - 92° 32' 16.2312" E



- Madhya Pradesh³:

Latitude - 23° 28' 23.9664" N

Longitude - 77° 56' 52.7928" E



The geographical boundary for projects located in India is delineated in the form of extreme geographic coordinates of India as follows:

Latitude - 8° 44' to 37° 6' N

Longitude - 68° 7' to 97° 25' E

³ <https://www.latlong.net/place/madhya-pradesh-india-21644.html>



1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	VMR0006	Methodology for Installation of High Efficiency Firewood Cook stoves ⁴	1.1
Methodology	AMS. II.G.	Energy efficiency measures in thermal applications of non-renewable biomass ⁵	12.0
Tool	Tool 30	Calculation of the fraction of non-renewable biomass ⁶	4.0

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

⁵ <https://cdm.unfccc.int/UserManagement/FileStorage/3BX1V2NC87TAWL0EKYHJQ5DRZ6UF94>

⁶ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v4.0.pdf>.

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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

Is 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

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.

☐ 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

Justification: The emissions footprint of the cookstoves remains unchanged by the project's distribution activities. Although the project is part of a supply chain, the grouped project activity does not modify the product in a manner that would alter its emissions profile. As the answer to the above question is "No," the remainder of this section has been left blank.

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

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 Aayog⁷ 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)

⁷ https://www.niti.gov.in/sites/default/files/2019-01/SDX_Index_India_21.12.2018_1.pdf

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)
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

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	Implemented activities to decrease	The project has increased the total monthly income of 36 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 .	The project has increased the total monthly income of 589+36= 625 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. ⁹
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

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>

⁹ (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	Increase access to clean cooking technology with ICS installations in 151,154 households under the project activity.	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 36 new job positions in different roles for manufacturing and distribution of ICS and post-implementation monitoring activity.	The project activity has created job opportunities for 415 heads (Male: Female: 335:80) in the ICS manufacturing unit and 254 heads (Male: Female: 211:43) in the ICS distribution and monitoring activity
5)	13.2	13.2.2 Total greenhouse gas emissions per year	Implemented activities to increase	Contribute to greenhouse gas emission reduction of 705,715 tCO ₂ e.	Prevented the release of 870,015 (164,300 ¹⁰ +705,715) tCO ₂ e into the atmosphere.
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 391,813 tonnes of woody biomass from forests surrounding the communities and reducing pressure on forest reserves.	Reduced deforestation of 704,281 (312,468 ¹¹ + 391,813) tonnes of woody biomass from forests surrounding the communities and reduced pressure on forest reserves

¹⁰ <https://registry.verra.org/app/projectDetail/VCS/2944>

¹¹ <https://registry.verra.org/app/projectDetail/VCS/2944>

1.13 Commercially Sensitive Information

There is no commercially sensitive information that has been excluded in this monitoring period of the project activity.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

There has been no change in the stakeholder's make up since validation.

Stakeholder Identification	In accordance with paragraph 3.18.1 (As per VCS Standard, v4.5), which states, "In identifying stakeholders, the project proponent must consider the significance of user populations and how deeply affected they may be by the project activities, such that distant or intermittent user groups who will be affected in very limited ways by the project need not be defined as stakeholders," the project has identified household owners (end users), distributors, and their representatives as stakeholders. This selection is based on their significant positive impact resulting from the project activities.
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 only to the ICS and in the end-user, agreement states that carbon credit ownership lies with the PP, which are secured through an end-user agreement established between the Project Proponent and the end-users.
Stakeholder diversity and changes over time	The project instances are situated in the states of Assam and Madhya Pradesh, characterized by a rich tapestry of social, economic, and cultural diversity. The project's impacts on stakeholder diversity over time are as follows: <u>Social Diversity</u>: The project promotes social inclusivity through community engagement for cook stove operation. The efficient use of firewood reduces the time spent by women and children

	gathering fuel, enabling them to allocate saved time to other productive activities. No negative impacts on social diversity have been identified. <u>Cultural Diversity:</u> The project encourages participation from individuals of diverse cultural backgrounds, fostering cultural harmony within the project location. No adverse effects on cultural diversity have been observed. <u>Economic Diversity:</u> The project contributes to the local economy by providing employment opportunities for both skilled and unskilled labor. No detrimental effects on economic diversity have been recorded.
Expected changes in well-being	The distribution of energy-efficient cook stoves in the project area has brought about substantial positive changes in various dimensions of well-being and stakeholder characteristics under the baseline scenario. Environmental benefits include a reduction in deforestation due to the efficient utilization of firewood and improved air quality, particularly reducing indoor smoke pollution and enhancing respiratory health. Social impacts involve time savings for women and children, empowerment of women through decreased daily workloads, and overall improvements in health. On the economic front, households are expected to experience direct financial benefits through fuel savings, and the project creates job opportunities, fostering economic development within the community. These changes collectively contribute to the project's overarching goal of promoting sustainability and enhancing the overall quality of life for stakeholders in the state of Madhya Pradesh.
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, anticipated positive changes in well-being and stakeholder characteristics include: <u>End-User Well-being:</u> <u>Time Saving:</u> End-users experience improved well-being through time savings in wood collection and cooking activities. <u>Enhanced Safety:</u> The adoption of Improved Cook Stoves (ICSs) leads to less smoke and improved safety during cooking operations.

	Indigenous People's Well-being: <u>Employment Opportunities:</u> Indigenous people in the project area benefit from increased employment opportunities arising from the manufacturing and distribution of ICSs. These expected changes underscore the positive impact of the project on the well-being of end-users and indigenous communities, aligning with improvements in time efficiency, safety, and economic opportunities.
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
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	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	<table><tr><th>Date of meeting</th><th>Village/District</th><th>State</th></tr><tr><td>10-May-2022</td><td>Udalguri</td><td>Assam</td></tr><tr><td>04-July-2022</td><td>Dhar</td><td>Madhya Pradesh</td></tr><tr><td>19-September-2022</td><td>Sheopur,</td><td>Madhya Pradesh</td></tr><tr><td>19-September-2022</td><td>Shivpuri</td><td>Madhya Pradesh</td></tr><tr><td>09-October-2022</td><td>Jabalpur</td><td>Madhya Pradesh</td></tr></table>	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
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 from the distributors to the end users through the distributor’s representatives.																		
Consultation records	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.																		
Stakeholder input	There has been no grievance received for the current monitoring period. There has been no complaints/replacements request received by end-users during the verification period.																		

