SMG - COOKSTOVE PROGRAM 20

Contact Information: Plot 1, Sector C, Govindpura Industrial Area, Bhopal, India - 462023

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CONTENTS

1 PROJECT DETAILS

1.1 Summary Description of the Project

The central objective of this initiative is to improve the well-being of rural and tribal communities in the specified project area. This will be achieved through the provision of enhanced cookstoves, job opportunities, and the promotion of awareness about greenhouse gas emissions and biodiversity. A core aspect of this community engagement effort is introducing and educating individuals on clean cooking practices, with the aim of reducing household air pollution and associated health risks for households in rural and tribal regions.

To achieve these aspirations, the project aims to substitute traditional stoves, which are known for their inefficiency and significant greenhouse gas emissions, with advanced cookstoves known as Improved Cook Stoves (ICS). These ICS exhibit higher thermal efficiency and generate fewer pollutants, thereby contributing to a reduction in air pollution. Nevertheless, the project's effects extend beyond environmental advantages, producing positive transformations within the community by:

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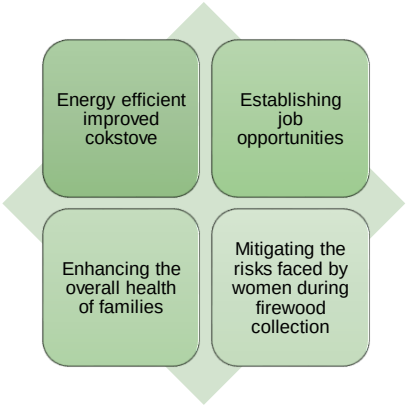


The project is driven by a strong commitment to community well-being and holds official registration under the Companies Act with the Government of India. It will oversee the distribution of improved stoves manufactured by certified ICS manufacturers, adhering to project standards. The central focus is to replace traditional three-stone stoves with efficient Improved Cook Stoves (ICS) that optimize combustion efficiency, conserving fuel and reducing emissions.

The project's starting point takes into account the ongoing use of firewood for thermal energy needs when the project is not yet operational. In its initial phase, the project aims to deliver 30,000 ICS units, with the potential for adjustments during the implementation stage. The projected annual reduction in greenhouse gas emissions resulting from this phase is estimated at approximately 113,183 metric tons of CO_2 equivalent, attributed to the deployment of these 30,000 Cook Stoves.

1.2 Sectoral Scope and Project Type

This project entails distributing energy-efficient cookstoves, classified as thermal efficiency improvements in thermal applications. The ICS to be distributed boasts a thermal efficiency of 35.4% (0.354), surpassing traditional stoves and leading to enhanced energy efficiency. This falls within the eligibility criteria of Sectoral Scope 3, specifically addressing energy demand, under 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 initiative centers around the introduction of energy-efficient cookstoves, characterized as enhancements in thermal application efficiency. The chosen product for distribution in this project is the Shri Stove, with an impressive thermal efficiency of 35.4% (0.354). This surpasses the thermal efficiency of traditional mud or three-stone stoves, leading to a significant enhancement in energy efficiency. As a result, the project activity aligns with Sectoral Scope 3, specifically addressing energy demand, within the scope of the VCS Program's eligibility criteria.

1.4 Project Design

☒ 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 shall exceed the capacity limit, determined as follows:	No project activity instance shall exceed the applicable limit, which is 180 GWh_{th}/y.

	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.	

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 fully funded and owns the entire project, including the Verified Carbon Units (VCUs). As part of the registration process for improved cookstove the participating households (end users or stove owners) sign a declaration agreeing to transfer ownership rights of the carbon assets generated from the installation and use of improved cookstove to Shri Maa Marketing Pvt. Ltd. Since Shri Maa Marketing is the sole manufacturer of the project stove, there are no external funder details, debts, or equity involved in the project.

1.8 Project Start Date

01- January-2023 (start date for commissioning of the first batch of ICS).

1.9 Project Crediting Period

01 January 2023 to 31 January 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	[X]
Large project	

Year	Estimated GHG emission reductions or removals (tCO_2e)
Year 1	170,562
Year 2	155,217
Year 3	132,409
Year 4	111,228
Year 5	91,674
Year 6	73,745
Year 7	57,444
Total number of crediting years	7
Average annual ERs	113,183

1.11 Description of the Project Activity

The project involves distributing environmentally friendly improved cookstoves (ICS) with ISO 14001:2015 and BIS approval. These stoves replace standard ones in households, with a 7-year lifespan and 35.40% efficiency. The portable ICS enhances combustion and thermal transfer through energy-efficient technology, lowering biomass fuel consumption.

