



SMG - COOKSTOVE PROGRAM 3

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CONTENTS

1	PROJECT DETAILS.....	4
1.1	Summary Description of the Project	4
1.2	Sectoral Scope and Project Type.....	4
1.3	Project Eligibility.....	5
1.4	Project Design	5
1.5	Project Proponent	8
1.6	Other Entities Involved in the Project	9
1.7	Ownership.....	9
1.8	Project Start Date	9
1.9	Project Crediting Period	9
1.10	Project Scale and Estimated GHG Emission Reductions or Removals	9
1.11	Description of the Project Activity	10
1.12	Project Location.....	14
1.13	Conditions Prior to Project Initiation	16
1.14	Compliance with Laws, Statutes and Other Regulatory Frameworks.....	Error! Bookmark not defined.
1.15	Participation under Other GHG Programs	17
1.16	Other Forms of Credit.....	18
1.17	Sustainable Development Contributions.....	19
1.18	Additional Information Relevant to the Project.....	20
2	SAFEGUARDS	21
2.1	No Net Harm	21
2.2	Local Stakeholder Consultation	21
2.3	Environmental Impact	21
2.4	Public Comments	21
2.5	AFOLU-Specific Safeguards	21
3	APPLICATION OF METHODOLOGY.....	22
3.1	Title and Reference of Methodology	22
3.2	Applicability of Methodology	22
3.3	Project Boundary	24
3.4	Baseline Scenario	24

3.5	Additionality	25
3.6	Methodology Deviations	26
4	QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS	26
4.1	Baseline Emissions	26
4.2	Project Emissions	26
4.3	Leakage.....	26
4.4	Net GHG Emission Reductions and Removals	26
5	MONITORING	27
5.1	Data and Parameters Available at Validation.....	28
5.2	Data and Parameters Monitored.....	31
5.3	Monitoring Plan.....	37
APPENDIX		43

1 PROJECT DETAILS

1.1 Summary Description of the Project

The main objective of this effort is to improve the livelihoods of rural and tribal communities in the project area by providing them with improved cookstoves, employment opportunities and raising awareness of GHG emissions, and biodiversity. Through this community engagement project, we plan to introduce and teach clean cooking practices, reduce household air pollution (HAP) and thereby reduce health risks among households, rural and tribal. The project proposes to replace the traditional high GHG emission and low efficiency stoves used in rural areas in the project area with improved stoves (ICS), which are more thermally efficient and cause less pollution, air pollution.

The project not only aims to reduce greenhouse gas emissions but also creates a domino effect in the community by:

- providing employment opportunities through stove maintenance, • reducing firewood collection time
- reduce the risk of assault experienced by women while collecting firewood
- and improve the overall health of families affected by household air pollution (PAH) due to the use of old and traditional stoves

The project proponent comes from the project area and aspires to restore and improve the livelihoods of the community. The proponent is also registered with the Government of India under the Companies Act. The project proponent will also facilitate and coordinate the distribution of the improved stoves. These improved stoves will be manufactured by accredited ICS manufacturers that meet the criteria for project eligibility and target efficiency.

The initial project location is all of India and we will expand to other Asian and African countries in the following parts of the project. Further location details are provided below in Section 1.10. Through this project, improved stoves (ICS) will replace traditional stoves and three-stone stoves. These ICSs burn more efficiently and improve heat transfer to the pot, thereby saving fuel and reducing greenhouse gas (GHG) emissions. The baseline for the project is for the targeted people to continue using firewood in the project area to meet their thermal energy needs provided by our innovative stoves (ICS) when the project is inactive.

Currently, one instance of the project activity is scheduled to include the delivery of 30,000 ICS. This number is subject to change during implementation and will be updated. Average annual GHG emission reduction from the first project activity instance is 113,622 tCO₂e for 30,000 Cook Stoves.

1.2 Sectoral Scope and Project Type

This project involves the distribution of energy efficient cookstoves which fall under the category of efficiency improvements in thermal applications. The ICS which will be distributed under this

project has a thermal efficiency of 35.4% or 0.354. The thermal efficiency is better than the traditional stoves and thus results in energy efficiency improvement and does not exceed the equivalent of 60 giga watt hour thermal (GWhth) per year of energy savings. Hence the project activity is eligible in Sectoral scope 3 i.e., energy demand under the scope of the VCS Program.

The Sectoral Scope and Project Type:

- Sectoral Scope: 03
- Project Type: Type II – Energy Efficiency Improvement Project
- This is a grouped project.

1.3 Project Eligibility

This project involves installation of energy efficient cookstoves which fall under the category of efficiency improvements in thermal applications. The Shri Stove+ which will be distributed under this project has a thermal efficiency of 35.4% or 0.354. The thermal efficiency is better than the traditional mud or three-stone stoves and thus results in energy efficiency improvement. Therefore, the project activity is eligible in Sectoral scope 3 i.e., energy demand under the project activity is eligible in Sectoral scope 3 i.e., energy demand under the scope of the VCS Program.

1.4 Project Design

- ☐ The project includes a single location or installation only
- ☐ The project includes multiple locations or project activity instances, but is not being developed as a grouped project
- ☒ The project is a grouped project

Eligibility Criteria

For the inclusion of new project activity instances:

No.	Criterion	How the new project activity instances to comply
1.	Meet the applicability conditions set out in the methodology applied to the project	New project activity instances (Energy Efficient Cook Stoves) will meet the applicability conditions set out in Section 3.2 where the target of the end-user is household and the ICS deployed is at least 25% of thermal efficiency.
2.	Use the technologies or measures specified in the project description.	The technology used for project activity is energy efficient improved cook stoves. Only energy efficient cook stoves will be adopted in the project which will

		replace traditional cook stoves. Project stove is more efficiently work with wood instead of charcoal.
3.	Apply the technologies or measures in the same manner as specified in the project description.	Only energy efficient cook stoves to be adopted in the project by replacing traditional cook stoves in household.
4.	Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	The new project activity instances will be installed within India initially and will expand the same for other countries and subject to the same baseline scenario determined in Section 3.4.
5.	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	All new project activity instances will use the activity method for demonstration of additionality. Step 1: Regulatory Surplus There is no mandated government programme or policy in host country of this project ensuring the distribution/installation of new energy efficient cook stoves for each project activity instances. Step 2: Positive List The inclusion of new project activity instances will comply with positive list as it satisfies criterion 1 where it meets all the applicability conditions of the methodology. Project activity installs or distributes stoves at zero cost to the end-user and has no other source of revenue other than the sale of GHG credits, the project activity shall be deemed additional. Project activity is not implemented as part of government schemes or supported by any multilateral funds; the project activity shall be deemed additional.
6.	Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit. Further, no single cluster of project activity instances	No project activity instance shall exceed the applicable limit, which is 180 GWh_{th}/y. Since the project activity instance have the same model, hence expected annual energy saving for each instance is 0.000576 GWh per year. As per

