IMPROVED COOKSTOVES FOR COMMUNITIES BY INFINITE SOLUTIONS

Document Prepared by Infinite Solutions

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Prepared By	Manas Katiyar
Contact	Milinda manor 214-215, RNT marg, Indore, MadhyaPradesh, 452001

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1 PROJECT DETAILS

1.1 Summary Description of the Project

The project activity involves the promotion of improved cooking stoves (ICS) to the local community in the multiple states of India with initial distribution in the Harda and Betul districts of Madhya Pradesh and further distribution in other states of India. The project anticipates providing the households with clean cooking solutions; thereby, displacing the less efficient traditional cooking stoves used in the baseline (in this case less efficient three stone cookstoves) from the kitchen through efficient Improved cookstoves technologies. Their old cookstoves with low efficiency and high greenhouse gas emitting would be replaced with ICS. The implementation of the project activity will result in the reduction of firewood consumption & consequent emissions from combustion sustainable leading to climate change mitigation. Overall objectives of the project activity are to reduce greenhouse gases emissions, conservation of forests and woodlands while improving the health conditions of ICS users due to less emission and improve indoor air quality for everyday cooking.

The scenario existing prior to the implementation of the project activity instances is the usage of traditional biomass and inefficient cookstoves with poor ventilation, causing excessive indoor air pollution (IAP) and has been a serious health risk for women and children who spend several hours in the kitchen.

Infinite Solutions is the project participant ("PP") for this project activity. Outreach Projects Pvt. Ltd. have facilitated the distribution of ICS for rural households in India. The project activity will enable the dissemination of ICS manufactured by appropriate ICS manufacturers and technology suppliers is Swami Samarth Electronics Pvt. Ltd.

The project activity is projected to implement 10,00,000 cookstoves in the multiple states of India with an initial distribution of 2000 cookstoves. The Project activity has started distribution of Improved Cookstoves from Nov 20th, 2021, - and looking forward to distributing more. The estimated annual emission reductions for this crediting period are 29,61,855.84 tCO2e and 4,23,122.26 tCO2e/year

1.2 Sectoral Scope and Project Type

The project activity under consideration is not grouped.

Sectoral Scope: 03 Energy Demand.

Project Type: Type II Energy Efficiency Improved cookstoves project.

1.3 Project Eligibility

The project activity includes the distribution of single pot improved cooking devices at the household level with the minimum efficiency of 29.6 % to replace three-stone open cooking methods used in the baseline. Non-renewable biomass has been used in the project region since 31 December 1989, and wood has been widely used as a fuel for cooking in the baseline, it has been confirmed from the literature [1]. The project activity is a voluntary initiative of the project implementer and meets all the requirements of VCS Standard 4.1.

Methodology:

Project activities supported by a methodology approved under the VCS Program activity includes methodology VMR0006: Methodology for Installation of High-Efficiency Firewood Cookstoves.

Hence, the project is eligible under the scope of the VCS Program.

1.4 Project Design

Project is a single installation project activity and is not a grouped project activity:

☐ 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

Project activity is not a grouped project activity; hence this section is not applicable.

1.5 Project Proponent

Organization name	Outreach Projects Pvt. Ltd.
Contact person	Deepak Jain
Title	Director
Address	214-215, Milinda manor, R.N.T Marg, Indore, 452001
Telephone	+917314050174
Email	deepak@infisolutions.org

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

1.6 Other Entities Involved in the Project

Organization name	Infinite Solutions
Role in the project	Project developer (Carbon consultant)
Contact person	Jimmy Sah
Title	COO
Address	214-215, Milinda manor, R.N.T Marg, Indore, 452001
Telephone	+917314050174
Email	Jimmy@infisolutions.org

1.7 Ownership

The improved cookstoves distributed and installed under this project activity owned by Infinite Solutions and distributed by Outreach projects Pvt. Ltd. as a voluntary contribution towards climate change mitigation and community development.

1.8 Project Start Date

The first ICS batch was commissioned on 20/11/2021. Thus, the project starts date is 20/11/2021.

1.9 Project Crediting Period

Project Crediting Period: Renewable twice (21 years)

Start Date: 20/11/2021 (First operating day of the project activity ICS).

End date: 19/11/2028

1.10 Project Scale and Estimated GHG Emission Reductions or Removals

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

☐ <20,000 tCO_2e/year

☐ 20,000 – 100,000 tCO_2e/year

☒ 100,001 – 1,000,000 tCO_2e/year

☐ >1,000,000 tCO_2e/year

The project proponent is planning to distribute cookstoves in multiple phases for 3 years and each cookstove has a lifetime of 10 years.

Project Scale	
Project	
Large project	X

Year	Estimated GHG emission reductions or removals (tCO_2e)
19/12/2021-19/12/2022	2,34,898.60
19/12/2022-19/12/2023	4,49,620.00
19/12/2023-19/12/2024	6,14,064.08
19/12/2024-19/12/2025	5,21,954.47
19/12/2025-19/12/2026	4,43,661.30
19/12/2026-19/12/2027	3,77,112.10
19/12/2027-19/12/2028	3,20,545.29[2]
Total estimated ERs	29,61,855.84
Total number of crediting years	07 years
Average annual ERs	4,23,122.26

1.11 Description of the Project Activity

The project will be broadly implemented in multiple states India, which is jurisdiction under the host country of India. Improved cookStoves distributed under this project activity will target tribal population and households using traditional three-stone cookstoves and use open fires for cooking for a very long time.

The project activity will distribute improved and fuel-efficient cookstoves to households, a portable improved-efficiency stove manufactured in India by Swami Samarth Electronics PVT. LTD.

[2] These estimations are based on the preliminary feasibility study conducted for the project's eligibility to apply voluntary emission scheme. Estimated GHG emission reductions or removals (tCO2e) are going to be measured in detail and finalized in accordance with the methodologies applied to the project in the final version of this PD which will be submitted to a Designated operational Entity (DoE) for the project's validation.