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	**Shri Stove Components**	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.
		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

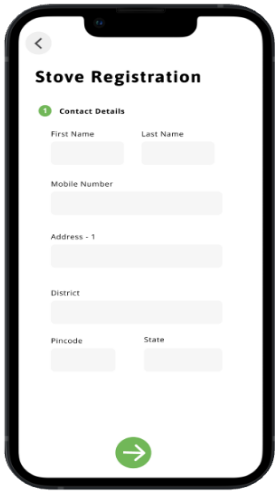
			hot galvanizing dip to enhance its life and prevent from corrosion.
		Glass Wool	For extra insulation of heat, we give an option to add a layer of high-quality glass wool surrounding the conical skirt. It prevents from heat leakages throughout the surface and enables communities to cook more efficiently.
		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 %	

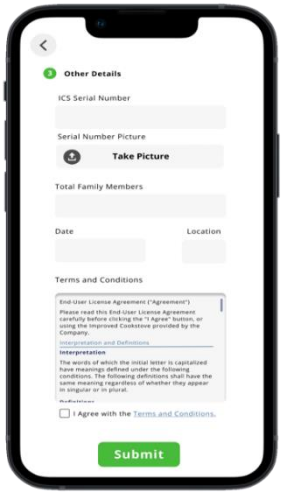
Data collection of the ICS end-user:

Each Improved Cookstove (ICS) will be assigned a unique serial number, which will be recorded within a mobile application developed by the project proponent. During the distribution and installation of the ICS units, a dedicated mobile application will be utilized to capture installation images, including those of the beneficiaries. This application will collect vital information, such as the user's name or head of the household, their address, contact number, the relevant serial number of the ICS, along with accompanying photographs, installation date, and the installer's name and contact details. These details are crucial for tracking and monitoring purposes. Below are some screenshots of the app we will use to register users 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

Strategies employed:

The project proponent will collaborate with local non-profit organizations, tribal leaders, and village leaders to identify families residing in the villages within the project area. The selection of households will be based on specific criteria, including:

- Type and condition of the house
- Availability of regularly usable clothing
- Food protection or food security measures
- Access to drinking water
- Literacy level or education status
- Source of livelihood resources
- Number of children in the age group of 5 to 14
- Households not covered by any government schemes

Households meeting these criteria will be eligible to receive an improved cookstove system. These households, classified as end users of the cookstoves, face economic disadvantages that prevent them from investing in cookstoves. Furthermore, they have limited interest in such investments due to the widespread availability of free firewood. Without access to improved cookstoves, these households would have continued using traditional cooking methods.

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 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°4' to 37°6' N

Longitude - 68°7' to 97°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

At the project's outset, rural India heavily relied on non-renewable biomass, primarily firewood, for cooking, with around 90% of households using traditional mud or three-stone cookstoves. This posed a significant burden, especially for women who spent 6-7 hours weekly collecting firewood.

The project's primary goal is to reduce dependence on fossil fuels and biomass for cooking. Despite efforts and welfare programs, Madhya Pradesh, particularly Alirajpur,[1] India's poorest district, faced persistent poverty. The tribal communities in this area primarily used traditional biomass stoves and kerosene, contributing to greenhouse gas emissions.

In the initial project phase in Madhya Pradesh, surveys conducted across ten areas revealed that 80% of families used traditional stoves, and 20% used three-stone stoves. Over 85% used stoves

[1] https://www.freepressjournal.in/bhopal/mn-buch-remembrance-lecture-alirajpur-poorest-district-in-india-degradation-of-environ-linked-to-poverty#:~:text=Alirajpur%20in%20MP%20is%20the,forest%20cover%2C%20more%20the%20poverty.

indoors, relying on firewood. These surveys highlighted challenges like wildlife encounters, injuries, health issues due to toxic smoke, and physical strain from firewood collection. Despite these challenges, most respondents expressed interest in acquiring Improved Cookstoves (ICS) as alternatives, citing a lack of awareness, perceived cost barriers, and the availability of firewood as reasons for sticking to traditional stoves.

1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

According to the Ministry of Environment and Forests (MoEF), Government of India[2], under the Environment Impact Assessment Notification3 vide S.0.1533(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)

[2] https://moef.gov.in/hi/

[3] http://www.environmentwb.gov.in/pdf/EIA%20Notification,%202006.pdf

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.

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

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 objective of the project device distribution program is to reduce indoor pollution among Indian households and promote the usage of clean and efficient cookstoves. This project could make a lot of people healthier and improve their lives, while also helping to decrease the pollution in the air and promote sustainable growth. To ensure the successful implementation of the project device, it is very important to address the problems, needs, and concerns of the stakeholders.

