

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

RELATED SUPPORT - **TEMPLATE GUIDE Monitoring Report v. 1.1**

This document contains the following Sections

Key Project Information

SECTION A - Description of project

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KEY PROJECT INFORMATION

Programme of Activity Information – (delete below table if N/A)

GS ID of Programme	GS 12487
Title of Programme	SMG – Access to Clean Cooking in Himalayas
Version of POA-DD applicable to this monitoring report	6.0
Name and GS ID of fully Validated CPA/VPAs (i.e. non compliance check)	- GS ID: GS 12488 Name: GS12487 VPA-1 SMG - Access to Clean Cooking in Himalayas - GS ID: GS 12628 Name: GS12487 GS12488 RVPA-1 SMG - Access to Clean Cooking in Himalayas VPA 04

Key Project Information

GS ID (s) of Project (s)	GS 12488
Title of the project (s) covered by monitoring report	GS12487 VPA-1 SMG - Access to Clean Cooking in Himalayas
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	5.0
Version number of the monitoring report	7.0
Completion date of the monitoring report	23/01/2026
Date of project design certification	09/09/2025
Date of Last Annual Report	N/A
Monitoring period number	01
Duration of this monitoring period	09/09/2023 to 31/12/2023
Project Representative	Shri Maa Marketing Private Limited
Host Country	Nepal

Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	REDUCED EMISSIONS FROM COOKING AND HEATING: Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) – Version 4.0
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/Products
SDG 13 Climate Action (mandatory)	GSDM-I13.2.2 Reduction in GHGs emissions	19,415	tCO ₂ e
SDG 3 Good health and well being	GSDM-I3.9.1 Perceived health conditions improved by the ICS users	88.33%	Percentage
SDG 5. Gender equality	GSDG-I5.4.1 Perceived time saved by women in fuel collection and cooking	93.33%	Percentage
SDG 7. Affordable and clean energy	GSDG-I7.1.2 Number of people/households with access to basic service provided by the distributed project improved cookstove	19,804	Number
SDG 8. Decent work and economic growth	GSDG-I8.5.1 Total number of jobs created	20	Number
SDG 12. Responsible consumption and production	GSDG-I12.2.1 Percentage reduction in fuelwood consumption	60.67%	Percentage
SDG 15. Life on land	GSDM-I15.1.1 Total non-renewable wood fuel saved	5.76	kgs

Table 2 – Product Vintages

		Amount Achieved
Start Dates	End Dates	GS VERs
09/09/2023	31/12/2023	19,415

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

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The respective project activity is being implemented with the objective of uplifting rural and tribal communities (Tharu tribal community¹) in the project area by providing them with improved cook stoves, employment opportunities, and increasing awareness on both climate change and negative impact of GHG emissions. Through this community-engaging project, the CME plans to introduce and teach clean cooking practices, reduce Indoor Air Pollution caused due to traditional baseline devices, thereby lowering health risks amongst rural and tribal households.

The project cookstoves are manufactured in-house and are made available to the households, free of cost through an efficient supply chain network.

Objective

- The proposed project activity replaces traditional, and low efficient mud stoves used in rural parts of the project area with Improved Cookstoves (ICS), which have higher thermal efficiency (35.4%) and cause lesser air pollution. The project not only aims to reduce greenhouse gases, but also intends to create a domino effect in the communities by:
- Providing employment opportunities through distribution & maintenance of cookstoves,
- Reducing time spent collecting fuelwood
- And improving overall health of families who suffer due to the Indoor Air Pollution caused by the usage of traditional mud cook stoves

The location of the project is Nepal. Further details are provided below in section A.2.

The technology responsible for primarily avoiding emissions is the Improved Cookstove (referred to as Shri Stove (or Shri Chulha) further on). The Shri Stove (or Shri Chulha) is a natural draft improved cook stove that uses woody biomass to help rural communities meet their daily cooking needs. It is designed with keeping in mind the

¹ https://en.wikipedia.org/wiki/Tharu_people#/media/File:Tharu_Area.jpg

requirements of communities who are currently dependent on inefficient traditional baseline devices.



Knowledge dissemination session with beneficiaries

Baseline Scenario:

The baseline scenario for the project is the use of inefficient mud cookstoves running on non-renewable wood fuel in the target area by the target population to meet their thermal energy demands in cooking and heating in the absence of the project intervention.

Project Boundary:

The respective VPA boundary includes all the beneficiary households located across various districts of Nepal receiving improved cookstoves as part of the project. The primary source of fuel is woody biomass and associated GHG emissions are included in the project boundary.

A.2. Location of project

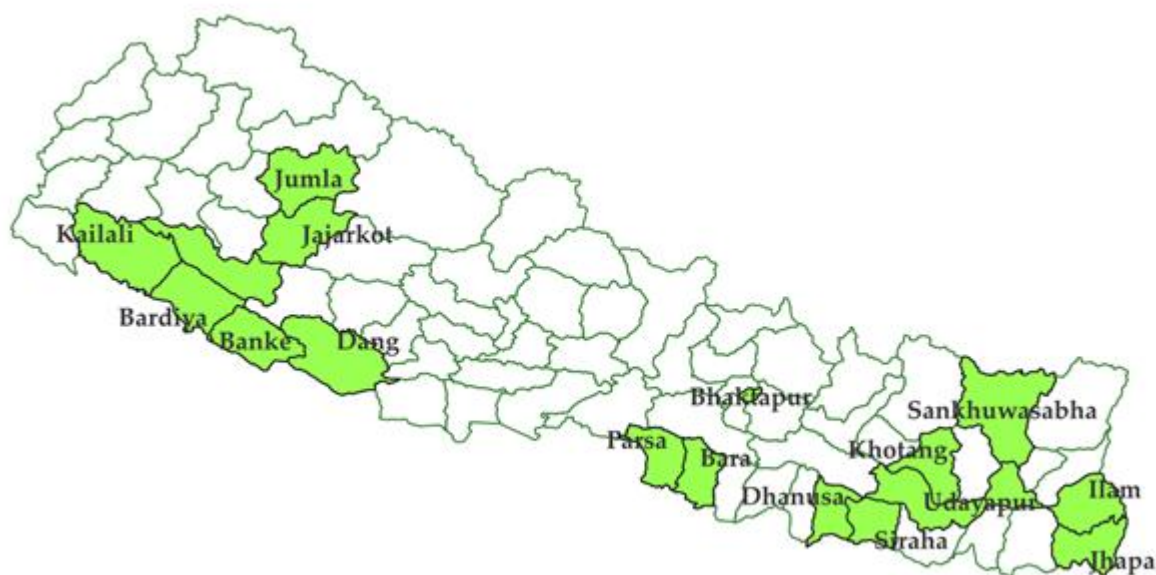
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The respective VPA is executed in various districts located in Nepal in between:

Latitude - 26° to 31°N

Longitude - 80° to 89° E

Individual specific coordinates are updated in the project database



Various districts of Nepal

Name	Country	Latitude	Longitude
Banke	Nepal	28.1022	81.8224
Siraha	Nepal	26.6400	86.1857
Parsha	Nepal	27.2190	84.8151
Dhanusha	Nepal	26.8350	86.0122
Jhapa	Nepal	26.5504	87.8888
Bara	Nepal	27.1341	85.0649
Sankhuwasabha	Nepal	27.6174	87.3016
Ilam	Nepal	26.9112	87.9237
Udaipur	Nepal	26.8518	86.6611
DANG	Nepal	28.0000	82.4753
Dhankuta	Nepal	26.9835	87.3215
Khotang	Nepal	27.1838	86.7819
Bardiya	Nepal	28.3102	81.4279
Kailali	Nepal	28.8314	80.8987
Surkhet	Nepal	28.5175	81.7787
Bhaktapur	Nepal	27.6710	85.4298
Jumla	Nepal	29.2522	82.1659
Jajarkot	Nepal	28.7396	82.2040

A.3. Reference of applied methodology

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The methodology applied for the respective VPA is as follows:

a) Methodology: The Gold Standard Eligible Methodology applied for the respective PoA is- Reduced Emissions from cooking and heating - Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 4.0²

b) Tools:

- 1) UNFCCC CDM TOOL 30 v4.0: Calculation of the fraction of non-renewable biomass³

c) GS guidelines and requirements:

- 1) Community Services Activity Requirements v1.2⁴
- 2) USAGE RATE MONITORING v2.0⁵

A.4. Crediting period of project

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01/01/2023 to 31/12/2027

The length of first crediting period of respective VPA is 5 years, renewable twice

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

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As per the management system mentioned in the Section B.1 of the relevant PoA- Design Document, 19,804 project stoves were distributed across various districts of Nepal. Stove distribution dates, Villages and district details of the project households are mentioned elaborately in the project database document, submitted to the VVB. The target households were using traditional mud stoves for their daily cooking and heating needs as per the baseline scenario.

Details of Stove Installation:

² [Reduced emissions from cooking and heating – Technologies and Practices to Displace Decentralized Thermal Energy Consumption \(TPDDTEC\) – Gold Standard for the Global Goals](#)

³ [EB115_repan22_TOOL30_v04.0 \(unfccc.int\)](#)

⁴ [Community Services Activity Requirements – Gold Standard for the Global Goals](#)

⁵ [Cookstove Usage Rate Guidelines – Gold Standard for the Global Goals](#)

1. Start Date: 1st January 2023 (Date of first ICS distribution)
2. End date: 31st March 2023

The VPA under the PoA has distributed improved cookstoves (Shri Stove) to households which are not only portable but also function with an average lifespan of 7 years and thermal efficiency of about 35.4%. ICSs are more efficient than traditional stoves as they reduce heat energy loss by improving heat transfer and combustion efficiency. The ICS models are fuel efficient, resulting in a decrease in fuel use in comparison while also reducing particulate matter and carbon emissions. The stove has a multi-layer heat insulating method and uses the principles of aerodynamics to control the movement of air. It includes a fully insulated vertical combustion chamber that is coated with proprietary geo-thermal coating to insulate heat and prevent corrosion. The Shri Stove comes with a sturdy stand for consumers to be able to use/re-use longer wood sticks, without having trouble of chopping or throwing unused sticks.

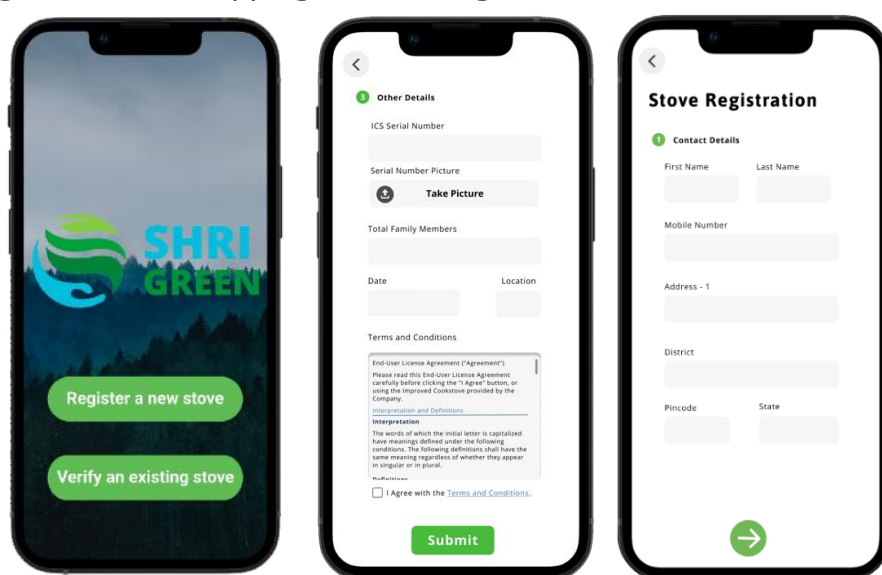


Figure 1: The above screenshots of the App show different pages of the mobile application that is used to gather datapoints by the on-ground team. This data is stored as a cloud database.

Via its developed proprietary cloud-based mobile application the CME ensures usage of the same to gather end-user data, including beneficiary contact details along with cookstove identification number and photographs of beneficiary receiving ICS. Each cookstove included in the project database is assigned a unique serial number which gives a distinction on the end-users to ensure there is no double counting. Serial Number format is alpha numeric and in the form of: XX0000

Relevant Dates:

1. Construction/Implementation date – All the 19,804 improved cookstoves under the respective VPA were distributed within three months starting January 2023. Starting from 1st January, 2023 to 31st March, 2023.

2. Commissioning date - The commissioning/installation dates for all the ICS in the project households are mentioned in the Project Database document for the respective VPA. Commissioning date of the first ICS is 1st January 2023
3. Continued operation periods – All the project stoves are continuously operational as per the monitoring period. Usage rate is mentioned in the ER Calculation sheet of the VPA.

There have not been any changes from the project design that was envisaged in the Design Certified PoA.

B.1.1 Forward Action Requests

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FAR 1. CME shall invite stakeholders from all category B also as per the "Stakeholder Consultation and Engagement Requirements" guidelines. VVB shall check and verify and provide its opinion in the validation report.

Response: All stakeholders were encouraged to participate. Special attention was given to women and marginalized population comprising stakeholder category 'B' during in-person invitation process which included going door to door to hand out invitations and going to the Sarpanch office as well. Stakeholders of category B also attended the meeting and their comments were taken into consideration.

FAR 2. A grievance mechanism shall be established and made available for each VPA of a PoA. CME shall check and VVB shall provide its assessment in the validation report.

Response: In the updated version of the LSC report, an established grievance mechanism with complete details is provided under Section D.

FAR 3. CME shall make efforts to solicit input from women and marginalized groups during LSC and SFR. VVB shall assess and provide its assessment in the validation report.

Response: In the Appendix 1 of the VPA Design Document the Safeguarding Principles Assessment is carried out by the CME. All assessments are reflected in the Section D1 of the VPA Design Document in the updated version.

FAR 4. The Verifying VVB shall, during each verification of the project activities under the PoA "SMG - Access to Clean Cooking in Himalayas" (GS ID: 12487), specifically VPA-1 (GS ID: 12488) and RVPA-1 (GS ID: 12628), verify that no emission reductions

are claimed for cooking devices that are already included in any other voluntary market project or CDM project/PoA. The VVB shall ensure that such devices are excluded from the project boundary of the above VPAs and confirm that the implementation of the project activities does not displace cooking devices that are part of another registered CDM or voluntary carbon market project or PoA.