2.1.3 Free, Prior, and Informed Consent

Consent	Following clause 3.18.8 of VCS standard v.4.5, the project proponent has disclosed
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	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 21 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.
Outcome of FPIC	The potential of carbon credit that could be generated due to the project was informed and discussed with local stakeholder during stake holder consultation meeting. The

	project devices (project cook stoves) are installed in the households of these beneficiaries on their own will and PP is having transparent agreements 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.
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2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
N/A	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. Distributors capture each grievance. The process involves: 1. When end users call the customer care number, PP at HO receives the complaint. 2. PP then shares the complaint with their local representative. 3. The local representative works to resolve the grievance. 4. Also, field officers are hired to visit beneficiaries, collect any complaints, and share them with HO. 5. PP also periodically shares SMS with information and the customer care number for end users to reach out. 6. All collected complaints are centralized at the HO level for resolution with the assistance of local representatives. 7. Upon addressing the complaint/Grievance, PP closes it in the register There have been no grievances recorded for the current monitoring period.

2.1.5 Public Comments

Following are the comments received during the stakeholders' consultation in Udalguri (Assam)-

Summary of comments received	Actions taken
Question asked by Bina Boro: Will project provide improved health in our village?	Yes, the project will result in improved health reducing health hazards from indoor air pollution.
Question asked by Ansuli Narzary: Will the project release any harmful pollutants or hazardous toxic or notorious substances in air?	No, not from what we know there is no project emissions associated to project and does not have any negative impacts
Question asked by Bholaram Boro: Will project provide health benefits in our village?	Yes, project reduces health hazards from indoor smoke pollution and women and children will have to spend less time collecting contributing to reduction in GHG emissions
Question asked by Mayarani Bosumatary: Will there be employment generation due to the project activity for youth from adjoining area?	Responding about the increased possibilities for employment of local youth due to the project activity, it was pointed out that the preference would be given to the locals in employment at project site.
Question asked by Radha Rani Singha: Will project support for forest cutting?	Yes, the project requires less biomass, thus project reduces rate of deforestation.
Question asked by Anari Brahma: Will the project leads to water pollution?	No, the project does not lead to any kind of water pollution.

Following are some of the comments received during the stakeholders' consultation in Dhar, Shivpuri, Sohpur, Jabalpur (Madhya Pradesh)-

Summary of comments received	Actions taken
Why cook stove is good?	The work is done in small woods, due to less smoke the problem of eyes has also ended, even trees do not have to be cut. Food is also prepared quickly.
How much firewood is used?	The firewood required is less as compared to traditional cook stove.

What happens if it will get damaged?	In any case, if it is damaged, you can get the second (new one).
Do we have to go anywhere for receiving it or we can get it to our home directly?	You can surely receive it from your home.
How this cook stove can burn?	It requires small pieces of wood, and that should not be big in a size.
How we can produce burning energy in it?	It requires small pieces of wood.
How is your cook stove different from traditional stoves?	It will require less fuel and release less smoke.
Can we use thick firewood pieces in it?	No! Only thin and small pieces of firewood are enough

2.2 Risks to Stakeholders and the Environment

Risk identified		Mitigation or preventative measure taken
Risks to stakeholder participation	Not Applicable	There are no exclusions, lack of communication or barriers in the project activity, that might prevent stakeholders from engaging or participating.
Working conditions	Not Applicable	The ICS provides a safer cooking alternative compared to traditional cook stoves. Additionally, comprehensive training sessions on cook stove usage are conducted for stakeholders to minimize potential risks associated with working conditions.
Safety of women and girls	Not Applicable	In Indian rural scenario women and girls are mainly responsible for wood collection. The reduction in wood consumption through improved cook stoves has not only lessened the number of trips required for wood collection but has also contributed to the safety of women and girls, mitigating their vulnerability to potential incidents.
Safety of minority and marginalized	Not Applicable	ICS is a safer way of cooking as compared to the traditional cook stoves. Additionally, proper

groups, including children		trainings regarding the use of cook stoves and the associated benefits are deployed to the stakeholders, so as to decrease the chances of potential risks linked to the safety of minority and marginalized groups, including children.
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	Not Applicable	Due to the project activity, there is no risk due to generation of pollutants (noise, discharges to water, generation of waste, and release of hazardous materials). The efficiency of the ICS is much higher than the baseline cookstove which ensures efficient burning of fire wood. Thus, the project improves air quality and produces less waste generated (ash) due to efficient utilization of firewood as compared to the baseline cookstove.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

Discrimination and sexual harassment	PP has provided declaration that no discrimination or sexual harassment has occurred. There has been no reports of discrimination and sexual harassment for this monitoring period.
Management experience	No new entity has been involved in project design or implementation, hence not applicable .
Gender equity in labor and work	The PP strictly follows the gender equality in labor and work. In the current monitoring period PP has provided employment to 12 women in the project activity with an average salary range from Rs.12,000 to Rs.18,000. The same salary range is being paid to other male employees for the same job role. The declarations of the same have been provided.
Human trafficking, forced labor, and child labor	The PP strictly follows the national laws prohibiting human trafficking, forced labor and child labor. There have been no reports of human trafficking, forced labor and child labor during this monitoring period.

2.3.2 Human Rights

The following demonstrations show how the project is committed to safeguard the rights of Indigenous People (Ips), Local communities (LCs), and customary right holders, while following the international human rights law¹², the UNDRIP¹³ and ILO Convention 169-

- **Free, Prior, and Informed Consent (FPIC)**: The project activity has obtained the FPIC from the local stakeholders including the IPs, LCs and customary right holders, ensuring their unforced consent before the project operation, respecting their right to make decisions.
- **Non-discriminatory Participation in the Project Activity**- The project distributed devices without cultural or social biases, safeguarding the rights of IPs, LCs, and customary rights holders to be free from discrimination. The project proponent while distributing the improved cook stoves had given preference to the weaker economical section of rural population, who generally uses a conventional three stone cook stove,
- **Employment due to the Project Activity**- The project activity also leads to the employment of 1 person from for IPs, LCs and customary right holders, enabling them to exercise their right to fair treatment in employment and salary.

Right to maintain, control, protect and develop the cultural heritage- The project activity is not implemented or developed on any tangible cultural heritage, and also, doesn't affect the intangible cultural heritage of the IPs, LCs and customary right holders. Instead, it promotes the cultural harmony through collective engagement of IPs, LCs and customary right holders.