shall exceed the capacity limit, determined as follows: Each project activity instance that exceeds one percent of the capacity limit shall be identified. Such instances shall be divided into clusters, whereby each cluster is comprised of any system of instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters. None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any of the clusters to exceed the capacity limit.	section 2.2 para 4, AMS-II.G, the aggregate energy savings of a single project activity shall not exceed the equivalent of 60 GWh per year in fuel input, which satisfy the condition. Each project activity instance is within capacity limit of thermal energy saving of 180 GWh_{th}/y and does not exceed the capacity limit. Also, each project activity instance is not within 1 Km, thus cluster of project activity instances is not applicable.
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Along with above points, the Inclusion of New Project Activity Instances follows below criteria

Grouped projects provide for the inclusion of new project activity instances after the initial validation of the project.

No.	Criterion	How the new project activity instances to comply
1.	Occur within one of the designated geographic areas specified in the project description	New project activity instances (Energy Efficient Cook Stoves) will be occurred in the designated geographic areas specified in the project description.
2.	Comply with at least one complete set of eligibility criteria for the inclusion of new project activity instances. Partial compliance with multiple sets of eligibility criteria is insufficient.	New project activity instances will comply with complete set of eligibility criteria as mentioned above for the inclusion of new project activity instances.

3.	Be included in the monitoring report with sufficient technical, financial, geographic, and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/verification body.	New project activity instances information will be included in the monitoring report with sufficient technical, financial, geographic, and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/verification body
4.	Be validated at the time of verification against the applicable set of eligibility criteria	New project activity instances should be included by validating eligibility criteria as mentioned in this document
5.	Have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance (i.e., the date upon which the project activity instance began reducing or removing GHG emissions)	New project activity instances ownership needs to be evidenced from start date of respective project activity instance.
6.	Have a start date that is the same as or later than the grouped project start date	New project activity instances start date should be after the start date of grouped project activity
7.	Be eligible for crediting from the start date of the instance through to the end of the project crediting period (only). Note that where a new project activity instance starts in a previous verification period, no credit may be sought for GHG emission reductions or removals generated during a previous verification period (as set out in Section 3.4.4 of VCS standard version 4.1) and new instances are eligible for crediting from the start of the next verification period	New project activity instances are eligible to claim credits from crediting period start date to the end of the project crediting period

1.5 Project Proponent

Organization name	Shri Maa Marketing Pvt. Ltd.	
Contact person	Mr. Deep Ram Gupta	
Title	Vice President – Green Projects	
Address	Plot 1, Sector C, Govindpura Industrial Area, Bhopal, India – 462023	
Telephone	+91- 989 375 8888	
Email	deep.gupta@shrimaagroup.in	

1.6 Other Entities Involved in the Project

No other entities involved.

1.7 Ownership

The project proponent, Shri Maa Marketing Pvt. Ltd. has funded the entire project and has its full ownership and also has VCU's ownership.

During the registration of Shri Stove+, the participating household (end user or stove owner) signs a declaration highlighting that they agree to transfer ownership rights of carbon assets generated by the installation and use of Shri Stove+ to Shri Maa Marketing Pvt Ltd. The project stove is completely manufactured by Shri Maa Marketing. So, there is no such funder details/debt/equity.

1.8 Project Start Date

01-December-2022 (expected start date for commissioning of the first batch of ICS).

1.9 Project Crediting Period

01 December 2022 to 30 November 2030, seven years renewable crediting period. Can be renewed 2 more times bringing the total crediting period to twenty-one years.

1.10 Project Scale and Estimated GHG Emission Reductions or Removals

The estimated annual GHG emission reductions/removals of the project are:

- ☐ <20,000 tCO₂e/year
- ☐ 20,000 – 100,000 tCO₂e/year
- ☒ 100,001 – 1,000,000 tCO₂e/year

☐ >1,000,000 tCO₂e/year

The project activity falls under small-scale project category since the annual average GHG emission reductions are less than 300,000 tCO₂e

Project Scale	
Project	☒
Large project	☐

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
Year 1 (01-December-2022 to 30-November-2023)	178,326
Year 2 (01-December-2023 to 30-November-2024)	154,073
Year 3 (01-December-2024 to 30-November-2025)	131,433
Year 4 (01-December-2025 to 30-November-2026)	110,408
Year 5 (01-December-2026 to 30-November-2027)	90,998
Year 6 (01-December-2027 to 30-November-2028)	73,202
Year 7 (01-December-2028 to 30-November-2029)	57,020
Total number of crediting years	7
Average annual ERs	113,622

1.11 Description of the Project Activity

The project involves distribution of fuel-efficient improved cookstoves (ICS) which are Environmental management systems (ISO 14001:2015), and BIS (Bureau of Indian Standard) approved state of art and of environmentally sound technology. These stoves will replace the standard cookstoves used in the project area household. The ICS will have an average lifespan of 7 years and an efficiency of 35.40%. The ICS to be deployed through the project is a single pot, portable stove which improves the efficiency of combustion and the thermal transfer to the pot compared to the traditional or three-stone stove. This is made possible by incorporating energy efficient technology which provide a conductive environment for clean and efficient combustion of biomass. This technology also helps in substantially reducing the biomass fuel consumption compared to the traditional stove or the three-stone stove.

Technical specifications of Cook Stoves for all project activity instance from manufacturer Shri Maa Marketing Pvt. Ltd.

Technical details			
A	Cook Stove type/Category	Shri Stove Natural Draft	
B		Utensil Stand	Utensil stand is designed keeping in mind the different vessel sizes that communities may use on a daily basis. It goes through a surface chemical treatment process post manufacturing, including 6-tank dips and a hot galvanizing dip to enhance its life and prevent from corrosion.
		Covering Body	Outer covering body is designed for higher durability, keeping in mind more-than-average wear and tear of the stove. It is made up of aluminum, which prevents corrosion and lasts longer. A set of heat insulating bake-lite handles is attached to the body to maneuver stove easily
		Insulating Skirt	Insulating skirt is designed using the aerodynamics principle to ensure oxygen-rich air reaches the top of stove to provide maximum heat at the surface of the utensil for faster and more efficient cooking. It is also designed to maximize the insulation of heat and prevent from corrosion.