Response: The CME confirms that all cooking devices distributed free of cost to rural communities under VPA-1 (GS ID: 12488) and RVPA-1 (GS ID: 12628) are provided with the objective of discouraging the continued use of baseline cooking stoves, which is further supported through the targeted awareness campaigns, and continuous monitoring. All project devices distributed under these VPAs are newly distributed, uniquely identifiable, and attributable exclusively to the respective VPAs. VPA-1 (GS ID: 12488) and RVPA-1 (GS ID: 12628) do not overlap with, nor are they included in, any other registered CDM or voluntary carbon market project or PoA in any carbon registry. In accordance with Gold Standard requirements, the CME has implemented measures to ensure the avoidance of double counting and double claiming of emission reductions during the current monitoring period, has communicated exclusive ownership and claiming rights to beneficiaries, and confirms that the project implementation does not displace cooking devices that are part of any other registered carbon market project or PoA.

B.2. Post-Design Certification changes

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B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

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There are no temporary deviations from the approved monitoring and reporting plan and methodology.

B.2.2. Corrections

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There are no corrections to project information.

B.2.3. Changes to start date of crediting period

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There is no change in the start date of crediting period for this VPA .

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

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There are no permanent changes from the Design Certified Monitoring Plan and applied methodology.

B.2.5. Changes to project design of approved project

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There is no change to project design of approved project.

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

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- A. Cloud Database Records of distributed stoves are maintained continuously by the CME via their proprietary cloud based mobile applications. All surveys conducted are administered by a trained staff who are conversant in the local dialect to ensure that response collection was consistent and not affected by any regional language barriers. Field staffs are provided a general guideline and training to collect data and interact with the beneficiaries.
- B. Kitchen performance test Survey is conducted to determine usage of the project stove and hence determine overall emission reductions throughout the stove operational life. WBT has been carried out in accordance with the WBT protocols and by an accredited national institution resulting in a 35.4% efficiency. It is considered that efficiency gradually reduces as per the stove usage. Project Technology Days is reviewed continuously based on distribution and installation dates throughout the project in order to determine the number of crediting stoves and the period for which they should be credited in a given monitoring period (based on stove distribution and life cycle end). The calculation is demonstrated in the Ex – post ER spread sheet. NRB fraction is validated ex-ante as part of PoA/VPAs. All data recorded will be stored by the CME for a minimum of two years after the end of the crediting period or the last issuance of VERs, whichever occurs later.
- C. Following details are stored on the app ensuring a reliable database for monitoring:
 - Name of the ICS User / Head of the household
 - Address of the ICS User
 - Phone Number of the ICS User
 - ICS User's government identification
 - Date of Distribution
 - Unique serial number of cookstove
 - Installer's name and number
- D. Monitoring Survey are conducted on an annual basis in person to ensure stove usage and to evaluate the performance of the associated SDGs namely SDG 3, SDG 5, SDG 7, SDG 8, SDG 12, SDG 13 and SDG 15 as per the parameters and indicators selected in the SDG impact tool. The CME has ensured successful monitoring of the emission reductions of the proposed project during its crediting period. The survey method that used by CME include: (a) Online questionnaire (b) Face to face interview (c) Telephone Interview (cross check).
- E. A Continuous Grievance Mechanism as mentioned below ensures that stove usage pattern remains consistent by ensuring quick resolution to the issues raised by the beneficiaries:

For continuous input, the beneficiaries have the option to directly reach out to the CME at 7000939187 (or) contact the local representatives at the ground level. A Grievance Expression process book for registering complaints and grievances related to project stove is available at the offices at the following addresses:

1. Head Office

Shri Maa Marketing, Plot No.1, 1st Floor (B), Sector-C, Industrial Area, Govindpura Bhopal Bhopal MP 462023 IN

2. Local

a. Janaki Gaupalika Wada no. 3, Inderpur, Banke District Nepal 21900

b. Chaubise gaunpalika office, Dhankuta district, Nepal 56800

c. Kalikamai gaunpalika Office, Mudali, Parsa district, Nepal 44300

d) [Badhaiyatal gaupalika office , Bardiya District](#)

e) [Gauriganj Rural Municipality, Jhapa, Koshi Province, Nepal \(NP\)](#)

f) [Bishnupur gaupalika office, Siraha district, Madesh Province Nepal](#)

g) [Mahabu Gaupalika, Raniban, Dang](#)

h) [Simta Gaupalika office, Simta-06, Rakam, Surkhet](#)

The local staff of project developer is available and accessible through a company phone number mentioned on the user agreement cards provided to all the stove users.

Maintenance is carried out by the local field team in the project area which comprises fixing small issues in stove like refitting of broken parts etc. and replacing a broken ICS with a new ICS wherever required.



Preparation for Kitchen Performance test in beneficiary households

Summary of monitoring system:

S.no.	Monitoring parameter	Monitoring arrangements applied
1	Stove distribution database: a) Number of stoves b) Installation dates c) Beneficiary details	Cloud based application developed by CME, operated by trained field staff.
2	Baseline Scenario: a) Baseline Stove type b) Fuel type and consumption	• Baseline Survey • Baseline Performance Test (Baseline KPT)
3	Performance on SDG indicators: SDG 3, SDG 5, SDG 7, SDG 8, SDG 12 & SDG 15	• Baseline and monitoring survey are designed to measure the of SDG indicators in their respective situations (i.e. baseline and project scenarios) for SDG 3 & SDG 5 • SDG 7 is measured by project database recorded in cloud based app of SME • SDG 8 is measured directly by CME through monitoring of field team

		SDG 12 & SDG 15 are measured by monitoring fuel consumption in project scenario.
4	Project scenario: a) Regular usage of ICS b) Fuel type and consumption in ICS c) Presence of other stoves d) SDG 13	- Monitoring survey - Usage survey (integrated with monitoring surveys) - Performance field test (Monitoring KPT)
5	Grievance redressal: a) Stove usage pattern b) Resolution of queries on ICS	Grievance register

SECTION D. DATA AND PARAMETERS

D.1. Data and parameters fixed ex ante or at renewal of crediting period

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SDG 13

Data/parameter	ICS 1 Baseline scenario survey results
Unit	N/A
Description	Report of the results of the baseline survey
Source of data	The report presents the results of the Baseline Survey, relevant for the baseline scenario definition.
Value(s) applied	The average woody biomass consumption is 9.5 kg/household/day.
Choice of data or Measurement methods and procedures	A baseline survey to determine the baseline fuel consumption was conducted in representative sample household across various districts of the project area included in the project boundary. The baseline survey covered the following elements: Fuel Consumption Pattern

	- Available technology options used for cooking - Biomass utilized during cooking - Potential fuel wood savings obtained by using improved project cookstoves
Purpose of data	Calculation of baseline emissions
Additional comment	Baseline survey result is submitted as supporting document. For detailed information, please refer to respective VPA -DD.