Therefore, a stakeholder consultation meeting was organized to raise awareness about the program. The meeting took place in the month of February, in the villages of Sehore, Betul and Raisen, district of Madhya Pradesh, India.

During this meeting, our representatives discussed the program's details and benefits, including positive outcomes for the entitled community and village households, ongoing communication with beneficiaries, grievance mechanisms, and program's objectives and societal impact. More information has been added to the stakeholder consultation report that has been compiled and will be shared with the VVB.

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 procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	The manufacturer or the cook stove distributors will make sure that no double 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.

3.3 Project Boundary

Source		Gas	Included	Justification/Explanation
Baseline	Emission from use of non- renewable biomass/Fossil fuel	CO_2	YES	Major Source
		CH_4	YES	Major Source
		N_2O	YES	Major Source
Project	Emission from use of non- renewable biomass/Fossil fuel	CO_2	YES	Major Source
		CH_4	YES	Major Source
		N_2O	YES	Major Source

Figure 1: Baseline Boundary highlighting the usage of traditional cookstove

Figure 2: 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 shall be 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

Project activities that are replacing baseline devices using non-renewable biomass must apply the equations of AMS-II.G. (except Equations 1, 2 and 3) to determine net GHG emission reductions. The following equation replaces Equations 1 and 2 of AMS-II.G.

$$ER_y = \sum_i \sum_j B_{y,savings,i,j} \times N_{0,i,j} \times n_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times \left(EF_{wf,CO2} + EF_{wf,non\ CO2}\right) \times Adj_{LE} \times (1 - u_d) \quad (1)$$

Where:

ER_y	=	Emission reductions in year y (tCO_2e)
$B_{y,savings,i,j}$	=	Quantity of woody biomass that is saved per project device i and batch j in year y (tonnes)
$N_{0,i,j}$	=	Number of project devices of type i and batch j commissioned (number)[6]
$n_{y,i,j}$	=	Proportion of commissioned project devices of type i and batch j ($N_{0,i,j}$) that remain operating in year y (fraction)
μ_y	=	Adjustment to account for any continued use of pre-project devices during the year y
$f_{NRB,y}$	=	Fraction of woody biomass that can be established as non-renewable biomass (%)
$NCV_{biomass}$	=	Net calorific value of the non-renewable woody biomass that is substituted or reduced (TJ/tonne)[7]
$EF_{wf,CO2}$	=	CO_2 emission factor for non-renewable woody biomass (tCO_2/TJ)
$EF_{wf,non\ CO2}$	=	Non-CO_2 emission factor for non-renewable woody biomass (tCO_2e/TJ)
Adj_{LE}	=	Adjustment factor to account for leakage related to the non-renewable woody biomass saved by the project activity (fraction)
u_d	=	Uncertainty deduction for fnrb (%)

Leakage Emission due to transportation of project stove

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

PETR,n = Project emissions from transportation of freight monitoring period m (t CO2)

LETR,n = Leakage emissions from transportation of freight monitoring period m (t CO2)

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

FRf,n = Total mass of freight transported in freight transportation activity f in monitoring period m (t)

EFCO2,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

Vintage period	Estimated baseline emissions (tCO_2e)	Estimated project emissions (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated reduction VCUs (tCO_2e)	Estimated removal VCUs (tCO_2e)	Estimated total VCUs (tCO_2e)
01-January-2023 to 31-December-2023	170,668	*0*	106.21	-	-	170,562
01-January-2023 to 31-December-2024	155,217	*0*	0	-	-	155,217
01-January-2023 to 31-December-2025	132,409	0	0	-	-	132,409
01-January-2023 to 31-December-2026	111,228	0	0	-	-	111,228
01-January-2023 to 31-December-2027	91,674	0	0	-	-	91,674
01-January-2023 to 31-December-2028	73,745	0	0	-	-	73,745
01-January-2023 to 31-December-2029	57,444	0	0	-	-	57,444

Total	792,385	0	0	-	-	792,279

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 is determined in ex-ante
Purpose of Data	Calculation of ERy,i,j
Comments	H = (HW × N) + CE +NE

Data / Parameter	$EF_{WF, CO2}$
Data unit	tCO2/TJ
Description	CO2 emission factor for the use of wood fuel in baseline scenario
Source of data	Default as per applied approved methodology VMR0006 ver 1.2
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	$EF_{WF, non\text{-}CO2}$
Data unit	tCO2/TJ
Description	Non- CO2 emission factor for the use of wood fuel in baseline scenario
Source of data	Default as per applied approved methodology VMR0006 ver 1.2
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} (η_{BL})
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	Test results from accredited laboratories following national or international standards
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	Test results from accredited laboratories following national or international standards;
Purpose of Data	Calculation of emission reductions
Comments	-