2.3.3 Indigenous Peoples and Cultural Heritage

Since, the project activity involves the production and distribution of cook stoves, entirely manufactured outside the beneficiary's land, hence, no tangible cultural heritage has been hampered for the project activity.

Also, there has been no negative impacts of the project activity on the non-tangible cultural heritage¹⁴ of the stakeholders, instead it fosters cultural harmony by involving diverse groups, without affecting their customs, traditions or beliefs.

Hence, the project continues to preserve and protect cultural heritage as part of their project activity.

¹² <https://www.ohchr.org/sites/default/files/Documents/Publications/fs9Rev.2.pdf>

¹³ https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

¹⁴ Non-tangible cultural heritage consists of nonphysical intellectual wealth, such as folklore, customs, beliefs, traditions, knowledge, and language.

2.3.4 Property Rights

Disputes over rights to territories and resources	N/A
Respect for property rights	This project activity involves the production and distribution of cook stoves, which has entirely been manufactured outside the beneficiary's land. Hence, no land/property of the stakeholders, IPs, LCs, and customary rights holders has been incorporated. Additionally, the project activity has obtained the free, prior and informed consent of the end users (beneficiaries including the IPs, LCs, and customary rights holders). This ensures that their lands and property rights are protected and respected.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	Since the above section 2.3.4 is not applicable, hence this section is also not applicable .
Benefit sharing during the monitoring period	N/A

2.4 Ecosystem Health

Risk identified		Mitigation or preventative measure taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	This project activity doesn't result in adverse effects; instead, it positively impacts on the biodiversity and ecosystem by decreasing deforestation due to traditional gathering of fuel and promoting more efficient use of firewood.
Soil degradation and soil erosion	No risk identified	The project activity mitigates soil degradation and erosion by minimizing the extensive need for

		wood gathering, thereby reducing deforestation and soil exposure
Water consumption and stress	No risk identified	This project activity does not have any negative impacts on water consumption and does not lead to water stress in any way.
Usage of fertilizers	No risk identified	This project activity gathers the fire wood from the nearby forests and not from any dedicated plantation, which could potentially have the adverse impacts associated with the use of fertilizers.

2.4.1 Rare, Threatened, and Endangered species

Species or habitat	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 .
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2.4.2 Introduction of species

This project activity involves the manufacturing and distribution of ICS, and no planting or species introduction, hence this information is **not applicable**.

Species introduced	Classification	Justification for use	Adverse effects and mitigation
N/A	N/A	N/A	N/A

Existing invasive species	Mitigation measures to prevent spread or continued existence of invasive species
N/A	N/A

2.4.3 Ecosystem conversion

Since, the project activity is neither ARR, ALM, WRC nor ACoGS, hence this information is **not applicable**.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

Till the end of the monitoring period, the project installed 151,154 stoves under project activity. 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. Only one stove model (AGNEEKAA ECO MINI STOVE MODEL 4 SE) was distributed in the project. There will be a further installation in future for this project activity.

TECHNICAL SPECIFICATION OF COOKSTOVE			
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	
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)	Guarantee /Warranty Period	1 Year	
K)	Box Dimension	Outer Side Box Dimension	Length: - 300mm
			Weight: - 300mm

			Height: - 270mm
L.)	Thermal Efficiency	36.42%	

Cookstove image shown below:



VCS methodology VMR0006, version 1.1 allows the use of a correction factor of 0.95 applied to the overall emissions reductions to account for any possible leakage. This factor has been applied to the emission reductions presented in this report.

During the current monitoring period, no incident or event occurred, that could affect GHG emissions reduction and approved monitoring plan.

3.2 Deviations

3.2.1 Methodology Deviations

The project did not apply for any methodology deviations, till date.

3.2.2 Project Description Deviations

The project did not apply for any deviations related to its project description, till date.

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	$f_{NRB,y}$
Data unit	Fraction
Description	Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass.
Source of data	PP has calculated f_{NRB} by determining the share of renewable and non-renewable woody biomass in the total quantity of woody biomass consumption for the country/region.
Value applied	For Assam - 81.75% (calculated as per meth tool) For Madhya Pradesh – 89.2% (calculated as per meth tool)
Justification of choice of data or description of measurement methods and procedures applied	This parameter is determined ex-ante. The default value as per the Methodological tool: Calculation of the fraction of non-renewable biomass (Tool 30 version 4.0). As per of methodological tool, the value is calculated as per the following Equation (1), $f_{NRB,y} = NRB/(NRB+DRB)$
Purpose of data	Calculation of emission reductions
Comments	State of Forest report (Forest Survey of India Ministry of Environment, Forest & Climate Change, Gol, 2019). If the future project activity instances are expanded in other parts of India (other than Assam and Madhya Pradesh), then this parameter value will be calculated during future project activity instances inclusion.

Data / Parameter	$NCV_{wood\ fuel}$
Data unit	TJ/tonne
Description	The net calorific value of the non-renewable woody biomass that is substituted or reduced
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction
Value applied	0.0156
Justification of choice of data or description of measurement methods and procedures applied	IPCC default value
Purpose of data	Calculation of emission reductions
Comments	-

Data / Parameter	EF_{wf, CO_2}
Data unit	tCO ₂ /TJ
Description	CO ₂ emission factor for the use of wood fuel in the baseline scenario
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion
Value applied	112
Justification of choice of data or description of measurement methods and procedures applied	IPCC default value
Purpose of data	Calculation of emission reductions
Comments	-

Data / Parameter	$EF_{wf, non\ CO_2}$
Data unit	tCO ₂ /TJ
Description	Non-CO ₂ emission factor for the use of wood fuel in the baseline scenario
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion
Value applied	26.23
Justification of choice of data or description of measurement methods and procedures applied	IPCC default value
Purpose of data	Calculation of emission reductions
Comments	-

Data / Parameter	$\eta_{old, i, j}$
Data unit	Fraction
Description	The efficiency of baseline cookstove
Source of data	Methodological default value
Value applied	0.1
Justification of choice of data or description of measurement methods and procedures applied	A default value of 0.1 shall be used if the baseline device is a three-stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney.