The improved cookstove distributed for this project activity will have an average lifespan of 10 years with a thermal efficiency of about 29.6%. The project will replace three Stone cookstoves used in the baseline with Improved and fuel-efficient cookstoves

Most participant communities are poor tribal and highly dependent on the forest to fulfil their resource demand. This combination of forest fragmentation and fuelwood demand in the area drives the high reliance on fuelwood as the primary source for cooking fuel.

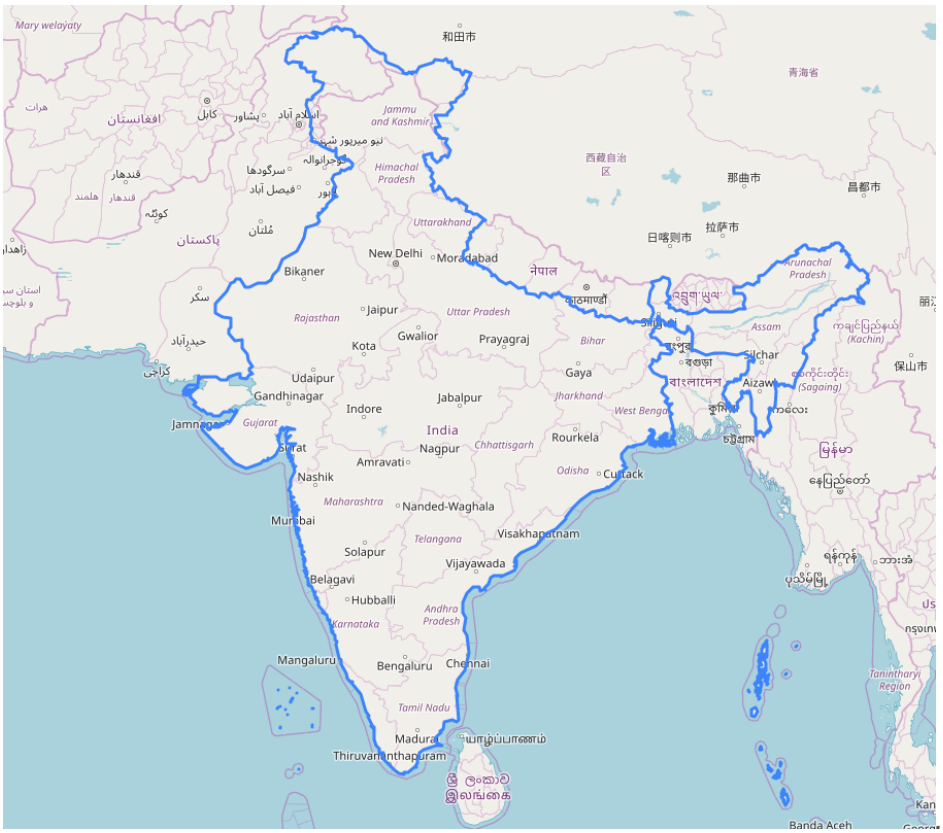
The project aims to reach disadvantaged people with clean cooking solution access in form of ICS. Project implementer trained people appropriately at the local level to cater for the households with stove maintenance and basic repairing. After the installation, representatives from the implementing entity performed paperwork and the stove is recorded in the database. A baseline survey was conducted and found that the people were using Three-Stone cookstoves in the baseline for cooking.

The ICS models are fuel-efficient, resulting in a decrease in fuel use in comparison to conventional pre-project stoves, project activity also helps in reducing particulate matter and indoor emissions. Design considerations for this project activity have also incorporated ergonomics and safety of the participants through manual and training were provided to project participants for use of the ICS.

The project will promote a smart stove which is an improved and efficient design. The main design improvement is the use of a prefabricated metallic or ceramic combustion chamber. This combustion chamber ensures consistent quality and durability of the ICS and will improve the lifespan of the stove with consistent performance in terms of efficiency, reduction of indoor air pollution and emissions, and safety. The metal or ceramic combustion chamber is surrounded by an isolative material, then the outer body is constructed in a cube shape, the stove incorporates an L-shaped combustion chamber and pot “skirt” to improve heat transfer and combustion efficiency during cooking activities. The combustion chamber consists of a horizontal fuel magazine and a vertical internal chimney. Wood is fed horizontally into the fuel magazine ensuring even combustion from one end and a more easily regulated feed rate. The internal chimney creates a draft, accelerating combustions gases from the fire. These gases are then forced through the skirt that surrounds the cooking pot. Greater convective heat transfer is the result of improved advection and increased surface area contact. With the high-power combustion, emission of indoor air pollutants is minimized rendering a smoke-free kitchen. It is pertinent to clarify that the project stove has a lifetime of 10 years which requires the stoves to be replaced after 10 years of installation

1.12 Project Location

Project activity would be in multiple states of India and distributed in phases. Thus, the geographical area of project activity is considered as India. The cookstove distribution is started in phases and the first batch is distributed in the state of Madhya Pradesh.



Project aims to distribute initial ics in the Madya pradesh state

Project Cordinates- 22.3467° N, 77.0890° E



1.13 Conditions Prior to Project Initiation

The scenario existing prior to the implementation of the project activity instances is the usage of traditional biomass in inefficient cookstoves with poor ventilation, causing excessive indoor air pollution (IAP) and has been a serious health risk for women and children who spend several hours in the kitchen.

The proposed project activity reduces the use and demand for fossil fuels and non-renewable biomass that would have been used in the replaced stove to achieve the same output (i.e., cooking daily meals and boiling hot water) with the ICS. This directly leads to reduced GHG emissions. Therefore, the project activity is implemented to generated GHG emissions reductions through clean cooking devices(Improved Cookstoves).