Data / Parameter	Adj_{LE}
Data unit	Fraction
Description	Adjustment factor to account for leakage related to the non-renewable woody biomass saved by the project activity
Source of data	The procedures from the latest version of AMS-II.G. must be applied.
Equations	(1)
Value applied	0.95
Justification of choice of data or description of measurement methods and procedures applied	Procedure of underlying methodology AMS-II.G.
Purpose of Data	Calculation of emission reductions
Comments	-

Data / Parameter	u_d
Data unit	%
Description	Uncertainty deduction for fnrb
Source of data	The procedures from the latest version of AMS-II.G. must be applied.
Equations	(1)
Value applied	0.26
Justification of choice of data or description of measurement methods and procedures applied	The following uncertainty deduction must be applied, depending on the procedure for frnb used from AMS-II.G.: fnrb is calculated as per TOOL30 then, ud = 26%(As per VMR0006 ver 1.2)
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	η_{PJ}
Data unit	Fraction

<table>
<tr><td>Description</td><td>Efficiency of the device of each type i and batch j implemented as part of the project activity</td></tr>
<tr><td>Source of data</td><td>Manufacturer specification or Certification by a national standards body or an appropriate certifying agent recognized by that body</td></tr>
<tr><td>Description of measurement methods and procedures to be applied</td><td>-</td></tr>
<tr><td>Frequency of monitoring/recording</td><td>-</td></tr>
<tr><td>Value applied</td><td>0.354 at start of operations

<table><tr><td>Year (y)</td><td>$\eta_{new,i,j}$</td></tr><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></table></td></tr>
<tr><td>Monitoring equipment</td><td>Not Applicable</td></tr>
<tr><td>QA/QC procedures to be applied</td><td>Not Applicable</td></tr>
<tr><td>Purpose of data</td><td>Calculation of emission reductions</td></tr>
<tr><td>Calculation method</td><td>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</td></tr>
<tr><td>Comments</td><td>2.2 % of linear decrease in efficiency is applied</td></tr>
</table>

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 5.5kg/device/day or equal to 2.0075 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
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	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 goal of this monitoring plan is to ensure the effective monitoring of carbon emission reduction in the project area mentioned above. The responsibility for overseeing the monitoring process lies with the project participant, Shri Maa Marketing Pvt Ltd in India.

The monitoring process will involve two essential phases: data collection during the distribution of Improved Cookstoves (ICS) and the subsequent collection of usage information after distribution. To facilitate this process, the project participant has developed a specialized mobile application hosted on the cloud. This application will act as a tool to collect vital end-user data, encompassing customer contact details, relevant identification numbers, and photographs capturing the moment when customers receive the ICS units. The collected data

will be accessible in real-time for analysis. The following user details will be gathered and stored:

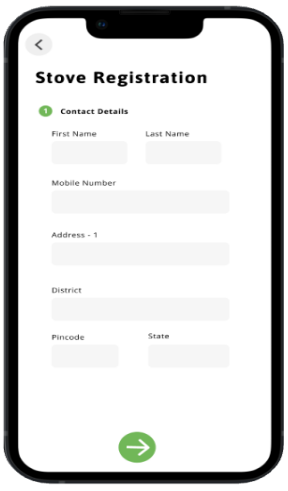
- ✓ Name of the customer
- ✓ Customer's address
- ✓ Customer's phone number
- ✓ Government identification of the customer
- ✓ Total number of family members
- ✓ Date of ICS distribution

Post the distribution phase, the monitoring activities will include selecting a representative sample of ICS customers from various districts and villages where the ICS units were distributed. These locations will be visited to validate the collected information. Additionally, alternative monitoring methods will be utilized, including random calls to customers, to gather updates about the performance and usage of the ICS units.

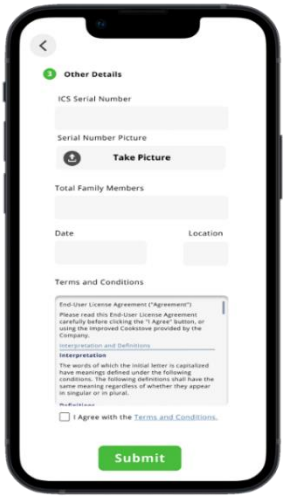
All processes for data collection and management will maintain a transparent approach through the mobile application. The information will be securely stored on a cloud server, ensuring access at any given time. If any uncertainties or discrepancies arise, corrective measures will be taken to rectify the situation, and an adjusted 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



Governemnt 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
SD^2		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
SD^2		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.