	During the baseline survey, it is observed that the baseline device was a three-stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney, hence default value of 0.1 is considered for Efficiency of the baseline cookstove.
Purpose of data	Calculation of emission reductions
Comments	-

Data / Parameter	η_p
Data unit	Percentage
Description	The efficiency of the project stove at the start of the project activity.
Source of data	Manufacturer's specification
Value applied	36.42%
Justification of choice of data or description of measurement methods and procedures applied	This parameter is determined ex-ante
Purpose of data	Calculation of $\eta_{new,y,i,j}$
Comments	This efficiency is for the cook stove model considered for project activity instances implemented to date. If the manufacturer or cook stove model changes, the respective model efficiency will be considered for ER calculations

Data / Parameter	DF_n
Data unit	Fraction
Description	Discount factor to account for efficiency loss of project cookstove per year of operation (fraction).
Source of data	As per methodology, the default value of 0.99 efficiency loss per year
Value applied	0.99
Justification of choice of data or description of measurement methods and procedures applied	This parameter is determined ex-ante
Purpose of data	Calculation of $\eta_{new,y,i,j}$
Comments	-

Data / Parameter	Life Span
Data unit	Years
Description	Operating lifetime of project device for projects opting Equation 5 for determining project stove efficiency
Source of data	Manufacturer's specification
Value applied	7
Justification of choice of data or description of measurement methods and procedures applied	This parameter will be monitored once at the time of the Project stove installation
Purpose of data	Calculation of $\eta_{new,y,i,j}$
Comments	-

4.2 Data and Parameters Monitored

Data / Parameter	$N_{y,j,l}$
Data unit	Number
Description	Number of project devices of type l and batch j operating during year y
Source of data	Monitoring
Description of measurement methods and procedures to be applied	Measured directly or based on a representative sample. As per methodology, the minimum sample size will be determined in which case compliance with 90/10 confidence precision is not obligatory
Frequency of monitoring/recording	At least once every two years
Value monitored	151,154
Monitoring equipment	Sample survey
QA/QC procedures to be applied	-
Purpose of the data	Calculation of emission reductions
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
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Data / Parameter	$\eta_{new,y,i,j}$						
Data unit	Fraction						
Description	The efficiency of the improved cook stove type i and batch j determined as per equation 5 of methodology during year y.						
Source of data	Calculation						
Value applied	For ex-ante calculation, the value ¹⁵ below is applied- <table border="1"> <thead> <tr> <th>Year(y)</th><th>$\eta_{new,y,i,j}$</th></tr> </thead> <tbody> <tr> <td>1</td><td>34.23%</td></tr> <tr> <td>2</td><td>33.89%</td></tr> </tbody> </table>	Year(y)	$\eta_{new,y,i,j}$	1	34.23%	2	33.89%
Year(y)	$\eta_{new,y,i,j}$						
1	34.23%						
2	33.89%						
Justification of choice of data or description of measurement methods and procedures applied	This parameter is determined ex-ante. The average lifetime of the cookstove is 7 years.						
Purpose of data	Calculation of emission reductions						
Comments	The calculation is to be performed using the equation below: $\eta_{new,y,i,j} = \eta_p \times (DF_n)^{y-1} \times 0.94$ (The project opts to determine the efficiency using equation 5 given by methodology; therefore, it is not required to monitor this parameter via a Sampling survey.) However, the grouped project activity provides the option to use a different model of cook stoves for new future project activity instances to be included, hence this parameter value may vary based on a different model of future instances. A default value of 0.99 efficiency loss per year can be considered In case of ICS model changes for new project activity instances, the efficiency of the new ICS model should be determined during the verification and the same will be considered for that project activity instance.						

Data / Parameter	$B_{y=1, new,i,j,survey}$
Data unit	Tonnes
Description	Annual quantity of woody biomass used by improved cook stoves in tonnes per device of type i and batch j, determined in the first year of the implementation of the project through a sample survey

¹⁵ Detailed Computation stated in ER sheet as well as section 5.4

Source of data	Monitoring survey
Description of measurement methods and procedures to be applied	The sample size was selected in line with the guidelines provided in methodology Section 8.4 option (b). Determined in the first year of the introduction of the devices (e.g., during the first year of the crediting period, $y=1$) through measurement campaigns at representative households and/or sample surveys. The conditions necessary for the use of sample surveys based solely on questionnaires or interviews (without measurement campaigns) have been found to be satisfied i.e. (a) Baseline cookstoves have been completely decommissioned, and only improved cookstoves are exclusively used in the project households. (b) In the monitoring survey, no multiple devices were found to be in use in the project households. Therefore, there is no need to differentiate the quantity of firewood used by each device, as only a single project device that consumes firewood is in use.
Frequency of monitoring/recording	Determined in the first year of project implementation
Value monitored	- For Assam - 3.4 kg/device/day or equal to 1.2417 tonnes/device/year¹⁶. - For Madhya Pradesh - 3.24 kg/device/day or equal to 1.1826 tonnes/device/year¹⁷.
Monitoring equipment	Weighing Scale

¹⁶ Value after considering 10% voluntary reduction in fuelwood consumption on the result of the 1st monitoring Survey.

	1st monitoring Survey Result	After considering 10% voluntary reduction
$B_{y=1,new,i,survey}$	$= 3.78 \text{ Kg / device / Day}$ $= 3.78 * 365 / 1000 \text{ tonnes / device / year}$ $= 1.3797 \text{ tonnes / device / year}$	$= 3.78 * (100\% - 10\%) \text{ Kg / device / Day}$ $= 3.40 * 365 / 1000 \text{ tonnes / device / year}$ $= 1.2417 \text{ tonnes / device / year}$

¹⁷ Value after considering 10% voluntary reduction in fuelwood consumption on the result of the 1st monitoring Survey.

	1st monitoring Survey Result	After considering 10% voluntary reduction
$B_{y=1,new,i,survey}$	$= 3.60 \text{ Kg / device / Day}$ $= 3.60 * 365 / 1000 \text{ tonnes / device / year}$ $= 1.3140 \text{ tonnes / device / year}$	$= 3.60 * (100\% - 10\%) \text{ Kg / device / Day}$ $= 3.24 * 365 / 1000 \text{ tonnes / device / year}$ $= 1.1826 \text{ tonnes / device / year}$

QA/QC procedures to be applied	Calibration of weighing scales used for measuring the firewood was done in-house before starting using on site-				
	Sr. No. of the equipment	Type	Accuracy class/ Sensitivity	Date of calibration	Due date of calibration
	EKI-01679	Digital	±5gm (0 - 5kg)	27/12/2022	26/12/2023
	EKI-01681		±10gm (10 - 50kg)		
	EKI-01683				
	EKI-01685				
Purpose of the data	Calculation of emission reductions				
Calculation method	This is monitored value				
Comments	The survey was conducted to determine this value in the first year of project implementation. However, PP has considered a 10% reduction in the value obtained by the survey results for both the locations for current monitoring period as explained below under section 4.3 “Monitoring plan,”.				