1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

There are no mandatory laws or regulations in the host country (India) requiring the introduction of ICS in India, the project includes the distribution of Improved cookstoves and is completely voluntary. The ongoing project does not violate any laws, statutes or other regulatory frameworks in India.

1.15 Participation under Other GHG Programs

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

The project activity has not been registered and is not seeking registration under any other GHG emission program to avail carbon benefits during the crediting period of the project activity.

1.15.2 Projects Rejected by Other GHG Programs

The project proponent hereby corroborates that the project activity has not been rejected by any other GHG program.

1.16 Other Forms of Credit

1.16.1 Emissions Trading Programs and Other Binding Limits

The net GHG emission reductions generated by the project activity will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions.

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

1.16.2 Other Forms of Environmental Credit

The project proponent hereby corroborates that the project activity has not created sought or received any other form of environmental credit:

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

☐ Yes ☒ No

1.17 Sustainable Development Contributions

Project's contribution to Sustainable Development-

The contributions of proposed project activity towards sustainable development are explained with indicators viz. social, economic, environmental, technological well-being, legislative and temporal as follows:

Environmental well-being

The project activity will result in the reduction of firewood consumption and emission of greenhouse gases and thus conserve forest and biodiversity.

Social well being

The project activity will pave the way for development and increase the social status living conditions and the prevailing living standard in the vicinity of the project activity thus resulting in empowering the nearby. Also, it will contribute to a small increase in local employment by employing skilled and un-skilled personnel for the operation and maintenance of the equipment. The project will reduce the drudgery of women, timesaving and the use of saved time for other productive activities.

Economic well being

The project has created a business opportunity during the construction phase for local stakeholders such as suppliers, contractors etc. contributing to economic well-being aspects. Further, the project also influences the creation of employment opportunities for local people, which would enhance their social status. Sufficiently enhance indoor air quality thereby improving the health of women and children and reducing incidences of smoke and fire-related injuries and therefore result in saving of health-related expenses.

Technological well being

The proposed project activity will promote improved cookstoves that result in reduced fuel consumption and emissions due to cooking and heating water in homes.

Legislative:

The Project Proponent has obtained all the relevant approvals required for the establishment and operation of the project activity

Contribution to Sustainable Development Goals (SGDs)	
No poverty - Clean cooking is part of the basic services necessary to lead a healthy and productive life and saves households time and money.	**Zero Hunger -** Efficient cookstoves reduce the amount of fuel needed to cook, thus reducing the

	burden on families who would otherwise have to collect it, buy it, or trade their food for it.
Good health and well-being- In India, exposure to indoor air pollution results in nearly 205000 death every year, mostly women and children, who also bear much of the burden of collecting firewood	**Gender Equality-** Increased access to clean cookstoves can reduce the health and safety issues caused by household air pollution and decrease the time women spend collecting cooking fuel.
Affordable and Clean energy- In India, only about 40 per cent of the households rely solely on clean fuel. The project will increase access to affordable and clean energy among the people of local communities.	**Decent Work and Economic Growth-** Reducing the time by 50% for local communities and time-saving will open doors for extra income generation work, this will empower women financially and give them greater household decision-making power.
Reduce Inequalities- Providing Clean energy is a goal, continued strategic efforts are required to effectively engage women within the energy sector as a primary method of reaching sustainable development and improved health.	**Climate Action -** Improved stoves use less firewood and produce less smoke, and they have been touted as a way to reduce greenhouse gas emissions and health effects from indoor air pollution, as well as to improve forest conservation.
Life on Land- ICS helps in conserving the forest and improving forest cover as well as reduce degradation.	

1.18 Additional Information Relevant to the Project

Leakage Management

There is no leakage for this project activity and the project activity is already including 0.95 as a discount factor.

Commercially Sensitive Information

Commercially sensitive information will mase available to VVB (Validation/Verification Body) on request.

Further Information

Not applicable.

2 SAFEGUARDS

2.1 No Net Harm

No negative impact of project activity. The project is implemented to reduce carbon emission from the open burning of fuelwood in three-stone cookstoves.

2.2 Local Stakeholder Consultation

The local stakeholder consultation under the grouped project activity was conducted on 07/10/2021 at Alamgarh, village Chicholi, district Betul. The stakeholder consultation was conducted at the group project activity level as the technology and its impact will be similar for all the project activities implemented in this group project activity. All interested stakeholders representing the following groups: traditional stove users, representatives from local self-help groups, field assistants working in the project, local leaders and NGO representatives attended the meeting.

The stakeholders were informed over phone and messaging applications app. Detailed contact information such as the phone number and email address of the representative of the project implementor has also made available for the stakeholders. A total of 38 participants attended the meeting.

The project representatives explained in detail the technology (ICS) to be employed. The detailed aspects of the grouped project activity including its objectives, associated benefits and environmental and socio-economic issues were also discussed.

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.

After the detailed presentation on the grouped project the participants got involved asking them questions regarding the ICS. The following excerpts were recorded during the meeting.

Ms Laxmi bisone asked, how new cookstoves could reduce smoke?	The ICS is designed in a way to reduce smoke. The project will replace conventional firewood stoves with higher efficiency, Clean Cookstove models. The models have improved cookstoves are fuel-efficient resulting in a decrease in fuel use while also reducing particulate matter and carbon emissions. The cookstoves reduce heat loss and improve heat transfer and combustion efficiency.
Ms Divya Bhagwe asked, does the project help in employment generation?	Yes. The project would make a significant contribution to the socio-economic development of the region, as it'll provide direct employment to villagers. The production of cookstoves will generate direct employment for the artisans and clay workers.
Ms Sangeeta bai asked, how efficient are the new cookstoves?	The traditional cookstoves had a thermal efficiency of around 10%. The new and improved cookstoves will provide a thermal efficiency of around 29.6%. This is more than 3 times the efficiency of the old cookstove
Ms Shanta bai asked, will everyone be able to gain access to the new cookstove and will any government	The project will primarily target vulnerable households. However, Clean cookstoves are available for all interested households.