	Shri Stove Components	Heat Chamber	Heating chamber is made up of steel to maximize durability and minimize corrosion. The outer chamber has diamond-cut holes to control the flow of air. It also has a layer of our proprietary geo-thermal coating which is approved by an accredited institute to further insulates heat and enhances life.	
		Stove Base	Sturdy stove stands are placed at the base of the stove that has precisions holes for primary flow of air. It goes through a surface chemical treatment process post manufacturing, including 6- tank dips and a hot galvanizing dip to enhance its life and prevent from corrosion.	
		Glass Wool	For extra insulation of heat, we give an option to add a layer of high-quality glass wool surrounding the conical skirt. It prevents from heat leakages throughout the surface and enables communities to cook more efficiently.	
		Wood Stand	A heavy-duty stand that is built using steel wires is included with the stove for users to be able to have the flexibility to use longer wood sticks, without having to chop them	
C	Operational Life	7 Years		
D	Parameters	Unit	Shri Stove+	
	Weight	g	3500+	
	Top Diameter	cm	26	
	Bottom Diameter	cm	26	
	Stove top thickness	cm	0.1	
	Combustion chamber diameter	cm	12	
	Combustion chamber height	cm	22.3	

	Length of primary air inlet	cm	15.5
	Height of primary air inlet	cm	12.9
	Area of primary air inlet	sq.cm	200
	Number of primary air holes	cm	21
	Pot rest height	cm	2
	Pot rest length	cm	8
	Distance of handles from stove body	cm	6.5
	Stove height above ground	cm	4
	Length/Diameter of the Grate	cm	12
	Number of Holes on the Grate	nos.	56 holes
	Length of Wood Rest	cm	30
	Skirt Height	cm	21.2
	Skirt Thickness	cm	0.1
	Skirt Diameter – Top	cm	13
	Skirt Diameter – Bottom	cm	19
E	Energy efficiency	35.4 %	

Data collection of the ICS end-user:

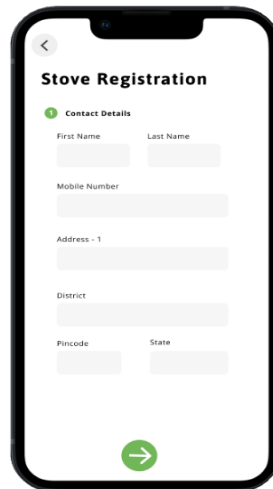
Each ICS will be given a unique serial number which will be stored in a mobile application developed by the project proponent. During the distribution and installation of ICS, the team will have a mobile application, which will be used to take picture of installation along with beneficiary and will include the following basic information for tracking and monitoring mechanism:

- Name of the ICS User/ Head of the household
- Address of the ICS User
- Contact Number of ICS User
- The serial number of ICS, wherever applicable along with pictures
- Date of installation
- Installer's name and number

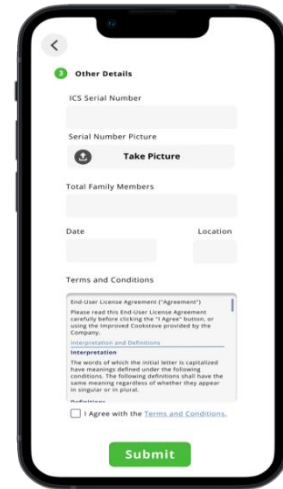
Here are some screenshots of the app, we will be using to register user and monitor ICS usage:



People helping us distribute ICS will be able to log-in to our app



App will help people register ICS users with along with their details



Stove serial number, its picture and terms & conditions for the ICS

Measures undertaken:

The project proponent will work with local non-profits, head of tribes, and head of villages to identify families living in villages of project area. We will set following parameters to select households: Type and condition of house, Availability of regular usable clothes, Protection of food or food security, Availability of drinking water, Heights /Level of literacy, Source of livelihood goods, Number of children in age group (5 to 14), and households not covered under any government schemes.

The household filtered by these parameters will be provided with an improved cook stove system. These household considered as end users of cook stoves are poor enough to not being able to afford cook stoves and are also least interested towards investment as plenty of

firewood is available for free. So, in absence of the improved cook stove the household would have continued with traditional cooking practice.

1.12 Project Location

The project will initially undertake within the boundary of India and specifically in the underserved and untapped tribal communities of the country. The project will later then expand into other Asian and African countries.

The initial project instance will begin in Central India, specifically in the states of Madhya Pradesh.

The geographical boundary for the project located in India are in the form of extreme geographic coordinates of India as follows:

Latitude - $8^{\circ} 4'$ to $37^{\circ} 6'$ N

Longitude - $68^{\circ} 7'$ to $97^{\circ} 25'$ E

This information can be verified from the following link:

- https://en.wikipedia.org/wiki/Geography_of_India



1.13 Conditions Prior to Project Initiation

The conditions prior to the project initiation is the continued use of non-renewable biomass (firewood) to meet their thermal energy requirements. It is estimated that 90% of the rural

India's population still cooks food using biomass fuel¹. The women also spend over 6 – 7 hours every week collecting firewood for the mud/three-stone cookstoves. Through this project we aim to reduce the use of fossil fuels and biomass needed to cook food. The primary objective of this project is to decrease the reliance on fossil fuels and biomass for cooking purposes. Initially, the project will be implemented in Madhya Pradesh and Chhattisgarh, as mentioned earlier. Currently, Madhya Pradesh is the fourth poorest state in India, with Alirajpur being the country's poorest district, comparable to Sierra Leone in Sub-Saharan Africa. Despite welfare schemes and reservations in education or employment, a significant portion of the population remains impoverished.

Alirajpur, located in the westernmost region of Madhya Pradesh, is recognized as the poorest district in India, with a staggering poverty rate of 76.5%. It is a tribal-dominated area with a significant forest cover that is gradually diminishing. After conducting surveys among tribal communities in our project area, it was evident that a substantial proportion of the population relies on traditional biomass stoves and kerosene for cooking. In the absence of improved cookstoves (ICSs), they will continue using these high greenhouse gas-emitting methods for their daily cooking needs. The Indian government has no objections or restrictions regarding the use of these methods, and illegal wood logging provides easy and free access to firewood, further discouraging the adoption of more efficient cooking methods. As a result, rural households, as highlighted in a study by the National Institute of Science, Technology & Development Studies (NISTADS), CSIR, New Delhi, cannot afford or choose not to opt for improved cookstoves due to the aforementioned reasons, unless ICSs are made accessible to them at a substantial subsidy or even free of charge.