4.3 Monitoring Plan

For measurement/monitoring of two parameters based on a representative sample. The simplified approach proposed in option (b) under Section 8.4 of the methodology is used for determining the minimum sample size in which case compliance with 90/10 confidence precision is not obligatory.

Monitored Parameters

The project involves the Introduction of an improved cook stove as energy efficiency measures:

No.	Monitoring Parameters	Sampling parameters	Parameter type	Monitoring frequency
1	$N_{y,j,k}$ Number of project devices of type i and batch j operating during year y	The proportion of ICS is still in operation.	Proportion	Biennially (at least once in two years)
2	$B_{y=1, new, i, j, survey}$ Quantity of woody biomass used by project devices in	Daily consumption of woody biomass per ICS	Mean value	In the first year of project implementation

	tonnes per device of type i. and batch j			
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Target Population

The target population was the complete set of households who have received the appliances (ICS) deployed under the project.

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 country. Since the characteristics of the population (for example quantity of biomass consumed) are more similar. Therefore, a simple random sampling technique is used to calculate the samples. Samples were drawn by using the random number generator.

To determine the parameters, sampling involved the following approaches (outcome in brackets):

$N_{y,j,j}$	Visual inspection of the premises to see if ICS is operational and in use. Interview with the end user if required to verify that ICS is still in use (Yes/No)
$B_{y=1, new, I, j, survey}$	Interview with the end user and estimate the daily consumption of woody biomass of ICS (Weekly/Daily consumption of woody biomass)

Sample Size

A simplified approach was used for determining the minimum sample size for parameters listed under Section 9.2 of the methodology in which case it is not requisite for the sample size to meet confidence/precision requirements.

The project proponent chooses to use the same sample to monitor both parameters. According to the Standard for sampling and surveys for CDM project activities and programme of activities¹⁸, 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 samples a combination of two parameters i.e. $N_{y,j,j}$ and $B_{y=1, new, I, j, survey}$ in the same sample. Sampling more than one parameter within the same sample (household) helps reduce travel needs for monitoring and the associated costs.

¹⁸ https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20210531160756223/Meth_Stan05.pdf

Oversampling is strongly encouraged, not only to compensate for any attrition, outliers, or non-response associated with the sample, but also to prevent a situation at the analysis stage where the required reliability is not achieved, and additional sampling efforts would be required. The sample size shown above was adjusted upwards to account for non-responses, Project proponent determined the appropriate non-responses rate based on previous experience.

Sampling Frame

The sampling frames are defined below. Overall, ICS having the same group of end users which is household users, thus it is expected that the geographical do not influence the parameter of interest. Therefore, all monitoring parameters can be assumed to be highly homogeneous for each ICS model regardless of how the end user group and distribution/installation location are defined.

Data to be collected

Field Measurement:

The table below summarizes field measurement data requirements:

Parameter	Timing (indicative)	Frequency as required by the methodology	Methods to be applied
$N_{y,j,j}$	Monitoring will likely occur every 12 to 24 months	Biennially	Visits to the premises, visual inspection, and interview with ICS end-user.

$N_{y,j,j}$

The survey involves a visual inspection of the premises to see if ICS is operational and in use. An interview with the end user was conducted if required to verify that ICS is still in use. Based on the response received from the end user, the value of the parameter is calculated.

$B_{y=1, \text{ new}, l, j, \text{ survey}}$	Monitoring will occur within the first year after installation	The first year of installation	Interview with the end user for determining the average quantity of firewood used in the project stove per week/day. Sample surveys has been used for estimation of consumption of firewood in project households. (Wood fuel quantity)
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$B_{y=1, \text{ new}, l, j, \text{ survey}}$

This survey involves interviews with the end user and estimating the daily consumption of woody biomass of ICS (Weekly/Daily consumption of woody biomass). The staff visited the site and ask

each household about their daily consumption of firewood for the project stove. A bundle of the said quantity of firewood has been made from the firewood stock available with the user and then weighed using a weighing scale. The weight of firewood used in survey households was noted down similarly and then averaged for the final value of the parameter.

Soft copies of the surveys were kept, and the database have a backup. The original survey questionnaires filled by the survey team and signed by the users were stored in the project office. A backup of the survey results was also stored on an electric medium. All data monitored and required for verification and issuance is kept for two years after the end of the crediting period or the last issuance of credits for the project activity, whichever is later.

Quality Assurance/Quality Control

The project proponent considered the 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 the logistics required. The project proponent determined the most effective measure for each parameter from the following list:

- Oversampling: Randomly drawn a sample more than the calculated number (say 20%) and collect data for each parameter.
- Buffer Group: Randomly draw additional samples (say 20%) and collected data from only minimum numbers of ICS as per sample size calculation.

The sampling plan has the following procedures in place to ensure good-quality data. The project proponent ensured that field personnel have reviewed, understand, and agreed to follow the monitoring plan procedures, including provisions for maximizing response rates and 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 include addressing non-sampling errors, such as non-response or bias from the interviewer. The project proponent or a competent third party designated by the project proponent with the proper skills trained the monitoring personnel on how to properly survey households to prevent bias from the interviewer. In the case a household refuses to participate, another household was chosen at random. To reduce interviewer bias, a good questionnaire design and well-tested questionnaires were used. The surveyor at the site got training from EKI for the monitoring survey, which includes interviewing the beneficiaries and weighing the firewood to use with weighing equipment. Additionally, give weighing machine calibration instructions.

Monitoring questionnaires

The distributing entities record each sample ICS user's contact information and pertinent data on standardized monitoring questionnaires concerning the corresponding serial number of the ICS that was distributed.

For the first monitoring survey, the interviewer filled out the monitoring questionnaire manually. Data recorded through a manual process were recorded and transferred into the electronic database.