subsidy be availed to buy the stoves?	The participation fee is defined according to the economic capacity of rural households. It is also possible to pay the subsidized price of the cookstove in monthly instalments lasting up to six months. A local woman will be assigned to collect the instalments from households that find it difficult to pay the sum at once.
Mr. Sunil Bishone asked, what about the time spent on cooking with the improved cookstove compared to the habitual stove?	Based on several tests conducted, the time required for cooking using an improved stove is significantly lesser than other traditional stoves. It is advanced by 10 minutes compared to the traditional stove.
Ms. Sangeeta Baagahe, what will be the lifetime of one new cookstove and if any breakage occurs, how to deal with it?	The Improved stoves have demonstrated the average lifespan of each cookstove as 10 years. The stoves or any part will be replaced if there occurs any breakage.
Ms. Bramha bai also asked, can the stoves be cleaned for spillage?	Yes. The stove can be wiped clean with a wet cloth after being used and after the body has cooled down.
Mr. Kokila asked, how will the community be able to access stoves once the project ends?	Using clean cooking methods is a behaviour change process by substituting the usual method by the efficient method of cooking. For the first step, we are looking for facilitating the access of clean stoves to the villagers; and secondly by making it as a normal way of cooking. Once the target population will be accustomed to this technology, they will continue to seek to use it. And to ensure the availability of stoves once the project is completed, we plan to find ways to make the factory still functional to produce stoves, and also, to reduce the production costs.
Mr. radha suggested that there should be a practical demonstration of cooking to sensitize the population on the use of the cookstove.	Infinite Solutions is considering various approaches for the promotion of cookstove in all regions of the country and we will discuss with our team and gather feedback through our field staff for developing the promotional scheme to create awareness among users on its short and long-term benefit.
Ms. Ritu asked the audience: What is the price they are willing to pay for a clean, efficient cookstove?	Most of the participants answered the price range in between INR 350 to INR 450. Some participants remarked about the challenges of lockdown and their inability to pay the sum at once. They were relieved to know about the credit-based scheme that would allow them to pay in instalments.













2.4 Public Comments

Public comments were received and addressed please refer to section 2.3 of this PDD.

2.5 AFOLU-Specific Safeguards

The project activity is not an AFOLU, hence this section is not required.

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

Following approved baseline & monitoring methodology is applied.

Methodology:

VMR0006- Methodology for Installation of High Efficiency Firewood Cookstoves. Ver: 1.1.

Sectoral Scope: 03

Tools:

CDM TOOL30: Calculation of the fraction of non-renewable biomass"; Version-03.

CDM Tool 1: Tool for the demonstration and assessment of additionality Version 07.0.0

CDM Tool 27: Investment analysis. Version 11.0.

3.2 Applicability of Methodology

The methodology measures below constitute the justification for the choice of the selected methodology by showing that project instances under the project activity meets each applicability condition of the methodology.

Sr. No	VCS Methodology requirement	Project justification
1.	The project stove is a single pot or multiport portable or an in-situ cookstove using only woody biomass. Additional requirement to demonstrate that the biomass used is solely renewable biomass for project activities replacing baseline stoves using fossil fuel.	The proposed instances will distribute high efficiency single-pot improved cookstove for thermal application, which will replace inefficient traditional cookstove leading to saving of non-renewable biomass/fossil fuels. The ICS to be distributed under the project activity is 1,00,000 stoves. All ICS in this project will replace existing traditional wood/fossil fuel-based stoves. therefore, no greenfield installations are included. Further, the project activity will utilize only renewable biomass under the project scenario. This criterion will be checked from data recorded on the baseline stove used prior to ICS installation.

2.	Project activities shall be implemented in domestic premises or in community-based kitchens	The project activity will replace traditional fossil fuel/wood-based stoves in individual households or community-based kitchens in rural/semi-urban areas.
3.	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 single pot portable improved cooking stoves planned to be distributed have a specified efficiency of 29.6% as per water boiling test in compliance with Tier II and above as per ISO as tested and certified by a third party.
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	Proof that biomass has been used in the project region, i.e., in the host country India since 31 December 1989 is available through widespread documentation. Report by (NCAER 1985)),department of statistics, Government of India reveals that 79% of the rural households in India were dependent on firewood and chips in the year 1987-881
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 introduced as an energy efficiency measure to replace baseline stoves and reduce the use of non-renewable biomass for combustion. a) The consumption of the fuel used in the project activity will be monitored. b) If briquettes utilization in project case the energy consumption for manufacturing of briquettes and transportation of briquette will be monitored to calculate project emissions
6.	The project description 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).	A record-keeping system and unique identification of the project device will be used. This will include username, user identification number and address/ location of the user's house and distribution date. The record-keeping system will ensure that each ICS can be traced to project instances to avoid double counting.

7.	The project description 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 project proponent will sign an end-user agreement with individual households/users to ensure only PP can claim the emission reduction. A default distribution agreement for end-users including the provision that emission reductions generated by the stove are owned by the PP will be provided for each user.
8.	The use of this methodology in a project activity under a programme of activities is legitimate if the following leakages are estimated and accounted for, as required on a sample basis using a 90/30 precision for the selection of samples: a) Use of non-renewable woody biomass saved under the project activity to justify the baseline of other CDM project activities can also be a potential source of leakage. If this leakage assessment quantifies a portion of non-renewable woody biomass saved under the project activity that is then used as the baseline of other CDM project activities then 0.95 is adjusted to account for the quantified leakage. b) Increase in the use of non-renewable woody biomass outside the project boundary to create non-renewable woody biomass baselines can also be a potential source of leakage. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass outside the project boundary, then adjusted to account for the quantified leakage. c) As an alternative to subparagraphs (a) and (b) leakage can be multiplied by a net to gross adjustment factor of 0.95 to account for both leakages, in which case surveys are not required.	The project participant chooses to account for all leakage in the project activity by applying the adjustment factor of 0.95 to the Bold,i,j.