The baseline scenario in the project areas of Madhya Pradesh and Chhattisgarh involves the predominant use of traditional cookstoves, specifically fixed mud clay stoves and three-stone stoves. These stoves have been in use for generations and are primarily utilized for cooking, heating, and boiling water. Baseline surveys were conducted to assess the current practices in each specific region.

In the first project instance, which took place in the Chhindwara district of Madhya Pradesh, surveys were conducted across 10 villages between November 3rd, 2022, and December 12th, 2022. The surveys provided information on respondent family details, stove usage practices, fuel collection and consumption patterns, current issues faced, and perceptions of adopting a new Improved Cookstove (ICS). Trained local field teams(SMG Buddies) conducted the surveys.

¹ [Promoting improved cookstoves can benefit rural households \(researchmatters.in\)](https://researchmatters.in/)

From the baseline survey results of the first project instance, it was found that 80% of families use traditional fixed mud clay stoves, while 20% use three-stone stoves. Over 85% of respondents use their stoves inside the household. On average, each stove consumes approximately 8-9 kilograms per day of firewood as the sole fuel source. The firewood is obtained directly from forests, with some cases involving occasional purchases from other community members.

The traditional stoves are used for an average of 4.5 hours per day throughout the year, primarily for cooking, boiling water, and room heating. Additionally, an estimated 12-15 hours per week are spent on sourcing, carrying, and processing firewood. Women play a central role in stove usage and firewood gathering, with stove-related activities being primarily undertaken by female members in the community.

The baseline surveys revealed that over 98% of respondents were dissatisfied with their current stoves and expressed interest in receiving a new ICS. Common issues reported included encounters with wild animals, injuries from wood-cutting tools, allergies from exotic plant species, exposure to toxic smoke causing health issues, and physical strain associated with collecting firewood.

Respondents also highlighted the challenges of localized smoke, time-consuming tasks, and the significant quantity of firewood required. Reasons for continuing to use traditional stoves despite these issues included a lack of awareness about alternative stoves, the perceived expense of alternative fuel sources, the abundance of firewood, and the manageability of their current stoves in terms of handling and maintenance.

Overall, the baseline surveys provide valuable insights into the prevailing conditions and challenges associated with traditional cookstove usage in the project areas.



Figure 1: Images highlight daily cooking practices in our project areas; Women and young girls use open fires,

1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

According to the Ministry of Environment and Forests (MoEF), Government of India, under the Environment Impact Assessment Notification² vide S.O.1533(E), dated 14/09/2006; the project activity of utilization of Improved Cookstove for cooking in rural households does not require environmental impact assessment study to be carried out.

The project is a voluntary effort by project proponent. Though, the government of India promotes use of clean fuel e.g., LPG, however due to the initial capital cost and operating cost, the usage levels are low and most of the rural households still use traditional stoves for cooking. There is no specific concern made on improved cookstoves project from the above laws and regulations.

1.15 Participation under Other GHG Programs

1.15.1 Projects Registered (or seeking registration) under Other GHG Program(s)

The project is neither registered nor seeking registration under any of the current GHG programs. The project has also not participated under any other GHG programme.

1.15.2 Projects Rejected by Other GHG Programs

The project participant hereby declares that it has not been rejected by any other GHG programme.

1.16 Other Forms of Credit

1.16.1 Emissions Trading Programs and Other Binding Limits

Does the project reduce GHG emissions from activities that are included in an emissions trading program or any other mechanism that includes GHG allowance trading?

☐ Yes ☒ No

If yes, provide the name of the other program(s) under which the project has sought or received another form of GHG-related credit.

1.16.2 Other Forms of Environmental Credit

Has the project sought or received another form of GHG-related credit, including renewable energy certificates?

☐ Yes ☒ No

If yes, provide the name of the other program(s) under which the project has sought or received another form of GHG-related credit.

1.16.3 Supply Chain (Scope 3) Emissions

Have the owner(s) or retailer(s) of the impacted goods and services posted a public statement saying, “VCUs may be issued for the greenhouse gas emission reductions and removals associated with Shri Maa Group (OYU Green), Shri Stove + since the project’s start date.

☐ Yes

☒ No

Has the project proponent posted a public statement saying, “VCUs may be issued for the greenhouse gas emission reductions and removals associated with Shri Stove + in project location by Shri Maa Group (OYU Green).

☐ Yes

☒ No

Have the producer(s) or retailer(s) of the impacted good or service been notified of the project and the potential risk of Scope 3 emissions double claiming via email?

☐ Yes

☒ No

Not applicable as negligible.

1.17 Sustainable Development Contributions

The project contributes in various ways toward the social, environmental, economic, and technological benefits for continuous development of not only the environment but also the country:

Social Benefits:

- Improves overall health of the women and children by reducing household air pollution (HAP), which in turn decreases health hazards
- Faster cooking time - the materials used in making ICS transmit the heat effectively cooking the food faster
- The cooking environment is better due to less smoke and carbon residue in the kitchen
- Reduces drudgery to women (due to reduced fuelwood use) who spend long hours and travel long distances to collect fuelwood
- Better quality of life – the rural communities get more family time as the whole family can sit and eat together

Environmental benefits:

- Improves the local environment by reducing the rate of degradation of forests and deforestation in the project location

- Reduces global and local environmental pollution and environmental degradation by less usage of non-renewable biomass thus leading to a reduction in GHG emissions
- Reduces the indoor pollution – the ICS emits very less smoke when compared to the traditional three-stone chulhas used in most of the project area. This lower smoke helps in reducing respiratory diseases and other health hazards, as well as medical expenditure.
- Requires less water and effort to clean vessels and kitchen since less smoke is generated

Economic benefits:

- Employment will be generated in the project area through the maintenance of the improved cookstoves in the project area
- Reduce the cost of purchase of fuelwood, if any and/or increases wage equivalent time as it reduces firewood collection time

Technological Benefits:

- Helps introduce newer technologies to the rural communities.
- Transfers knowledge to users, trainers and technicians for usage and maintenance of ICSs
- Influences other communities in different states to adopt to better and more efficient practices

1.18 Additional Information Relevant to the Project

Leakage Management

Leakage is accounted in line with the requirements of the latest version of AMSII.G Version 13.