Data/parameter	ICS 2							
	Project technology description							
Unit	N/A							
Description	The detailed description of the project technology includes : - Manufacturer name, - product name (if applicable), - technology type, - capacity characteristics, - continuous useful energy output demonstration, - rated thermal efficiency, for the following cases: - improved biomass cookstoves, fuel-based ovens, water heaters, improved fossil fuel cookstoves (solid fuel or existing liquid & gaseous fuel projects), and renewable fuel fired stoves. - Performance certificate from the Nationally recognized body (MANIT)is also provided.							
Source of data	The Project technology description has been made based on manufacturer specifications as per “Shri stove description”.							
Value(s) applied	<table><tr><th colspan="3">Technical details</th></tr><tr><td>A</td><td>Cook Stove type/Category</td><td>Shri Stove Natural Draft</td></tr></table>		Technical details			A	Cook Stove type/Category	Shri Stove Natural Draft
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
	F	Energy efficiency	35.4 %
Choice of data or Measurement methods and procedures	The CME is the manufacturer of the project technology, and the manufacturers specifications provide the detailed description of the product technology.		
Purpose of data	Evaluation of SDG Outcomes & Calculation of baseline and project emissions		
Additional comment	N/A		

Data/parameter	ICS 3 Expected technical life of project technology
Unit	Time period (years)
Description	The expected technical life of an individual project technology is defined in the VPA-DD.
Source of data	As per the methodology the following sources are used: - Manufacturer specifications - Certifications by national standards body or an appropriate certification party recognized by national standards body - Commercial guarantee or Guarantee from the installer - The CME has sourced the data for the parameter from manufacturer guarantee as per the provided confirmation letter.
Value(s) applied	7
Choice of data or Measurement methods and procedures	The CME is the manufacturer of the project technology, and the technical specifications document serves as a confirmation of the expected technical life of the project technology. They have stringent quality control checks at their manufacturing facility to ensure that the beneficiaries can use the stove with minimal wear and tear affecting the performance and efficiency of the stoves for 7 years in ordinary conditions.
Purpose of data	Calculation of project emissions and project emission savings
Additional comment	The expected technical life of project technology is longer than the 5-year crediting period of the project and therefore measures to ensure that end users are provided replacement technology of comparable or higher quality at the end of the technical life, by either replacing with comparable or better technology, or retrofitting essential parts with performance guarantee is not needed.

Data/parameter	ICS 5 Avoidance of double counting or double claiming among project participants
Unit	N/A
Description	Evidence of avoidance of double counting or double claiming with other parties directly involved with the project or program.
Source of data	Carbon Credit rights transfer agreement signed by end users and Project Database maintained by the CME containing distribution records of the project cookstoves
Value(s) applied	The CME provided the project database to serve as proof
Choice of data or Measurement methods and procedures	N/A
Purpose of data	To ensure avoidance of double counting
Additional comment	N/A

Data/parameter	ICS 6 Avoidance of double counting or double claiming with other mitigation actions
Unit	N/A
Description	Review and analysis of mitigation actions in other voluntary market or UNFCCC/compliance mechanisms
Source of data	Using publicly available information from Gold Standard and other voluntary standards, at a minimum Verra and any recognized national or regional standards in the project location, and UNFCCC CDM project & PoA database: - Identify and list any mitigation actions of similar technology, i.e., that provide the same kind of output and use the same kind of equipment or conversion process, operating in overlapping spatial boundaries. If one or more are identified:

	- Describe the practices that will be implemented to ensure that the programme or project activity quantifies emission reductions only from technology it has implemented, - Describe the practices to avoid that the programme or project activity implementation displaces technology of other mitigation actions, and - Design a method to discount emission reductions in case the programme or project activity is found to displace or operate alongside another mitigation action. The CME has reviewed the Gold StandardVerra and UNFCCC CDM project registries for other similar technology and applied corrective measures to avoid overlapping and double counting
Value(s) applied	N/A
Choice of data or Measurement methods and procedures	N/A
Purpose of data	To ensure avoidance of double counting
Additional comment	N/A

Data/parameter	ICS 7 Regulatory framework for provision of thermal energy services		
Unit	NA		
Description	Evidence that the project does not undermine or conflict with any national, sub-national or local regulations or guidance for thermal energy supply/devices or fuel supply or use		
Source of data	List and provide a summary of any national, sub-national and local regulations or guidance for provision of thermal energy services/devices of the type the project provides in the project boundary, including any tariff requirements. Describe how the project complies with the regulatory framework.		
Value(s) applied	Applicable regulation	Provisions of the law	Project's compliance

	Nepal Interim Benchmark for solid biomass Cookstoves (NIBC, 2016)⁶ The standard provides that the thermal efficiency for each Cookstove when tested shall be more than or equal to 25 percent for all types of designs and sizes of solid bio-mass Chimney less natural draft Cookstoves. The stove technologies promoted by the project activities have been tested and the thermal efficiency achieved for the stoves is 35.4%
Choice of data or Measurement methods and procedures	The CME has reviewed the regulatory framework for provision of thermal energy services within the host country (Nepal). From the assessment, it has been demonstrated that the project activity does not undermine nor conflict with any regulation or guidance relating to thermal energy supply/devices or fuel supply or use.
Purpose of data	Compliance with the Host country regulations
Additional comment	N/A

Data/parameter	ICS 8 EF_{b,f,CO_2}
Unit	tCO ₂ /TJ
Description	CO ₂ emission factor arising from use of fuels in baseline scenario
Source of data	Wood: Methodology default, 112 tCO ₂ /TJ

⁶ <https://www.aepc.gov.np/sections/cook-stoves/technical-resources#:~:text=The%20Nepal%20Interim%20Benchmark%20for,rural%20living%20conditions%20in%20Nepal>

Value(s) applied	The methodology default value of 112 tCO ₂ /TJ for fuelwood is applied.
Choice of data or Measurement methods and procedures	Default Value from the respective methodology
Purpose of data	For Emission Reduction Calculations
Additional comment	N/A

Data/parameter	ICS 9 $EF_{b,f,nonCO2}$
Unit	tCO ₂ /TJ
Description	Non-CO2 emission factor arising from use of fuels in baseline scenario
Source of data	Wood: Methodology default: - 9.46 tCO ₂ e/TJ (AR5 GWP) or - 8.692 tCO ₂ e/TJ (AR4 GWP)
Value(s) applied	9.46 tCO ₂ e/TJ (AR5 GWP)
Choice of data or Measurement methods and procedures	Default Value from the respective methodology
Purpose of data	For Emission Reduction Calculations
Additional comment	N/A

Data/parameter	ICS 10 $EF_{p,f,CO2}$
Unit	tCO ₂ /TJ
Description	CO2 emission factor arising from use of fuels in project scenario
Source of data	Wood: Methodology default, 112 tCO ₂ /TJ

Value(s) applied	The methodology default value of 112 tCO ₂ /TJ for fuelwood is applied.
Choice of data or Measurement methods and procedures	Default Value from the respective methodology
Purpose of data	For Emission Reduction Calculations
Additional comment	N/A