9.	To determine the value of the fraction of non-renewable biomass (fNRB) to be applied in a component project activity (CPA) of a POA, use one of the two options as follows: (a)Conduct local own studies to determine the local fNRB value (sub national values); or (b)Use default national values approved by the Board. The choice of which option to use shall be made ex ante. However, a switch from a national value of fNRB (i.e., option (b)) to subnational\values (i.e., option (a)) is permitted, under the condition that the selected approach is consistently applied to all CPAs.	The PP has selected option (a)Conduct local own studies to determine the local fNRB value (sub-national values) For states- Madhya Pradesh-0.91 As the project activity is planning to expand in other states too. So, Fnrb will be calculated accordingly.

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
		Other		
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
		Other		

3.4 Baseline Scenario

The baseline scenario is the continued use of non-renewable wood fuel (firewood) by the target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity.

3.5 Additionality

The methodology uses the activity method for the demonstration of additionality

1: Regulatory Surplus

There is no mandated government programme or policy in the host country of this project ensuring the distribution of domestic fuel-efficient cookstoves. The project is not mandated by any law, statute, or another regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute, or other regulatory frameworks. Households may only participate voluntarily in this project. It is hereby confirmed that the proposed project is a voluntary coordinated action by infinite solutions.

Step 2: Positive List

The project participant will distribute the cookstove at a subsidized rate, hence there will be a revenue stream apart from the sale of GHG credits. Therefore, PP chose option 3 for demonstration of additionality. The project is not implemented as part of government schemes or supported by multilateral funds. The project did not apply any methodology deviations.

1- Where the 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.

2. Project activities that are implemented as part of government schemes or are supported by multilateral funds cannot be considered additional even if the stoves are distributed free of cost or at a highly subsidized rate and hence are not eligible to use this methodology.

Step 3: Project Method

The proposed project intends to distribute the ICS at 70% to 75% subsidy to users i.e., households; hence financial return from the programme will be less than the cost incurred, further, the CME will hire a team for the supply chain and maintenance and repair. As each ICS has certain costs associated with the production/purchase, distribution, monitoring verification etc., the programme will not occur in absence of the carbon revenue. The action is not financially viable without the support of revenues from the sale of VERs. As the end-user does not benefit from direct financial return and procuring ICSs requires capital, which is a barrier to rural consumers due to difficulties in accessing capital, a wide dissemination of ICSs in the Host Country is unlikely. The actions under the project will alleviate these barriers by promoting the distribution of ICSs to end-users at an affordable price. Hence in line with para 10 a) of EB99 Annex--03, the project faces an investment barrier and hence it is considered to be additional.

As pet the project method step 3 of section 7 of the methodology, for any project activity where stoves are not provided at zero cost to the end-user or has any other source of revenues other than the sale of GHG credits, then the project activity shall apply investment analysis method set out in the CDM Tool for the Demonstration and Assessment of Additionality. Further, investment tool will, be followed investment analysis. As each ICS has costs associated with its purchase and distribution and awareness generation, this programme will not occur in absence of the VCS revenue. The action is not financially viable without the support of revenues from the sale of VERs. The end-users for the ICS are currently using crude devices, which indicates and exacerbates the cycle of poverty/ suppressed incomes. The potential users for ICS are typically lower-income with the problem (lack of ICS) seen more as a woman's problem thereby relegating it lower in the priority order for household expenditures/investments. The actions under the project will alleviate these barriers by promoting the distribution of ICSs to end-users at upwards of a 70% to 75% subsidy, thereby making their ownership and subsequent impact possible.

3.6 Methodology Deviations

The project activity has not taken any deviation in the applied approved methodology VMR0006.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

The methodology does not account for baseline emissions separately, but instead quantifies emission reductions as a function of the reduction in the amount of non-renewable biomass fuel consumption in the efficient project stoves as compared to baseline stoves. Please refer to Section 4.4.

4.2 Project Emissions

The methodology does not account for project emissions separately, but instead quantifies emission reductions as a function of the reduction in the amount of non-renewable biomass fuel consumption in the efficient project stoves as compared to baseline stoves. Please refer to Section 4.4

4.3 Leakage

Leakage shall be considered as default 0.95.

4.4 Net GHG Emission Reductions and Removals

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

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

Where:

i= Indices for the situation where more than one type/model of improved cookstove is introduced to replace three-stone fire

j = Indices for the situation where there is more than one batch of improved cookstove of type i

ERy = Emission reductions during year y in t CO2e

ERy,I,j = Emission reductions by improved cookstove of type i and batch j during year y in t CO2e

and;

ERy,I,j = By,savings,i.j x NCVwood fuel x fNRB x (EFwf,CO2 + EFwf,non CO2) x Ny,I,j x 0.95

Where,

By, savings,i.j = Quantity of woody biomass that is saved in tonnes per improved cookstove of type I and batch j during year y

NCVwood fuel = Net calorific value of the non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne)

fNRB = Fraction of woody biomass that can be established as non-renewable biomass fNRB value (MP-91.4, Maharashtra -83.1, Chattisgarh- 77.5)

EFwf, CO2 = CO2 emission factor for the use of wood fuel in the baseline scenario (IPCC default for wood fuel, 112 tCO2/TJ)

EFwf,non CO2 = Non-CO2 emission factor for the use of wood fuel in the baseline scenario (IPCC default for wood fuel, 26.23 tCO2/TJ)

Ny,I,j = Number of improved cookstoves of type i and batch j operating during year y

0.95 = Discount factor to account for leakage

The quantify of woody biomass saved By, savings,I,j due to implementation of improved cookstoves is estimated by the following Equations:

By,savings,I,j = By=1, new,i,survey x ((ηnew,i,j/ηold)-1) …….Eq.4

Where,

ηold = Efficiency of baseline cookstove (10%)

ηnew,I,j = Efficiency of the improved cookstove type i and batch j determined through water boiling test (WBT) during year y, Alternatively, efficiency may be determined using Equation 5 of applied approved methodology (Assumption 35%)

By=1, new,i, survey = 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.