According to section 5.1 Tool12, the leakage emissions produced due to transportation are considered negligible in comparison to the project emission reduction, which is negligible by below mentioned equation.

$$\frac{PE_{TR,m}}{LE_{TR,m}} = \sum_f D_{f,m} \times FR_{f,m} \times EF_{CO2,f} \times 10^{-6}$$

Commercially Sensitive Information

No commercially sensitive information has been hidden from this public version of the project description.

Further Information

No further information.

2 SAFEGUARDS

2.1 No Net Harm

No potential negative environmental or socio-economic impact have been identified for the project, according Ministry of Environment and Forests (MoEF), Government of India, under the Environment Impact Assessment Notification vide S.O. 1533 (E), dated 14/09/2006. Instead, the project will bring positive impacts on the environmental and socio-economic aspects to the project area as mentioned in section 1.16.

2.2 Local Stakeholder Consultation

The Efficient Cookstove (Shri Stove+) Distribution Program aims to promote the use of clean and efficient cookstoves in Indian households, which has the potential to improve the health and livelihoods of thousands of people, reduce carbon emissions, and support sustainable development. To ensure the program's success, it is crucial to engage with stakeholders, and understand their needs, concerns, and suggestions. Therefore, a stakeholder consultation meeting was organized to raise awareness about the program in Khaikheda, District Khargone, Madhya Pradesh, India. During the meeting, our representatives discussed the program's details and benefits, including the positive outcomes for the entitled community and village households. This stakeholder consultation report summarizes the findings of the consultations and provides recommendations for the program.

2.3 Environmental Impact

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

2.4 Public Comments

This section will be completed after 30 days public comment period.

2.5 AFOLU-Specific Safeguards

This section is not applicable as the project is a non-AFOLU project.

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

The following approved baseline & monitoring methodology is applied:

Methodology: VMR0006 version 1.2 Methodology for Installation of High Efficiency Firewood Cookstoves

Version: 1.2

Date of Issue: 22-07-2021

Sectoral Scope: Scope 03 – Efficiency Improvement

- <https://verra.org/verra-releases-revised-cookstove-methodology/>

This methodology also refers the latest version of AMS II.G version 13 - Energy efficiency measures in thermal applications of non-renewable biomass

- <https://cdm.unfccc.int/methodologies/DB/GNFWB3Y6GM4WPXFRR2SXKS9XR908IO>

For calculation of fraction of non-renewable biomass, the below tool is used “TOOL30: Calculation of the fraction of non-renewable biomass”

- <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v3.0.pdf>

3.2 Applicability of Methodology

S. No.	VCS Methodology requirement	Project Justification
1.	Project activities shall be implemented in domestic premises, or in community-based kitchens.	The project will replace the traditional or three-stone cookstoves in households of tribal/ rural communities of project area.
2.	The project stove shall have specified high-power thermal efficiency of at least 25% per the manufacturer’s specifications and shall exclusively use woody biomass and can be single pot or multi-pot; in case of project stove replacing fossil fuel baseline stove, it shall exclusively use renewable biomass.	The stoves that are being planned to be deployed in the project area have a thermal efficiency of 35.40% as per the manufacturer’s specifications. The single pot improved cookstoves distributed under the current project activity are designed to use woody biomass and hence the project activity complies to the applicability requirement of the methodology.

3.	Both 'Projects' and 'Large Projects' can use this methodology.	Each project activity instance is considered as a project in itself that fulfills the conditions of methodology; hence it will be under the 'project' part.
4.	Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports, or statistics	The justification for the presence of the use of non-renewable biomass is demonstrated below.
5.	For the specific case of biomass residues processed as a fuel (e.g., briquettes, wood chips), it shall be demonstrated that: (a) It is produced using exclusively renewable biomass (more than one type of biomass may be used). (b) The consumption of the fuel should be monitored during the crediting period and (c) Energy use for renewable biomass processing (e.g., shredding and compacting in the case of briquetting) may be considered as equivalent to the upstream emissions associated with the processing of the displaced fossil fuel and hence disregarded.	The ICS is being introduced as an energy efficient replacement to the traditional & three-stone stoves and to also reduce the use of non-renewable biomass. The consumption of the fuel used in project activity will be monitored. The utilization of Briquettes along with their manufacturing and transportation will be monitored to calculate the emissions.
6.	The CDM-PDD or CDM-PoA-DD/CPA-DD shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo)	Every improved cookstove that will be distributed will have a unique serial number. During the distribution, the serial number and the exact location of ICS sold will be recorded in our app. No double counting of emission reductions occurred due to unique identifications of product and end-user location.
7.	The CDM-PDD or CDM-PoA-DD/CPA-DD shall also explain how the proposed	The manufacturer or the cook stove distributors will make sure that no double

	procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	counting for carbon emission takes place. All the credit that is generated from the project will be owned by the project proponent, i.e., Shri Maa Marketing Private Limited.
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3.3 Project Boundary

Source	Gas	Included	Justification/Explanation
Baseline	CO ₂	YES	Major Source
	CH ₄	YES	Major Source
	N ₂ O	YES	Major Source
Project	CO ₂	YES	Major Source
	CH ₄	YES	Major Source
	N ₂ O	YES	Major Source



Figure 2: Baseline Boundary highlighting the usage of traditional cookstove



Figure 3: Project Boundary highlighting the usage of Shri Stove+

3.4 Baseline Scenario

The baseline scenario for the project is the continued use of non-renewable biofuel in the project area by the targeted people to meet their thermal energy needs as provided by our Improved Cookstoves (IC) in absence of the project activity.

3.5 Additionality

The methodology uses activity method for the demonstration of additionality

Activity Method:

Step 1: Regulatory Surplus

There is no mandated government program or policy in host country (Nepal) of this project ensuring the installation of domestic fuel-efficient cookstoves. The project is not mandated by any law, statute, or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework.

Households may only participate voluntarily in this project. It is hereby confirmed that the proposed project is a voluntary coordinated action by Shri Maa Marketing Pvt Ltd.

Step 2: Positive List

As per the section 3.2, this project meets the applicability conditions of the methodology which represents the positive list.