Stoves Users were requested to provide the required information to the interviewer. Users shared their background information in several ways, including by speaking directly with designated focal points who may reside in their communities. This includes:

- Stove Serial No. /Unique ID, Date of ICS Receipt/onset of usage, Address, Beneficiary Name, etc.
- Improved Cookstove Specific Information such as the functioning of ICS, benefits observed from the use of improved cook stoves
- Traditional Cookstove Specific uses information
- Other Cooking fuel-specific information – LPG, Kerosene, etc.
- Fuel use pattern of your household – Purpose of fuel use
- Fuel Details – Quantity, sources, Cost, Quantity, Problem in collecting fuel, etc.

Calibration procedures for monitoring equipment:

To measure the weight of fuelwood consumed by the project stove in a day/week, a weighing scale were required. The weighing scale used for monitoring purposes were calibrated before starting the survey, as per the national/international standard, or as specified in the user manual.



Analysis

The project proponent manages a project database that includes the following data that can be directly attributable 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 were used to estimate proportions and mean values for the parameters described above. The values then factored into the emissions reduction calculations and result in the request for the issuance of VCUs. The parameters are applied for emission reduction calculations.

Implementation

The project participant followed the simple random sampling approach and the minimum sample size was determined as per the following guidelines:

- Project target population < 300: Minimum sample size 30
- Project target population 300 – 1000: Minimum sample size 10% of group size
- Project target population > 1000: Minimum sample size 100

The simplified approach was used to determine the minimum sample size for parameters to be monitored so that for the sample compliance with 90/10 confidence precision is not obligatory.

As per the requirement of applied VCS methodology VMR0006, a minimum sample size of 100 is required to be surveyed for the project population greater than 1000. However, to get more accurate and reliable results, EKI selected 300 samples for each project locations (i.e., Assam & Madhya Pradesh). Total 600 samples were used to conduct the latest monitoring survey for the grouped project activity from 03-January-2023 to 27-February-2023. The PP did not plan for KPT during this monitoring period therefore, PP hasn't performed KPT during this monitoring period.

Sampling for emission reduction calculation and elaboration of the monitoring report occurred at the end of the monitoring period. This sampling was conducted by trained personnel from the project proponent. Field personnel received training on how to properly deal with surveying techniques and reduce errors and checked that there is no conflict of interest among those involved in data collection and analysis. The project proponent recorded the start and end dates of each monitoring period and calculate the emission reductions attributable to each monitoring period. For this purpose, two training sessions have been provided for six people during this monitoring period.

The operation team of EKI selected the survey samples randomly using online software. To get more reliable results, EKI has selected 300 samples for each location (i.e., Assam & Madhya Pradesh) instead of considering the minimum sample size of 100. Furthermore, 20% of oversamples were selected considering non-response, resulting 375 samples for each location. The training to understand the survey process, for awareness of the questions to be asked, and for the measurement of fuelwood consumption on the project stove, was conducted for the survey team before starting the monitoring survey. The monitoring survey was conducted by EKI Energy Services limited from 03-January-2023 to 27-February-2023. The survey team visited the sample households in person and collected the required information as per the questionnaire with the person using the cookstove. For the assessment of fuelwood consumption on the project cookstove, the surveyor asked to end user to make a bundle of fuelwood required in a day for the project stove and then weighed the same using the weighing scale. The survey team was equipped with a pre-calibrated weighing scale for weighing the fuelwood.



Survey results:

The following parameters were obtained through sampling:

1. $N_{y,i,j}$: Number of stoves in operation
2. $B_{y=1,new,i,j,survey}$: Quantity of woody biomass used by improved cookstoves

375 samples were selected (considering 20% non-response) from each location (i.e., Assam & Madhya Pradesh) for all monitoring parameters by section 8.4 option (b) of the applied

methodology VMR0006. The survey team has surveyed 300 samples each on the ground from the 375 selected samples.

A single homogeneous population was considered for both parameters.

The following table summarizes the sample sizes and results.

Monitored Parameter	Sample size		Survey Results	
	Assam	MP	Assam	MP
Number of stoves in operation ($N_{y,i,j}$)	300	300	100%	100%
Quantity of woody biomass used by improved cookstoves ($B_{y=1,new,i,j,survey}$)	300	300	3.78 Kg/day/stove	3.6 Kg/day/stove

Although 100% of the stoves were found to be operating during the 1st monitoring survey, since some users may go out for a few days during the year, for a family function or some festival, EKI has decided to consider a 10% reduction in the number of stoves in operation for current monitoring period.

Similarly, taking a conservative approach to the quantity of fuelwood used for the project stove, EKI has voluntarily decided to consider a 10% reduction in the value obtained by the survey results for both the locations for current monitoring period.

Appropriate record-keeping procedures have been implemented to ensure that each monitoring period data set can be transparently attributed to its corresponding project, preventing any occurrences of double counting. An internal review of the project database was conducted to determine the current status of each device – the duration of previous monitoring periods, the households delivering monitoring data, and current verification activities.

(i) Assessment for Leakage

The methodology provides a net-to-gross adjustment factor of 0.95 to account for leakages, hence the surveys are not required to determine leakage.

The other source of leakage occurs if equipment currently being utilized is transferred from outside the boundary to the project activity. All ICSs in the project are newly manufactured/assembled or newly installed, thus no leakage is applicable.

(ii) Monitoring Reporting

The project proponent assessed all monitoring data and produce a monitoring record for the VVB to verify the corresponding to the preceding monitoring period. This record presents the data relating to the survey results conducted for the respective monitoring period.

The purpose of the monitoring plan is to ensure successful monitoring of the emission reductions of the proposed project during its crediting period. The overall monitoring is managed by the project implementer EKI Energy Services Ltd. (EKIESL)

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 team comprised follows the below participators.

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.

Repair and Maintenance - EKIESL/its representatives plan to establish a service centre at the project location where end users can repair the cookstoves and can use them further. The repair and maintenance is followed as per the manufacturer's recommendation. This ensures that the cookstove will operate for a longer period. After 7 years of lifetime, a report from the manufacturer/maintenance agency will be provided to confirm the extended life of the cookstove. The project will claim credits beyond 7 years only for a balanced year till the cookstove is replaced by new cookstoves.

EKIESL team visited the site regularly to ensure proper use of stoves, take feedback and make the end user aware of their health and environmental sustainability as well as the benefits of saving time and money with the use of ICS.