Therefore, the annual emission reduction considering phase implementations i.e., 30000 for the first year and 35000 after that each year is estimated as below considering 10% dropouts of ICS distributed.

$$\eta_{new,i,y} = \eta_p \times (DF_n)^{y-1} \times 0.94 \qquad \text{Equation (5)}$$

Where:

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

Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)
19/12/2021-19/12/2022	0	2,34,898.60	0	2,34,898.60
19/12/2022-19/12/2023	0	4,49,620.00	0	4,49,620.00
19/12/2023-19/12/2024	0	6,14,064.08	0	6,14,064.08
19/12/2024-19/12/2025	0	5,21,954.47	0	5,21,954.47
19/12/2025-19/12/2026	0	4,43,661.30	0	4,43,661.30
19/12/2026-19/12/2027	0	3,77,112.10	0	3,77,112.10

19/12/2027-19/12/2028	0	3,20,545.29	0	3,20,545.29
Total	0	29,61,855.84	0	29,61,855.84

5 MONITORING

5.1 Data and Parameters Available at Validation

Data / Parameter	NCVwoodfuel
Data unit	TJ/tonne
Description	The 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	The default value as per applied approved methodology.
Purpose of Data	Calculation of baseline emissions
Comments	The value is fixed ex-ante

Data / Parameter	EFwf, CO2
Data unit	tCO2/TJ
Description	CO2 emission factor for the use of wood fuel in the 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 as per applied approved methodology VMR0006.

Purpose of Data	Calculation of baseline emissions
Comments	The value is fixed ex-ante

Data / Parameter	EFwf, non-CO2
Data unit	tCO2/TJ
Description	CO2 emission factor for the use of wood fuel in the baseline scenario
Source of data	Default as per applied approved methodology VMR0006
Value applied	26.3
Justification of choice of data or description of measurement methods and procedures applied	Default as per applied approved methodology VMR0006.
Purpose of Data	Calculation of baseline emissions
Comments	The value is fixed ex-ante
Data / Parameter	ηP
Data unit	Fraction
Description	The efficiency of the project stove at the start of project activity
Source of data	Methodological default value
Value applied	0.1
Justification of choice of data or description of measurement methods and procedures applied	A default value of 0.1 shall be used if the baseline device is a three-stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney.
Purpose of Data	Calculation of baseline emissions
Comments	The value is fixed ex-ante

Data / Parameter	ηold
Data unit	Fraction

Description	The efficiency of baseline cookstove
Source of data	Methodological default value
Value applied	0.1
Justification of choice of data or description of measurement methods and procedures applied	A default value of 0.1 shall be used if the baseline device is a three stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney.
Purpose of Data	Calculation of baseline emissions
Comments	The value is fixed ex-ante

5.2 Data and Parameters Monitored

Data / Parameter	Ny,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 the standard shall be used for determining the sample size to achieve 90/10 confidence precision according to the latest the version of Standard for sampling and surveys for CDM project activities and programme of activities.
Frequency of monitoring/recording	At least once every two years
Value applied	10,00,000
Monitoring equipment	Monitoring survey.
QA/QC procedures to be applied	The project implementor shall maintain a distribution record to calculate this parameter.
Purpose of data	Calculation of baseline emissions
Calculation method	The proportion of operational stoves obtained from the survey is multiplied by the total commissioned stoves to arrive at this value.

Comments	-

Data / Parameter	ηnew,i,j
Data unit	Fraction
Description	The 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 the loss in efficiency per year is calculated, and therefore this parameter does not need to be monitored"
Frequency of monitoring/recording	Annual
Value applied	29.6 at start of operation
Monitoring equipment	Not applicable
QA/QC procedures to be applied	Not applicable.
Purpose of data	Calculation of baseline emissions
Calculation method	As per equation 5 of VMR0006 i.e. ηnew,i,j = ηP x (DFn)y-1x 0.94
Comments	-

Data / Parameter	By=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 survey
Description of measurement methods	The 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

and procedures to be applied	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, which is 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 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 assumed 5.3 tonne/device/year
Monitoring equipment	Monitoring survey
QA/QC procedures to be applied	Not applicable.
Purpose of data	Calculation of baseline emissions
Calculation method	Not applicable
Comments	-

Data / Parameter	Life span
Data unit	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	The data source as per manufacturer specification

and procedures to be applied	
Frequency of monitoring/recording	Once at the time of installation of the batch of type of stove
Value applied	10 years
Monitoring equipment	Not applicable
QA/QC procedures to be applied	Not applicable.
Purpose of data	Calculation of baseline emissions
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 project device in the batch j,
Frequency of monitoring/recording	Once
Value applied	The first batch was commissioned at- 20/11/2021
Monitoring equipment	Not applicable
QA/QC procedures to be applied	Not applicable.
Purpose of data	Calculation of baseline emissions

Calculation method	Not applicable
Comments	-

Data / Parameter	Fnrb
Data unit	%
Description	*Fraction of Non-renewable biomass*
Source of data	Monitoring survey
Description of measurement methods and procedures to be applied	State forest report of India
Frequency of monitoring/recording	Once at validation
Value applied	Madhya Pradesh- 0.91 Fnrb for other states will be demonstrated later
Monitoring equipment	Monitoring survey
QA/QC procedures to be applied	Not applicable.
Purpose of data	Calculation of baseline emissions
Calculation method	Not applicable
Comments	-

5.3 Monitoring Plan

Sample Plan:

The monitoring plan is designed to monitor the parameters listed in Section above, which are required for the calculation of the actual GHG emission reduction achieved by the project activity using ex-post sampling survey. The share of operating stoves and the continued use of pre-project devices will be determined based on sampling procedures as outlined below. The PP will be responsible for conducting the sampling surveys and maintaining a database with all operating stoves.