The project is not implemented as part of any government scheme or supported by any multilateral funds. In these communities to promote the usage of improved cookstoves, they are distributed at no cost and hence the project proponent relies on carbon revenues to cover their cost, as explained in section 1.4, eligibility criteria. The inclusion of new project activity instances will comply with positive list as it satisfies criterion 1 where it meets all the applicability conditions of the methodology. Project activity installs or distributes stoves at zero cost to the end-user and has no other source of revenue other than the sale of GHG credits, the project activity shall be deemed additional.

Project activity is not implemented as part of government schemes or supported by any multilateral funds,

Conclusion: As the project fulfils the conditions above, it is deemed additional.

3.6 Methodology Deviations

Not applicable as no methodology deviations took place.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

The methodology does not account for baseline emissions separately, but instead quantifies net emission reductions achieved by the project based on the reduced consumption of non-renewable biomass, as per methodology VMR0006 v1.2 and the approach of AMS-II.G.

4.2 Project Emissions

The methodology does not account for project emissions separately, but instead quantifies net emission reductions achieved by the project based on the reduced consumption of non-renewable biomass, as per methodology VMR0006 v1.2 and the approach of AMS-II.G. Please refer to section 4.4.

4.3 Leakage

Leakage is considered as per latest version of AMS II G version 13 in accordance with the methodology. Leakage emission is explained in detail in section 4.4.

4.4 Net GHG Emission Reductions and Removals

The equations 1 and 2 of the methodology is considered and applied to calculate the net Green House Gas emission reductions.

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

Where:

i	Indices for the situation where more than one type/model of improved cook stove is introduced to replace three-stone fire
j	Indices for the situation where there is more than one batch of improved cook stove of type i
ER_y	Emission reductions during year y in t CO ₂ e
$ER_{y,i,j}$	Emission reductions by improved cook stove of type i and batch j during year y in t CO ₂ e
LE_y	Leakage emissions in the year y (tCO ₂ e)

Where:

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

$B_{y,savings,i,j}$	Quantity of woody biomass that is saved in tonnes per improved cookstove of type i and batch j during year y
$f_{NRB,y}$	Fraction of woody biomass that can be established as non-renewable biomass (f_{NRB})
$NCV_{wood\ fuel}$	Net calorific value of the non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne)
EF_{wf,CO_2}	CO ₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO ₂ /TJ)
$EF_{wf,non\ CO_2}$	CO ₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 9.46tCO ₂ /TJ)
$N_{y,i,j}$	Number of improved cook stoves of type i and batch j operating during year y

Leakage Emission due to transportation of project stove

$$\left. \begin{matrix} PE_{TR,m} \\ LE_{TR,m} \end{matrix} \right\} = \sum_f D_{f,m} \times FR_{f,m} \times EF_{CO2,f} \times 10^{-6}$$

$PE_{TR,n}$ = Project emissions from transportation of freight monitoring period m (t CO₂)

$LE_{TR,n}$ = Leakage emissions from transportation of freight monitoring period m (t CO₂)

$D_{f,n}$ = Return trip distance between the origin and destination of freight transportation activity f in monitoring period m (km)

$FR_{f,n}$ = Total mass of freight transported in freight transportation activity f in monitoring period m (t)

$EF_{CO2,f}$ = Default CO₂ emission factor for freight transportation activity f
(g CO₂/t km)

f = Freight transportation activities conducted in the project activity in monitoring period m

5 MONITORING

5.1 Data and Parameters Available at Validation

Data / Parameter	NCV _{wood fuel}
Data unit	TJ/Tonne
Description	Net calorific value of the non-renewable woody biomass that is substituted or reduced
Source of data	Default as per applied approved methodology VMR0006
Value applied	0.0156

Justification of choice of data or description of measurement methods and procedures applied	Default value as per applied approved methodology
Purpose of Data	Calculation of emission reduction
Comments	-

Data / Parameter	f_{NRB}
Data unit	Fraction
Description	Efficiency of project stove at the start of project activity
Equations	2
Source of data	As per CDM TOOL30 version 4
Value applied	0.8755
Justification of choice of data or description of measurement methods and procedures applied	This parameter must be determined ex-ante
Purpose of Data	Calculation of $ER_{y,i,j}$
Comments	$H = (HW \times N) + CE + NE$

Data / Parameter	EF_{WF, CO_2}
Data unit	tCO ₂ /TJ
Description	CO ₂ emission factor for the use of wood fuel in baseline scenario
Source of data	Default as per applied approved methodology VMR0006
Value applied	112

Justification of choice of data or description of measurement methods and procedures applied	Default value as per applied approved methodology
Purpose of Data	Calculation of emission reductions
Comments	-

Data / Parameter	EF _{WF, non-CO2}
Data unit	tCO ₂ /TJ
Description	Non- CO ₂ emission factor for the use of wood fuel in baseline scenario
Source of data	Default as per applied approved methodology VMR0006
Value applied	9.46
Justification of choice of data or description of measurement methods and procedures applied	Default value as per applied approved methodology
Purpose of Data	Calculation of emission reductions
Comments	-

Data / Parameter	η_{old}
Data unit	Fraction
Description	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 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.
Purpose of Data	Calculation of emission reductions
Comments	-

Data / Parameter	η_p
Data unit	Fraction
Description	Efficiency of project stove at the start of project activity
Source of data	Manufacturer specification
Value applied	0.354
Justification of choice of data or description of measurement methods and procedures applied	The parameter shall be determined ex-ante
Purpose of Data	Calculation of emission reductions
Comments	-

5.2 Data and Parameters Monitored

Data / Parameter	$N_{y,i,j}$
Data unit	Number
Description	Number of project devices of type i 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. Sampling standard shall be used for determining the sample size to achieve 90/10 confidence precision according to the latest version of Standard for sampling and surveys for CDM project activities and program of activities.
Frequency of monitoring/recording	At least once every two years
Value applied	For ex-ante emission reduction calculation, it is assumed that the project will distribute up to 30,000 ICS for project activity instance
Monitoring equipment	Monitoring Survey
QA/QC procedures to be applied	Describe the quality assurance and quality control (QA/QC) procedures to be applied, including the calibration procedures where applicable.
Purpose of data	Calculation of emission reductions
Calculation method	Proportion of operational stoves obtained from the survey is multiplied by the total commissioned stoves to arrive at this value
Comments	-

Data / Parameter	$\eta_{\text{new},i,j}$
Data unit	Fraction
Description	Efficiency of the device of each type i and batch j implemented as part of the project activity
Source of data	Manufacturer specification or Certification by a national standards body or an appropriate certifying agent recognized by that body
Description of measurement methods and procedures to be applied	To adopt Option V given in the methodology: "Efficiency of the improved cookstoves to be estimated using equation 5 of applied approved methodology where loss in efficiency per year is calculated, and therefore this parameter does not need to be monitored"