Data/parameter	ICS 11 EF _{p,f,nonCO2}
Unit	tCO ₂ /TJ
Description	Non-CO2 emission factor arising from use of fuels in baseline scenario
Source of data	Wood: Methodology default: - 9.46 tCO ₂ e/TJ (AR5 GWP) or - 8.692 tCO ₂ e/TJ (AR4 GWP)
Value(s) applied	9.46 tCO ₂ e/TJ (AR5 GWP)
Choice of data or Measurement methods and procedures	Default Value from the respective methodology
Purpose of data	For Emission Reduction Calculations
Additional comment	N/A

Data/parameter	ICS 12 NCV _{b,fuel}
Unit	TJ/ton
Description	Net calorific value of the fuels used in the baseline
Source of data	Wood: Methodology default, 0.0156 TJ/ton
Value(s) applied	0.0156 TJ/ton

Choice of data or Measurement methods and procedures	Default Value from the respective methodology
Purpose of data	For Emission Reduction Calculations
Additional comment	N/A

Data/parameter	ICS 13 $NCV_{p, fuel}$
Unit	TJ/ton
Description	Net calorific value of the fuels used in the project
Source of data	Wood: Methodology default, 0.0156 TJ/ton
Value(s) applied	0.0156 TJ/ton
Choice of data or Measurement methods and procedures	Default Value from the respective methodology
Purpose of data	For Emission Reduction Calculations
Additional comment	N/A

Data/parameter ID	ICS 17
Data/parameter	$f_{NRB\ i, y}$
Unit	percentage
Description	Fractional non-renewability status of woody biomass fuel during year y, in case the baseline fuel is biomass or charcoal

Source of data	Determined by following the CDM TOOL30 ⁷ , Calculation of the fraction of non-renewable biomass
Value(s) applied	91.44%
Choice of data or Measurement methods and procedures	Determined ex-ante and fixed for a given crediting period
Purpose of data	For Emission Reduction Calculations
Additional comment	N/A

Data / Parameter ID	ICS 18
Data / Parameter	P _{b,y}
Unit	mass or volume units/household-day, mass or volume units/person-meal, etc.
Description	Quantity of fuel that is consumed in baseline scenario b during year y
Source of data	Baseline Survey
Value(s) applied	9.5 kg/household/day
Measurement methods and procedures	Measured
Monitoring frequency	At the start of crediting period (fixed for one crediting period)
QA/QC procedures	Compliance with the general requirements for sampling (Section 4.4), general requirements for QA/QC (Section 4.5) and Annex 2 Kitchen performance test specified in the applied GS methodology TPDDTEC v4.0 ⁸

⁷ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v4.0.pdf>

⁸ [Reduced emissions from cooking and heating – Technologies and Practices to Displace Decentralized Thermal Energy Consumption \(TPDDTEC\) – Gold Standard for the Global Goals](#)

Purpose of data	Baseline Emission Calculation
Additional comment	N/A

D.2 Data and parameters monitored

>>

SDG 13

Data / Parameter	ICS 15 Avoidance of double counting or double claiming among project technology end users
Unit	NA
Description	Evidence of avoidance of double counting or double claiming with project technology end-users
Source of data	Carbon Credit rights transfer agreement signed by end users and Project Database
Value(s) applied	No double counting. Evidence of carbon waiver transfer to be submitted as supporting evidence.
Measurement methods and procedures	N/A
Monitoring frequency	Monitored whenever project technology is distributed
QA/QC procedures	Cross check using general internet search and search of public records of Gold Standard and other voluntary market and UNFCCC mechanisms
Purpose of data	Avoidance of double counting
Additional comment	N/A

Data / Parameter	ICS 16 Presence of stove stacking
Unit	NA
Description	Descriptive statistics of the presence and usage practices of baseline- and other non-project-technology by project technology end users
Source of data	Usage Survey

Value(s) applied	NA
Measurement methods and procedures	As per Survey records
Monitoring frequency	Annual
QA/QC procedures	The calculation of $SFS_{p,b,y}$, $SFC_{p,y}$, SE_{b,y,CO_2} and/or $SE_{b,y,nonCO_2}$ has been cross-checked with the observed presence of stove stacking
Purpose of data	Monitoring stove stacking
Additional comment	N/A

Data / Parameter	ICS 19 $P_{p,y}$
Unit	mass or volume units/household-day, mass or volume units/person-meal, etc.
Description	Quantity of fuel that is consumed in project scenario p during year y
Source of data	Monitoring Survey
Value(s) applied	3.74 kg/household/day (or) 0.00374 tonnes/household/day
Measurement methods and procedures	Measured
Monitoring frequency	Updated every two years, or more frequently
QA/QC procedures	Compliance with the general requirements for sampling (Section 4.4), general requirements for QA/QC (Section 4.5) and Annex 2 Kitchen performance test specified in the applied GS methodology TPDDTEC v4.0 ⁹
Purpose of data	Emission Reduction Calculations
Additional comment	Used to calculate SDG 12 & SDG 15 as well

⁹ [Reduced emissions from cooking and heating – Technologies and Practices to Displace Decentralized Thermal Energy Consumption \(TPDDTEC\) – Gold Standard for the Global Goals](#)

Data / Parameter	ICS 20 $SFS_{b,p,y}$
Unit	mass or volume units/technology*day
Description	Specific fuel savings for an individual project technology of baseline b/project p pair in year y
Source of data	Calculated from $P_{b,y}$, $P_{p,y}$
Value(s) applied	5.76 kg/household/day (or) 0.00576 tonnes/household/day
Measurement methods and procedures	$P_{b,y} - P_{p,y}$
Monitoring frequency	Updated every two years, or more frequently
QA/QC procedures	$\eta_{new}/\eta_{old} = 35.4/10 = 3.54$ $P_{b,y}/P_{p,y} = 9.5/3.74 = 2.54 < 3.54$ Hence, the wood savings calculated are within the limits of proportional efficiency and capping is not required.
Purpose of data	Emission Reduction Calculations
Additional comment	Used to calculate SDG 12 & SDG 15 as well

Data / Parameter	ICS 26 $U_{p,y}$
Unit	Percentage
Description	Weighted average usage rate in project scenario p during year y
Source of data	Usage survey, integrated with monitoring survey. The surveys were conducted upon representative samples in conjunction with monitoring surveys. The usage survey result must provide the statistically valid proportion of users actively using the project

	technology for each project technology age cohort. From the annual usage survey results, calculate the weighted average percent of users actively using the project technology, where the weighting is by the quantity of project technologies of each age cohort being credited in each project scenario.
Value(s) applied	90%, for the good practice in the "Requirements and Guidelines: Usage Rate Monitoring v2.0"
Measurement methods and procedures	As per "para 2.4.1 of Cookstove usage rate guidelines¹⁰" method applied for continuous use monitoring is as follows: 1. Mandatory level a. In person household surveys b. Verification by tele caller team of CME. 2. Good practice a. Field team training b. End -user training and follow ups c. Regular Stakeholder consultations 3. Best practice – not claimed by CME .
Monitoring frequency	At least annually
QA/QC procedures	Compliance with the general requirements for sampling (Section 4.4), general requirements for QA/QC (Section 4.5) and Annex 2 Kitchen performance test specified in the applied GS methodology TPDDTEC v4.0
Purpose of data	Emission Reduction Calculations
Additional comment	N/A

Data / Parameter	ICS 27 $N_{b,p,y}$
Unit	days

¹⁰ [Cookstove Usage Rate Guidelines – Gold Standard for the Global Goals](#)