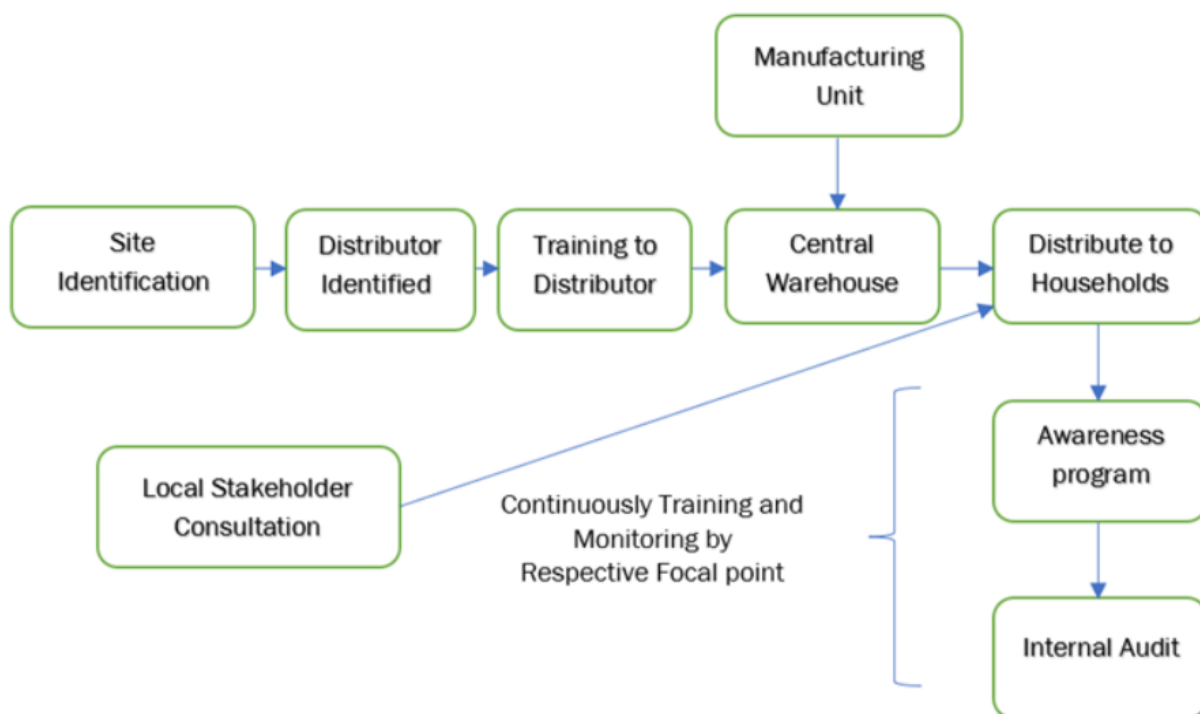
The feedbacks are mentioned in register. No negative feedbacks are found during this monitoring period.

Once ICS is distributed, monitoring activities involves selecting a sample of the stove from the distribution record and visiting the premises where these stoves are located to monitor key parameters pertinent to ER Calculation. The individuals carrying out the monitoring activities follows instructions provided during training, to check and record the following key parameters:

- Check if project stoves are operational and in use
- Check if there is any ongoing use of replaced stoves.
- Check biomass consumption of new cookstove

Data collecting & handling are conducted in a transparent way to secure the high quality of recording and storing of data. Data collected and monitored are stored electronically in a secure and retrievable manner for at least two years after the end of the project crediting period. Uncertainty related to data handling (if any) are rectified, if necessary, by revising monitoring procedures. The changes would be approved by a verifier (e.g., VVB)

The flow chart project implementation is as follows:



The 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 entities to ensure continuous improvements in 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 teams and resources for ICS distribution, data collection, regular spot-checks at households, etc. ✓ Assist and facilitate EKIESL during the training of the Operational Team and capacity building across the end users. ✓ To bridge any gap between end users of ICS and EKIESL to ensure the smooth operation of the program to achieve the overall objective of the project activity ICS Distributor(s)–who are responsible for deploying the ICS at the household and registering the end user in the digital tool. They are also responsible for giving demonstrations of ICS use, discussing with the end users on its benefits, and educating them on the continued use of ICS and discontinuation of the use of conventional/traditional open firing practice. They also conduct periodic check at households to gather feedback, address any technical concerns, collect necessary data, and transmit the information.
ICS Manufacturer or Supplier	✓ To design and develop ICS as per the required standard ✓ To provide technical parameters and manufacturer's efficiency etc. at the time of supply ✓ To educate and train the EKIESL team on the installation (delivery), uses, handling, etc. of the ICS in households.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

The methodology does not account for baseline emissions separately, but instead quantifies net emission reductions achieved by the project. Please refer Section 5.4 of this MR.

5.2 Project Emissions

The methodology does not account for project emissions separately, but instead quantifies net emission reductions achieved by the project. Please refer to Section 5.4 of this MR.

5.3 Leakage Emissions

Leakage is considered as default 0.95 in accordance with methodology.

5.4 GHG Emission Reductions and Carbon Dioxide Removals

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

$$ER_y = \sum_i \sum_j ER_{y,i,j} \quad \text{.....(VMR0006 v.1.1, equation 1)}$$

Where:

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

$$ER_{y,i,j} = B_{y,savings,i,j} \times NCV_{wood\ fuel} \times f_{NRB,y} \times (EF_{wf,CO2} + EF_{wf,non\ CO2}) \times N_{y,i,j} \times 0.95 \quad \text{.....(VMR0006 v.1.1, equation 2)}$$

Where:

B_{y,savings,i,j}	= Quantity of woody biomass that is saved in tons per improved cookstove of type i and batch j during year y
f_{NRB}	= Fraction of woody biomass that can be established as non-renewable biomass (f _{NRB}) ¹⁹
NCV_{wood fuel}	= Net calorific value of the non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne) ²⁰
EF_{wf,CO2}	= CO ₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO ₂ /TJ) ²¹
EF_{wf,non CO2}	= Non-CO ₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO ₂ /TJ) ²²
N_{y,i,j}	= Number of improved cookstoves of type i and batch j operating during year y
0.95	= Discount factor to account for leakage

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

$$B_{y,savings,i,j} = B_{y=1,new,i,survey} \times \left(\frac{\eta_{new,y,i,j}}{\eta_{old}} - 1 \right) \quad \text{.....(VMR0006 v.1.1, equation 4)}$$

Where

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

Alternatively, efficiency may be determined using the following equation-

¹⁹ Default values endorsed by designated national authorities and approved by the Board are available at <https://cdm.unfccc.int/DNA/fNRB/index.html>

²⁰ 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction

²¹ 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion

²² 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion

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

.....(VMR0006 v.1.1, equation 5)

Where

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

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

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

$B_{y=1,new,i,j,survey}$ = Annual quantity of woody biomass used by improved cookstoves in tons per device of type i and batch j, determined in the first year of the implementation of the project through a sample survey.