No monitoring for leakage through competitive uses of biomass is required, as the parameter wood usage is multiplied by 95% to account for leakage.

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.

(i) 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 the 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 the small-scale project and 95/10 for the large-scale project. Given that the size of the project is under the category of large projects, hence 95/10 confidence/precision shall be adopted for all parameters unless the average annual emission reductions of the project are below the threshold.

Monitored Parameter-

Parameter	Description	Parameter type/ Frequency
Ny,i,j	Number of project devices of type i and batch j operating during year y	Proportion/Biennially
μy,i,j	Adjustment to account for any continued use of pre-pre-project devices during the year y	Proportion/Biennially
By=1, new,i,j,survey	Quantity of woody biomass used by project devices in tonnes per device of type i and batch j	Mean value

(ii) Target Populations:

The target population for the proportion of ICS still in operation (Ny,i,j and μy,i,j) of this project are all households in the project database which are using fuelwood in ICS distributed under the project for cooking. The target population for pre-project appliances (μy,i,j) is the set of old stoves still in use under the project database

(iii) Sampling Frame

To ensure the homogeneity of the project instances included for a single sampling plan, two sampling frames shall be defined. Overall, all project instances will have the same group of end-users which is from households from rural/semi-urban areas. The projects are to be implemented in rural areas; thus, it is expected that the geographical locations

do not have influence on the parameter of interest. Therefore, all above-mentioned parameters can be assumed to be highly homogeneous for each ICS model regardless of how the end-user group and distribution/installation location is defined.

-

1) The sampling frame for the proportion of ICS in operation (Ny,i,j)

- The sample frame refers to all the information sources on the Database. There are two primary mechanisms for data collection: the Registration Process for newly distributed/installed ICS and the Monitoring Survey (which includes a household questionnaire and visual inspection of ICSs) that will be used throughout the lifetime of the ICS. The detailed information collected from the Registration Process is used to populate the stoves Database and the Monitoring Survey follows "Sampling and Surveys for CDM Project Activities and Programme of Activities", version 04.
- As explained below (in section "Sampling Method"), to take the different characteristics of different project instances Implemented and ICS models into consideration, Project instances shall be grouped together to create a Primary Sampling Unit, which is homogenous. As per EB 86 Annex 04, Appendix-2, paragraph 1, for the use of a single sampling plan covering a group of projects, provided the homogeneity of the population can be demonstrated, or differences are taken into account in the sample size calculation, a 95/10 confidence/precision is applied for biennial sampling. The first step is to identify the Primary Sampling Units. Primary sampling units are project instances, which have:

1) The same ICS models

- That is projects with the same ICS model can therefore be grouped together and form a Primary Sampling Unit. In case the project has two different ICS models being implemented – this will form two Primary Sampling Units. This is justified by the fact that the project might vary in terms of performance, and it is important for the PP to collect and monitor accurate data for each stove model.

a. Adjustment to account for any continued use of pre-project devices during the year(μy,i,j)-

In line with applied approved methodology AMS-II. G, as installing data logger is not practical and if any use of -pre-project device can be monitored in a common survey with other monitoring parameters; therefore, a random sub-sample within the common survey can be taken to determine continued use of old cookstoves and its proportional usage by including suitable questionnaire.

- There will be two situations 1) project ICS are completely discarded 2) the old stoves used along with project ICS.

- Hence in the first case, it will be simple multiplication of a fraction of the total number of project ICS displaced by old cookstoves by the total number of cookstoves in the project, to achieve precise results based on survey result sample size calculation can be repeated.

- However, for the second case, surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is demonstrated to be not practical, for example when the baseline device is the three-stone fire. The surveys should be designed to capture the cooking habits and stove usage of households in the region, including quantification of use of baseline devices, by formulating questions and/or collecting evidence to determine the frequency of usage of both the project devices and baseline devices. For example, if there were 3 pre-project devices per household and it was determined during the survey that use of one of them continues during the crediting period then a conservative adjustment factor of 0.66 is applied for the relevant monitoring period. Another example would be the case where there was only one pre-project device per household and its use during the project period continues along with the project stove to meet 25% of the cooking needs of the household in which case the adjustment factor will be 0.75

Where more precise data is available i.e. the thermal capacity of the project and pre-project devices and respective utilization hours, a weighted average adjustment factor may be used. Quantity of woody biomass used by project devices in tonnes per device of type I and batch j (By=1, new, I,j, survey)

As mentioned above either separate sampling can be done for this parameter or can be clubbed with a sampling of the above parameters, wherein interview questions are to be included to determine the average fuelwood used by the project device.

(iv) Sampling Method

The sampling method for monitored parameters Ny,i,j, and μy,i,j is Simple Random Sampling and samples will be randomly selected from the primary sampling units as illustrated above. To ensure a random selection of ICS, random number generators shall be applied. Each ICS in the target population is uniquely identifiable by its unique ID number. Each ICS can thus be allocated a Sample Selection Number in each monitoring period, starting at 1 and increasing up to the total number of ICS in the Database for that pre-defined sampling frame. Applying the random number generators, the ICS can then be randomly chosen from the defined population up to the required sample size as calculated by the PP.

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

- Ny,i,j: Visual inspection of the premises to see if ICS is operational and in use. Interview with end-user is required to verify that ICS is still in use (Yes/No)
- μy,i,j: Pre-project device only is in use then fraction to be used to calculate the total number, however, if -the pre-project device is used along with project ICS, the proportion of usage of each will be determined by cooking habits evaluated by survey questionnaire during the monitoring period.
- By=1, new,i,j, survey: Quantity of woody biomass used by project devices in tonnes per device (first year of installation)

Using the formulas in the section "Sample Size" below, the PP will randomly sample the required number of ICS from the primary sampling units. It is important to note that for μy,i,j where partial usage of both old stoves and project ICS are observed, for each household under-sample cooking habits must be taken into consideration.