Description	Number of project technology-days included in the project database for baseline b/project p pair in year y
Source of data	Calculated from the Project database (see section 3.4.B. Project database) as the sum of the number of project technology units times the calendar days during the year y that they were present at the end user locations
Value(s) applied	3,168,640
Measurement methods and procedures	-
Monitoring frequency	Calculated annually
QA/QC procedures	Cross checked the results of the usage survey with the contents of the project database to confirm whether the project technology units surveyed are present at end user locations as expected, or not.No discrepancies were found during the database check..
Purpose of data	Emission Reduction Calculations
Additional comment	N/A

Data / Parameter	ICS 28 $LE_{p,y}$
Unit	tCO ₂ e per year
Description	Leakage in project scenario p during year y
Source of data	As per section 3.11 of the respective methodology
Value(s) applied	Default discount value of 0.95
Measurement methods and procedures	N/A
Monitoring frequency	Default discount value of 0.95 applied to emission reductions
QA/QC procedures	Compliance with the general requirements for sampling (Section 4.4), general requirements for QA/QC (Section 4.5) and Annex 2 Kitchen performance test specified in the applied GS methodology TPDDTEC v4.0
Purpose of data	For calculation of Leakage

Additional comment	N/A
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SDG 3

Data / Parameter	N _{SDG 3}
Unit	Percentage
Description	Percentage of ICS users perceiving health conditions improved after using ICSs
Source of data	Project Survey results
Value(s) applied	88.33%
Measurement methods and procedures	End-users of ICS in the project area are surveyed on the influence of ICS usage on their health conditions
Monitoring frequency	Annually
QA/QC procedures	Questions were included in the monitoring survey questionnaire to assess the parameter. The survey results indicate the proportion of population who perceives improved health conditions.
Purpose of data	Calculation of parameter N _{SDG 3}
Additional comment	N/A

SDG 5

Data / Parameter	N _{SDG 5}
Unit	Percentage
Description	Time saving from collection of fuel wood and cooking
Source of data	Project Surveys
Value(s) applied	93.33%
Measurement methods and procedures	End-users of ICS in the project area are surveyed the number of hours reduced due to usage of the project cookstove via cooking and fuel wood collection

Monitoring frequency	Annually
QA/QC procedures	Questions were included in the survey questionnaire to assess the parameter. The survey results indicate the average time saving associated with fuel collection and cooking among end-users.
Purpose of data	To monitor the positive contribution of the proposed project related to the SDG 5 contribution
Additional comment	N/A

SDG 7

Data / Parameter	N _{ICS}
Unit	Number
Description	Number of the efficient project cookstoves distributed
Source of data	Project database
Value(s) applied	19,804
Measurement methods and procedures	The project monitoring database provides a list of end users with number of efficient cookstoves per end user
Monitoring frequency	Annually
QA/QC procedures	Project Database for cross-checking
Purpose of data	Calculation of the parameter "Number of the efficient project cookstoves distributed"
Additional comment	N/A

SDG 8

Data / Parameter	N _{EP}
Unit	Number
Description	Full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.
Source of data	Employment records

Value(s) applied	20
Measurement methods and procedures	The HR records of all employees are monitored
Monitoring frequency	Annually
QA/QC procedures	Employment Records maintained by the CME
Purpose of data	Calculation of the parameter "Number of people employed"
Additional comment	N/A

SDG 12

Data / Parameter	N _{SDG 12}
Unit	Percentage
Description	Percentage reduction in fuelwood usage per household per day
Source of data	Baseline & Monitoring survey records
Value(s) applied	60.67%
Measurement methods and procedures	As per the baseline and monitoring surveys, the reduction in fuelwood consumption has been calculated.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	To monitor the positive contribution of the proposed project related to the SDG 12
Additional comment	N/A

SDG 15

Data / Parameter	N _{SDG 15}
Unit	kg/household/day
Description	Amount of fuel wood saved by the project
Source of data	Baseline & monitoring survey records

Value(s) applied	5.76 kg/household/day
Measurement methods and procedures	As per the baseline and monitoring surveys, the fuelwood savings have been calculated.
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	To monitor the positive contribution of the proposed project related to the SDG 15
Additional comment	N/A

D.3. Comparison of monitored parameters with last monitoring period

Not Applicable as the respective document reflects the first monitoring period

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
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D.4. Implementation of sampling plan

>> Description of the implemented 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, simple random sampling is undertaken as part of a project instance-wide Sampling Plan that is designed in line with the "guideline of the Sampling and surveys for CDM project activities and programme of activities", version 04.0¹¹.

Sampling Approach details:

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 "para 11 of Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities v9.0¹²" - 90/10 confidence/precision to be adopted for small-scale project and

¹¹ https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20151023152925068/Meth_GC48_%28ver04.0%29.pdf

¹² https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20210531160756223/Meth_Stan05.pdf

95/10 for large-scale project. Given that the size of the project is under the category of large-scale projects as per Gold Standard guidelines, hence 95/10 confidence/precision is adopted for all parameters unless the average annual emission reductions of the project fall below the threshold.

The target population is the set of ICS deployed under the project.

The project involves distribution of ICS throughout the project area where it replaces the traditional cookstoves and the traditional cooking practices. The population is homogenous with respect to baseline technology i.e. mud stoves having similar operating characteristics. The population targeted for distribution of ICS shows heterogeneity in terms of geographic location as it is spread across different districts of Nepal. Hence, Simple Random Sampling is undertaken as it is suitable if there is little heterogeneity amongst the units being sampled¹³

Sample Size

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 4.0, there are different ways available to obtain the estimates of the parameter of interest:

- (a) Refer to the result of previous studies and use the 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.

Sampling frame:

Entire population of beneficiaries who have received ICS (Shri stove) as part of the VPA i.e. 19,804.

Sampling method: Simple random sampling technique is applied. The Sample size for the target population was calculated as demonstrated in Ex post ER sheet submitted to the VVB.

Sampling calculation for Baseline and monitoring survey:

¹³ [Meth_GC48 \(ver04.0\).pdf \(unfccc.int\)](#) (Table 1)

As per 'Section 4.3 Baseline scenario survey' of the applied methodology i.e. Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) v4.0, the sample sizing has followed the guideline of:

For group size greater than 1000, sample size taken as 100
Additional samples are taken in case of Non-responsive samples
Total Sample Size = 108

4.3 | Baseline scenario survey

4.3.1 | The baseline scenario survey provides critical information on target population characteristics, baseline technology use, fuel consumption, leakage, and sustainable development indicators.

4.3.2 | **Representativeness:** The baseline survey requires in person interviews with a robust sample of end users without project technologies that are representative of end users targeted in the project activity.

4.3.3 | **Sample Sizing:** The baseline survey should be carried out for each baseline scenario using representative and random sampling, following these guidelines for minimum sample size:

Group size	Minimum sample size
<300	30 or population size, whichever is smaller
300 to 1000	10% of group size
> 1000	100

Sampling calculation for Usage survey (integrated with monitoring survey)
To estimate the sample size, the following equation is used¹⁴:

$$n \geq \frac{1.96^2 NV}{(N-1) \times 0.1^2 + 1.96^2 V} \quad \text{Equation (40)}$$

Where: $V = \frac{SD^2}{\bar{p}^2} = \frac{\text{overall variance}}{\bar{p}^2}$ and $\bar{p}$ is the overall proportion.