Frequency of monitoring/recording	Annual																
Value applied	0.354 at start of operations <table border="1"> <thead> <tr> <th>Year (y)</th><th>$\eta_{new,i,j}$</th></tr> </thead> <tbody> <tr> <td>Year 1</td><td>34.30%</td></tr> <tr> <td>Year 2</td><td>32.10%</td></tr> <tr> <td>Year 3</td><td>29.90%</td></tr> <tr> <td>Year 4</td><td>27.70%</td></tr> <tr> <td>Year 5</td><td>25.50%</td></tr> <tr> <td>Year 6</td><td>23.30%</td></tr> <tr> <td>Year 7</td><td>21.10%</td></tr> </tbody> </table>	Year (y)	$\eta_{new,i,j}$	Year 1	34.30%	Year 2	32.10%	Year 3	29.90%	Year 4	27.70%	Year 5	25.50%	Year 6	23.30%	Year 7	21.10%
Year (y)	$\eta_{new,i,j}$																
Year 1	34.30%																
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Year 3	29.90%																
Year 4	27.70%																
Year 5	25.50%																
Year 6	23.30%																
Year 7	21.10%																
Monitoring equipment	Not Applicable																
QA/QC procedures to be applied	Not Applicable																
Purpose of data	Calculation of emission reductions																
Calculation method	As per equation para 37 of AMS II G: A default schedule of linear decrease in efficiency up to the terminal efficiency assumed as 20 per cent shall be applied through the life span of the project device																
Comments	2.2 % of linear decrease in efficiency is applied																

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

Source of data	Monitoring Data
Description of measurement methods and procedures to be applied	Minimum sample size of each type i and batch j should be in line with the latest version of Standard for sampling and surveys for CDM project activities and programme of activities or 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 survey. Sample surveys to estimate this parameter, that are solely based on questionnaires or interviews (i.e. that do not implement measurement campaigns) may only be used if the following conditions are satisfied. (i) Baseline cookstoves have been completely decommissioned and only improved cookstoves are exclusively used in the project households; (ii) If multiple devices are used in the project, it is possible from the results of the survey questions to clearly differentiate the quantity of firewood being used by each device. In other words, if more than one device, or another device that consumes firewood, are in use in project households, then the sample survey needs to distinguish the quantity of firewood used by the project device and the other devices that use firewood.
Frequency of monitoring/recording	Determined in the first year of project implementation
Value Applied	For ex-ante calculation, the value is assumed to be 4.04kg/device/day or equal to 1.474 tonnes/device/year.
Monitoring equipment	Monitoring Survey
QA/QC procedures to be applied	Not Applicable
Purpose of data	Calculation of emission reductions
Calculation method	Not Applicable
Comments	-

Data / Parameter	Life Span
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Data unit	Number of years
Description	The operating lifetime of the project device. The life span should be reported if the methodology equation 5 is adopted to determine the project stove efficiency
Source of data	Manufacturer specification
Description of measurement methods and procedures to be applied	The data source as per manufacturer specification
Frequency of monitoring/recording	Once at the time of installation of batch of type of stove
Value Applied	7
Monitoring equipment	Not Applicable
QA/QC procedures to be applied	Not Applicable
Purpose of data	Calculation of emission reductions
Calculation method	Not Applicable
Comments	-

Data / Parameter	Date of commissioning of batch j
Data unit	Date
Description	To establish the date of commissioning, the Project Participant may opt to group the devices in “batches” and the latest date of commissioning of a device within the batch shall be used as the date of commissioning for the entire batch.
Source of data	Project Database

Description of measurement methods and procedures to be applied	Fixed and recorded at the time of commissioning/distribution of the last project device in the batch
Frequency of monitoring/recording	Fixed and recorded at the time of commissioning/distribution of the last project device in the batch
Value Applied	Expected Start Date January 1, 2023
Monitoring equipment	Not Applicable
QA/QC procedures to be applied	Not Applicable
Purpose of data	Calculation of emission reductions
Calculation method	Not Applicable
Comments	-

Data / Parameter	μ_y
Data unit	Fraction
Description	Adjustment to account for any continued use of pre-project devices during the year y
Source of data	Monitoring survey
Description of measurement methods and procedures to be applied	This parameter should be monitored using one of the following methods: If the baseline cookstoves are decommissioned and no longer used, as determined by the monitoring survey its value is 0 and Bold, adjusted is equal to Bold. If both the improved cookstove and baseline cookstoves are used together then surveys shall be conducted to record the average continued operation of baseline cookstoves in a sample of households. The surveys should be designed to capture the cooking habits and stove usage of households in the region, including quantification of use of baseline cookstoves, by formulating questions and/or collecting evidences to determine

	the frequency of usage of both the improved cookstoves and baseline cookstoves.
Frequency of monitoring/recording	At least once in 2 years
Value Applied	1
Monitoring equipment	Monitoring survey
QA/QC procedures to be applied	A 95 /10 confidence / margin of error shall be achieved for the sampling parameter irrespective of annual / biennial monitoring frequency as per para 22 of Standard: Sampling and surveys for CDM project activities and program of activities, Version 07.0. In the case the desired precision is not met, lower bound values shall be used against repeating the survey to determine the operational fraction of stoves.
Purpose of data	Calculation of emission reductions
Calculation method	Not Applicable
Comments	-

5.3 Monitoring Plan

The main purpose of this monitoring plan is to ensure a successful monitoring of carbon emission reduction in the above-mentioned project area. The overall monitoring will be conducted by project participant: Shri Maa Marketing Pvt Ltd, India.