(v) Sample Size

For the estimation of the proportion or mean value of the parameters investigated, the minimum sample size for each sample frame has to achieve the 95/10 confidence/precision for annual and 95/5 confidence/precision for biennial sampling.

The procedure to determine the sample of households will ensure that they adequately represent the broader project population, minimizing sampling error. Using, 95 per cent confidence level, and a 5 per cent margin of error, random samples will be selected from each Primary Sampling Unit. There are three parameters that will be estimated through sampling: the number of stoves still in operation during the monitoring period as determined by the monitoring survey (Ny,i,j), Quantity of woody biomass used by project devices in tonnes per device (By=1,new,i,j,survey) and the continued use of old stoves, (μy,i,jj). In line with sampling guidelines, all can be sampled in a single survey with a random sample of households using the above-described confidence/precision levels depending on annual or biennial monitoring frequency. The Ny,i,j and μy,i,j requires proportion/percentage parameters, however, the wood consumption by ICS may have variation and will be a mean value.

In order to calculate the required sample size estimates, values for the proportions, mean values, and standard deviations are required. As per Guidelines for Sampling and surveys for CDM project activities and programmes of activities, version 07.0 Appendix 1 paragraph 5, 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.

For the registration purpose of the project, option C shall be applied. For the first monitoring period, values from a pilot shall be applied. For the following monitoring periods, the estimates shall be adjusted to take into account the results of the previous monitoring period(s) or the result from the recent pilot study, which is conducted after the previous monitoring periods.

To estimate the sample size for parameters $N_{y,i,j}$ and $\mu_{y,i,j}$ the following equation is used.

$$n \geq \frac{1.96^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times 0.9^2 + 1.96^2 \times p(1-P)}$$

Where:

n = Sample size
N = Population size (Total number of households/ICS)
p = Expected proportion
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

The following assumptions are made to exemplify the sample size calculation for parameters: Ny,i,j and μy,i,j. The PP envisage the distribution of 600,000 ICSs over the next five year. Hence, population size, N, is taken as 10,000 households/ICS (Assuming one ICS for one household). It is expected at least 90% of ICS will be operational, hence the expected proportion p for Ny,i,j is taken as 0.9.

Sample size calculation:

The calculation of the required sample size for each parameter in the first monitoring period is illustrated below for a 95/10 level of confidence and precision (for biennial monitoring periods the sample sizes will be recalculated using 95/5 confidence/precision values). In all cases a conservative approach is taken, however, if for any parameter the required 95/10 confidence/precision is not met then the CME will randomly select an additional sample and collect further data from this sample to ensure the pooled data meet or exceed the required thresholds.

Parameter Ny,i,j: Based on the above assumptions, the resulting sampling size for a 95/10 confidence/precision is calculated as:

$$n \geq \frac{1.96^2 \times 10000 \times 0.9(1-0.9)}{(600000-1) \times 0.1^2 \times 0.9^2 + 1.96^2 \times 0.9(1-0.9)}$$

Inter Which comes out to be,
n ≥ 42.68
n= 43
Therefore, in this case, a sample size of 43 is to be sampled from each primary sampling unit.

Data recording –

Data will be recorded for 2-year post verification for the same monitoring period.

- Including-
- Sampling forms
- Stakeholders feedback forms
- ICS specifications
- Name and telephone number (if available), and address of recipient and Model/type of project technology sold/distributed
- unique identification alpha/numeric ID for each device that is sold/distributed

APPENDIX:1

Format for Sampling Form used for community's survey-

Cookstove Dissemination	
Surveyor Name (*Enter the Unique ID)*	
Cookstove Unique ID	
Household Information	
Name	
Husband/Father's Name	
Age	
Address	
Village, Tehsil	
District	
State	
Household Location	
Lat /Long	
Altitude	
Accuracy	
Number of Adult family members in the household	
Number of Children (<6Years) in household	
Government Documents	Voter Id Aadhar Card Pancard Driving License *Other.*
Document Number	
Is Document Verified	Yes/ No
Photo of the person with cookstove	
Current Cookstove details	Mud stove LPG stove Biogas stove Induction Other
Time is taken for forgoing wood (in hrs	
How much firewood is consumed in a day (in kg) in the baseline?	
Declaration	

Cookstove Specifications and Information brochure

Cookstove technology has performance-based indicators mentioned below-

Sr.no	Indicators	ICS Performance (Based on section Appendix-1 of the methodology VDM0006)
1	Thermal efficiency	29.6%
2	Carbon monoxide emissions	2.13
3	Fine Particulate Matter Emissions	424.38
4	Safety	77.50
5	Durability	7 year

AGNEEKAA ECO MINI COOK STOVE- TECHNICAL DETAILS

Cook Stove Type/Category	Natural Draft	
Secondary Air Supply	Through Natural Draft	
Stove Material Used	Body	Mild Steel
	Body material thickness	0.6mm
	Combustion chamber	Stainless Steel
	Combustion chamber material thickness	1 mm
	Insulating Material	Thermal Wool
	Insulating Material Thickness	6 to 8mm
	Top Plate	Stainless Steel
	Top Plate Material Thickness	1 mm
Physical structure	External dissemination	Length: - 260mm Width: - 260mm Height: - 248m
	Combustion Chamber Dimension	Diameter: - 125mm
Grate Thickness	2 mm Material Mild Steel	
Weight Of the Stove	3.8 Kg	
Type of Fuel Wood	*Firewood*	
Feeding Process	Continuous Feeding Front Loading	

Expected life of stove	10 Years	
Guarantee /Warranty Period	2 Years	
Box Dimension	Outer Side Box Dimension	Length: - 300mm Width: - 300mm Height: - 270mm



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