Where:

Parameter	Value
n = Sample size	To be calculated
N = Population size (Total number of households/ICS)	19804
mean = Expected mean	0.9

¹⁴ Meth_GC48 (ver04.0).pdf (unfccc.int)

SD = Expected standard deviation	0.09
1.96 = Represents the 95% confidence required (In the case of 90% confidence, 1.645 is used)	
0.1 = Represents the 10% relative precision	

Calculation of Sample Sizes		
Calculation of Sample Sizes in Simple Random Sampling for Parameter N_{CS}		
Definition	Value	Justification
The population size N is	19,804	Number of stoves registered in database
The expected proportion is	0.9	A conservative assumption of 90% is applied for sample size calculation.
V	0.11	
Sample size	42.59	
Sample size (rounded up)	43	
Therefore the sample size for parameters N_{CS}	43	
	52	

$$n \geq 1.96^2 * (19804) * (0.11) / ((19804-1)*0.1^2 + 1.96 (0.11^2))$$

$$n > 43$$

More samples are collected than the required/ calculated sample size as per the above method. The project developer only checks the calculated sample size for usage survey inclusion with the monitoring survey

All calculations related to sampling are showcased transparently in a separate related excel sheet submitted to VVB.

Sr No.	District Name	Numbers of Samples
1	Banke	46
2	Bardiya	19
3	Siraha	15
4	Jhapa	9
5	Parsha	11
6	Surkhet	2
7	Dhanusha	10
8	Dang	8
Total		120

QA / QC

The sampling plan aimed to ensure the quality and accuracy of the data collected by implementing various measures to minimize sampling errors and prevent bias from the interviewer. The CME used over-sampling to achieve the required level of precision. The CME provided a one-day training on 25/12/2023 to the SMG Buddies, during which

they were trained to follow the monitoring plan procedures, including maximizing response rates and documenting out-of-population cases, refusals, and other sources of non-response. Good questionnaire design and well-tested questionnaires were used to prevent bias from the interviewer.

To ensure high-quality data, the CME implemented a quality control and assurance strategy that documented procedures to address non-sampling errors such as non-response or interviewer bias. The presence of outliers in the continuous sample data for the mean value parameter was possible, and the CME identified and addressed outliers to maintain data quality. The quality control and assurance strategy were regularly reviewed and updated to ensure that it remained effective and relevant to the project's goals.

By following the procedures outlined in the sampling plan and continually monitoring and addressing any potential issues, the CME is confident in the quality and accuracy of the data collected, enabling them to make informed decisions based on reliable information.

SECTION E. CALCULATION OF SDG IMPACTS

E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

>>

SDG 13

Since the baseline fuel and project fuel are the same, emission reductions are exclusively from improved efficiency. The project, therefore, Method 1 is used as per the applied methodology in calculating the emission reduction as per the clause 3.10.1 of "TPDDTEC v4.0".

The GHG emissions reduction achieved by the project activity in year y is calculated using equation 1. Equation one has been adjusted to include leakage where the project has applied a default value of *0.95 to equation 1. In line with the applied methodology TPDDTEC¹⁵, version 4.0, emission reductions can be estimated by using the following formulas:

¹⁵ <https://globalgoals.goldstandard.org/407-ee-ics-technologies-and-practices-to-displace-decentralized-thermal-energy-tpddtec-consumption/#>

$$ER_y = \sum_{b,p} (N_{b,p,y} \times U_{p,y} \times SFS_{p,b,y} \times NCV_{b,fuel} \times (f_{NRB,b,y} \times EF_{b,f,CO2} + EF_{b,f,nonCO2})) - \sum LE_{p,y} \quad Eq. 1$$

Where,

ER_y	= Emission reduction for total project activity in year y (tCO ₂ e/yr)
$\sum_{b,p}$	= Sum over all relevant baseline b/project p pairs
$N_{b,p,y}$	= Number of project technology-days included in the project database for baseline b/project p pair in year y (days)
$U_{p,y}$	= Cumulative Usage rate for technologies in project scenario p in year y (fraction)
$SFS_{p,b,y}$	= Specific fuel savings for an individual project technology of baseline b/project p pair in year y (mass or volume units/technology*day) (Refer to Section 4.1 below for further details)
$NCV_{b,fuel}$	= Net calorific value of the fuel(s) that is substituted or reduced in baseline b (TJ/mass or volume units)
$f_{NRB,b,y}$	= Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.
$EF_{b,f,CO2}$	= CO ₂ emission factor from use of fuel f (tCO ₂ /TJ)
$EF_{b,f,nonCO2}$	= Non-CO ₂ emission factor arising from use of fuel f , when the baseline fuel f is biomass or charcoal (tCO ₂ e/TJ). This parameter is omitted when f is a fossil fuel.
$LE_{p,y}$	= Leakage for project scenario p in year y (tCO ₂ e/yr)

The determination of Quantity of baseline fuel consumption as well as project fuel consumption, Kitchen Performance tests are conducted as per the guidelines prescribed in applicable methodology and survey requirements for each project.

Consequently, The Baseline fuel consumption is 9.5kg/day/household. The project fuel consumption is 3.74/kg/household/day

Therefore, the emission reductions are:

Description	Abbreviation	Value	Unit	Note
Net Emission reduction for total project activity in year y after Leakage (tCO ₂ e/yr)	ER _y	3.138992	tCO ₂ e/year	
Net Emission reduction for total project activity in year y after Leakage (tCO ₂ e/yr)	ER _y	0.2615827	tCO ₂ e/month	
Net Emission reduction for total project activity in year y after Leakage (tCO ₂ e/yr)	ER _y	0.0086000	tCO ₂ e/day	
Emission reduction for total project activity in year y (tCO ₂ e/yr)	ER _y	0.009053	tCO ₂ e/day	
Sum over all relevant baseline b/project p pairs	Σ _{p,p}	N/A	-	
Number of project technology-days included in the project database for baseline b/project p pair in year y (days)	N _{b,p,y}	1	day	Calculate for 1 day
Cumulative Usage rate for technologies in project scenario p in year y (fraction)	U _{p,y}	90%	-	Calculate for 1 stove
Specific fuel savings for an individual project technology of baseline b/project p pair in year y (mass or volume units/technology* day)	SFS _{p,b,y}	0.00576	tonne/ICS/day	
Net calorific value of the fuel(s) that is substituted or reduced in baseline b (TJ/mass or volume units)	NCV _{b,fuel}	0.0156	TJ/tonne	Methodology default as per TPDDTEC v4.0
Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.	f _{NRB,b,y}	0.9144	-	f _{NRB} Calculation sheet
CO ₂ emission factor from use of fuel f (tCO ₂ /TJ)	EF _{b,f,CO2}	112	tCO ₂ e/TJ	Methodology default as per TPDDTEC v4.0
Non-CO ₂ emission factor arising from use of fuel f, when the baseline fuel f is biomass or charcoal (tCO ₂ e/TJ). This parameter is omitted when f is a fossil fuel.	EF _{b,f,nonCO2}	9.46	tCO ₂ e/TJ	Methodology default as per TPDDTEC v4.0
Leakage for project scenario p in year y (tCO ₂ e/yr)	LE _{p,y}	0.000453	tCO ₂ e/day	Applied leakage discount of 0.95 as per TPDDTEC v4.0
Baseline Fuel Calculation	FB _{b,y-WOOD}	0.00950	tonne/day	From Baseline Survey
Project Fuel Calculation	FB _{p,y-WOOD}	0.00374	tonne/day	From Monitoring Survey

Parameter	Value	Unit
Emission reductions per ICS	3.138992	tCO ₂ e/year
Emission reductions of 19,804ICS, for current monitoring Period	19,415	tCO ₂ e

Therefore, the total emission reductions for the current monitoring period is 19,415 tCO₂e.