The monitoring will involve data collection during distribution of ICSs as well as its usage information post distribution. Project participant has developed its proprietary cloud-based mobile application that will be used to gather end-user data, including customer contact details along with identification number, wherever applicable and photographs of customers receiving ICS. Following details stored on the app will be available real-time for any analysis:

- Name of the customer
- Address of the customer
- Phone Number of the customer
- Customer's government identification
- Total number of family members

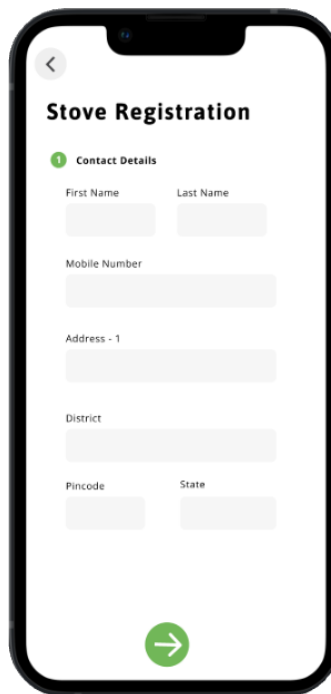
- Date of ICS distribution

After distribution monitoring will involve choosing a sample of ICS customers from several districts/ villages where ICS has been distributed and these locations will be visited for verification. Other methods that will be used for monitoring will involve calls to random customers to get updates about ICS and its performance. All the data collection and handling will be done in a transparent way on the mobile application and will be available on the cloud server to be accessed anytime. If any uncertainty occurs, it will be rectified, and a revised monitoring plan will be implemented

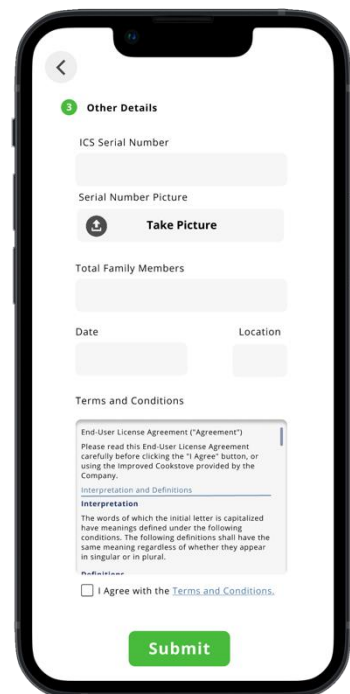
Attaching below the screenshots of mobile application that will be used to store, analyze, and monitor customer and ICSs:



People helping us distribute ICS will be able to log-in to our app



App will help people register ICS users with along with their details



Govermennt ID, customer picture, and stove details will be uploaded

As per the Guideline for Sampling and Surveys for CDM Project Activities and Programme of Activities, version 04, the sampling plan is the following:

(a) Sampling Design:

Due to the large number of ICS envisioned to be distributed as part of the project activity, it is not economically feasible to monitor each individual ICS unit distributed. Therefore, representative sampling will be undertaken as part of a project instance-wide Sampling Plan (by grouping and sampling across project activities) that is designed in line with the requirements of the “Sampling and surveys for CDM project activities and programme of activities”, version 04.

○ Objective and Reliability Requirements:

The objective is to obtain an unbiased and reliable estimate of the proportion or mean value of the following key variables over the course of the crediting period. As per CDM Methodology AMS- II.G, 90/10 confidence/precision shall be applied for annual sampling requirement and 95/10 for biennial sampling inspection. As per Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities, 90/10 confidence/precision to be adopted for small-scale project and 95/10 for large-scale project. Given that the size of the project is under the category of small projects, hence 90/10 confidence/precision shall be adopted for all parameters unless the average annual emission reductions of the project below the threshold

Monitored Parameters:

S. No.	Monitoring Parameters	Sampling Parameters	Parameter Type	Monitoring Frequency
1.	$N_{y,i,j}$	Proportion of ICS still in operation	Proportion	Biennially
2.	$B_{y=1,new,i,j,survey}$	Daily consumption of woody biomass per ICS	Mean Value	Determined in the first year of project implementation

Target Population:

The target population will be set of ICS deployed under the project.

Sampling Method:

The project involves distribution of ICS throughout the project area where it will replace the traditional cookstoves and the traditional cooking practices. The population is heterogeneous in nature i.e., common technology with similar operating characteristics but dispersed i.e., distribution of ICS is spread across different districts within Madhya Pradesh, Chhattisgarh, Uttar Pradesh. The population consists of sub-populations which are homogeneous called as Strata. The characteristics of population (for example quantity of biomass consumed) are more similar within the stratum (ICS of same type, vintage and zone in which they are operating) than across the strata. Therefore, Stratified Sampling technique will be used to conduct sampling survey among ICS batches.

The populations of each batch will be combined together, the sample size is determined, and a single survey will be undertaken to collect data. To ensure the survey result is representative of the entire population, the dissimilarity (such as ICS type, vintage and zone in which they are operating) within the included CPAs will be taken into account in the sample size calculation. The ICS of same type, vintage and zone in which they are operating will be grouped in the same strata. Samples will be drawn by using the random number generator.

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

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

Sample Size:

The procedure to determine the sample of households will ensure that they adequately represent the broader project population, minimizing sampling error. Using, a 90 per cent confidence level, and a 10 per cent margin of error, a random sample will be selected from each strata.

In order to calculate the required sample size estimates, values for the proportions, mean values, and standard deviations are required. As per Guideline for Sampling and surveys for CDM project activities and programmes of activities, version 04.0, there are different ways available to obtain the estimates of the parameter of interest:

- (a) Refer to the result of previous studies and use these results.
- (b) In a situation where information from previous studies is not available, a preliminary sample as a pilot could be conducted and use that sample is used to provide the estimates.
- (c) Use best guesses based on the researcher's own experiences.

Proportion Parameter

To estimate the sample size for proportion parameters, the following equation is used:

$$n \geq \frac{1.96^2 N V}{(N-1) \cdot 0.1^2 + 1.96^2 \cdot V}$$

Where:

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

n		Sample Size
N		Population Size (Total number of households or ICS)
p		Weighted overall expected mean
SD²		Weighted overall expected variance
1.96		Represents the 95% confidence required (In the case of 90% confidence, 1.645 shall be used)
0.1		Represents the 10% relative precision

Sample Size Calculator:

Proportion Parameter:

To estimate the sample size for proportion parameters, the following equation is used:

$$n \geq \frac{1.96^2 N V}{(N-1) \cdot 0.1^2 + 1.96^2 \cdot V}$$

Where:

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

n		Sample Size
N		Population Size (Total number of households or ICS)
p		Weighted overall expected mean
SD²		Weighted overall expected variance
1.96		Represents the 95% confidence required (In the case of 90% confidence, 1.645 shall be used)
0.1		Represents the 10% relative precision

We will plan to collect more samples than the required/ calculated sample size from the above method.

The representatives will check the identified sample stoves. These details will include name, number, address, government ID, etc. The data collection will take after 3-month of distributing the ICSs.

APPENDIX

Use appendices for supporting information. Delete this appendix (title and instructions) where no appendix is required.