1) Actual ER calculations for ICS distributed in Assam for the current monitoring period of 01-January-2023 to 31-December-2023 are-

Dates of installation of ICS in Assam- 11-May-2022 to 01-November-2022

Step 1) Determination of efficiency of ICS $\eta_{new,y,i,j}$ during the current monitoring period-

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

Where,

$$\eta_p = 36.42\%$$

$$DF_n = 0.99$$

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

$$= 34.23\%$$

$$\eta_{new,y,i,j} \text{ for } y=2 = 36.42\% \times (0.99)^{1(2-1)} \times 0.94$$

$$= 33.89\%$$

Step 2) Determination of quantity of woody biomass $B_{y,savings,i,j}$ that is saved in tons per ICS during the current monitoring period-

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

Where,

$$B_{y=1,new,i,survey} = 1.2417$$

$$\eta_{old} = 0.1$$

$$\eta_{new,y,i,j} \text{ for } y=1 = 0.3423$$

$$\eta_{new,y,i,j} \text{ for } y=2 = 0.3389$$

$$\text{Hence, } B_{y,savings,i,j} \text{ for } y=1 = 1.2417 \times [(0.3423/0.1) - 1]$$

$$= 3.01 \text{ tons/year}$$

$$B_{y,savings,i,j} \text{ for } y=2 = 1.2417 \times [(0.3389/0.1) - 1]$$

$$= 2.97 \text{ tons/year}$$

Step 3) Determination of emission reductions ($ER_{y,i,j}$) for the current monitoring period-

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

Where,

$$N_{y,i,j} = \text{Number of improved cookstoves of type i and batch j operating during year y} \times (1 - 10\%) \text{ (considering 10\% voluntary reduction in the number of stoves in operation)}$$

$$= \text{Number of improved cookstoves of type i and batch j operating during year y} \times 0.9$$

$$B_{y,savings,i,j} \text{ for } y=1 = 3.01 \text{ tons}$$

$$B_{y,savings,i,j} \text{ for } y=2 = 2.97 \text{ tons}$$

$$NCV_{wood \text{ fuel}} = 0.0156 \text{ TJ/ton}$$

$$f_{NRB,y} = 0.8175$$

$$EF_{wf,CO2} + EF_{wf,non \ CO2} = 112 + 26.23 = 138.23 \text{ tCO}_2/\text{TJ}$$

$$\text{Thus, } ER_{y,i,j} \text{ for Assam} = 112,527 \text{ tCO}_2\text{e (Round Down)}$$

2) Actual ER calculations for ICS distributed in Madhya Pradesh for the current monitoring period of 01-January-2023 to 31-December-2023 are-

Dates of installation of ICS in Madhya Pradesh- 16-July-2022 to 31-December-2022

Step 1) Determination of efficiency of ICS $\eta_{new,y,i,j}$ during the current monitoring period-

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

Where,

$$\eta_p = 36.42\%$$

$$DF_n = 0.99$$

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

$$= 34.23\%$$

$$\eta_{new,y,i,j} \text{ for } y=2 = 36.42\% \times (0.99)^{1(2-1)} \times 0.94$$

$$= 33.89\%$$

Step 2) Determination of quantity of woody biomass $B_{y,savings,i,j}$ that is saved in tons per ICS during the current monitoring period-

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

Where,

$$B_{y=1,new,i,survey} = 1.1826$$

$$\eta_{old} = 0.1$$

$$\eta_{new,y,i,j} \text{ for } y=1 = 0.3423$$

$$\eta_{new,y,i,j} \text{ for } y=2 = 0.3389$$

$$\text{Hence, } B_{y,savings,i,j} \text{ for } y=1 = 1.1826 \times [(0.3423/0.1) - 1]$$

$$= 2.87 \text{ tons/year}$$

$$B_{y,savings,i,j} \text{ for } y=2 = 1.1826 \times [(0.3389/0.1) - 1]$$

$$= 2.83 \text{ tons/year}$$

Step 3) Determination of emission reductions ($ER_{y,i,j}$) for the current monitoring period-

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

Where,

$N_{y,i,j}$ = Number of improved cookstoves of type i and batch j operating during year y x (1-10%) (considering 10% voluntary reduction in the number of stoves in operation)

= Number of improved cookstoves of type i and batch j operating during year y x 0.9

$B_{y,savings,i,j}$ for y=1= 2.87 tons

$B_{y,savings,i,j}$ for y=2= 2.83 tons

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

$f_{NRB,y}$ = 0.8920

$EF_{wf,CO2} + EF_{wf,non\ CO2}$ = 112 + 26.23 = 138.23 tCO₂/TJ

Thus, $ER_{y,i,j}$ for Madhya Pradesh= 593,188 tCO₂e (Round Down)

Hence, the total number of ERs for the current monitoring period for the cook stoves distributed in both Madhya Pradesh and Assam are-

= (112,527+593,188)

= 705,715 tCO₂e.

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-2023 to 31-December-2023	705,715	0	0	705,715	0	705,715
Total	705,715	0	0	705,715	0	705,715

For projects required to assess permanence risk: **Not Applicable**

i) Provide the requested information using the table below:

State the non-permanence risk rating (%)	Not Applicable
Has the non-permanence risk report been attached as either an appendix or a separate document?	☐ Yes ☒ No
For ARR and IFM projects with harvesting, state, in tCO ₂ e, the Long-term Average (LTA).	Not Applicable

Has the LTA been updated based on monitored data, if applicable?	☐ Yes ☒ No
State, in tCO ₂ e, the expected total GHG benefit to date.	Not Applicable
If a loss occurred (including a loss event or reversal), state the amount of tCO ₂ e lost:	Not Applicable

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-2023 to 31-December-2023	8,38,394	705,715	-15.83%	The ex-ante estimation of emission reduction was based on the assumption that all installations would occur on the first day of the crediting period. However, in actual execution, not all project ICS installations were completed on the first day of the crediting period. As a result, the emission reduction achieved during the monitoring period was lower than the ex-ante estimation for the same period.
Total	8,38,394	705,715	-15.83%	

APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

Section	Information	Justification
NA	NA	NA