Monitoring Year	Baseline estimate	Project estimate	Net Benefit
2023 (09/09/2023 to 31/12/2023)	19,415	0	19,415

Since, the emission reductions are calculated entirely from improved efficiency, hence baseline estimate is shown as zero. The usage of project technology, which is the primary reason behind emission reductions, happens only in the project scenario.

SDG 3

3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

For **“Reduced Indoor Air Pollution”**, the baseline situation is poor due to usage of inefficient burning stoves which generate a lot of smoke and leads to health problems related to Indoor air pollution.

All the users were using traditional cookstoves leading to problem in smoke related health issues and no users reported any improvement in indoor air quality in the baseline situation.

Calculated by Percentage of baseline users perceiving reduced indoor air pollution with the usage of traditional stoves.

In the Baseline scenario, due to the usage of the traditional stoves, the households reported high levels of indoor air pollution and related health issues. Therefore, the baseline estimate of SDG 3 is zero.

$$\text{SDG } 3_{\text{Baseline}} = 0\%$$

SDG 5

5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate

For **“Women empowerment and gender equality”**, the baseline situation is not equal as the time spent on cooking food and fuelwood collection for cooking, which is mostly done by women, is much higher due to the usage of traditional inefficient stoves. The time spent, could be otherwise utilized for meaningful education and other activities, especially for households where the girl child also assists in cooking activities.

Time savings in fuelwood collection is achieved with high stove efficiency which leads to reduced requirement of fuel and hence less time taken to obtain the respective fuel.

Time savings in cooking food is achieved with high stove efficiency which results in targeted heat distribution and faster cooking.

The baseline estimate is calculated by Percentage of baseline users perceiving time savings on cooking and wood fuel collection with the usage of traditional stoves.

In the baseline scenario, none of the users reported time saving from cooking and fuel collection due to the usage of traditional stoves, therefore the baseline estimate of SDG 5 is zero.

$$\text{SDG } 5_{\text{Baseline}} = 0\%$$

SDG 7

7.1 By 2030, ensure universal access to affordable, reliable and modern

energy services

For **“Increased access to clean cooking”** the baseline estimate is calculated by the number of users which have access to clean cooking devices such as Shri stove.

In the baseline scenario, all the users were having traditional inefficient stoves as their cooking device and none of the users reported having an improved cookstove.

Therefore, the baseline estimate for SDG 7 is zero, as No Improved Stoves were in usage in the Baseline Scenario.

$$\text{SDG 7}_{\text{Baseline}} = 0$$

SDG 8

8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

For **“Increased employment opportunities”**, the baseline estimate is calculated as the number of people employed as part of stove production and distribution process, as well as allied activities in the execution of the project activities.

There was no person involved in ICS distribution project and allied activities in the baseline scenario.

$$\text{SDG 8}_{\text{Baseline}} = 0$$

No people were employed in the Baseline Scenario.

SDG 12

12.2 By 2030, achieve the sustainable management and efficient use of natural resources

Percentage of reduction in fuel consumption

Determined from the fuel saving while cooking on project Improved Cookstove due to increased efficiency over Baseline devices leading to an efficient use of natural resources.

$$\text{Baseline Fuel usage} = 9.5 \text{ kg/household/day}$$

Baseline value taken from the Baseline Survey conducted for fuel usage among the households.

Since, No Improved Stoves were in usage in the Baseline Scenario. Therefore, baseline estimate for SDG 12 is based on amount of fuel used estimated Ex-ante i.e. 3 kg/household/day (as per VPA-DD):

Therefore, %change (Fuel_{Baseline} – Fuel_{Project}) = %change (9.5 – 3.0) = 68.42%

Parameter	Description	Baseline Estimate	Units
% (Fuel _{Baseline} – Fuel _{Project})	Percentage reduction in fuelwood consumption	68.42%	%

SDG 15

15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

Reduced deforestation attributed to wood fuel savings

Fuelwood collection for cooking purposes is one of the factors of affecting forest degradation and deforestation and, therefore, it can be inferred that a reduction in fuelwood demand created by this project (through the use of fuel-efficient project stoves), will turn in reduced forest degradation and risk for degradation and have a positive impact on soil conditions and biodiversity.

Baseline Fuel usage = 9.5 kg/household/day

Baseline value taken from the Baseline Survey conducted for fuel usage among the households.

Since, No Improved Stoves were in usage in the Baseline Scenario. Therefore, baseline estimate for SDG 12 is based on amount of fuel used estimated Ex-ante i.e. 3 kg/household/day (as per VPA-DD):

Therefore, baseline estimate for Wood savings is calculated as: Wood_{Baseline} - Wood_{Project} i.e. 9.5-3.0 = 6.5 kg/household/day

Parameter	Description	Net benefit	Units
SDG 15 _{Baseline}	Average fuel wood savings in baseline	6.5	kg/ household /day

E.2. Calculation of project value or estimation of project situation of each SDG Impact

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SDG 13 Calculations

Emission reductions

The ex-ante calculations of the outcomes of SDG 13 (i.e. CO₂e reductions) are provided in a separate Excel Spreadsheet uploaded to GS Assurance portal.

$$ER_y = \sum_{b,p} (N_{b,p,y} \times U_{p,y} \times SFS_{p,b,y} \times NCV_{b,fuel} \times (f_{NRB,b,y} \times EF_{b,f,CO2} + EF_{b,f,nonCO2})) - \sum LE_{p,y} \quad Eq. 1$$

$ER_y = \sum_{b,p} (N_{b,p,y} \times U_{p,y} \times SFS_{p,b,y} \times NCV_{b,fuel} \times (f_{NRB,b,y} \times EF_{b,f,CO2} + EF_{b,f,nonCO2})) - \sum LE_{p,y} \quad Eq. 1$				
Description	Abbreviation	Value	Unit	Note
Net Emission reduction for total project activity in year y after Leakage (tCO₂e/yr)	ER_y	3.138992	tCO₂e/year	
Net Emission reduction for total project activity in year y after Leakage (tCO ₂ e/yr)	ER _y	0.2615827	tCO ₂ e/month	
Net Emission reduction for total project activity in year y after Leakage (tCO ₂ e/yr)	ER _y	0.0086000	tCO ₂ e/day	
Emission reduction for total project activity in year y (tCO ₂ e/yr)	ER _y	0.009053	tCO ₂ e/day	
Sum over all relevant baseline b/project p pairs	Σ _{b,p}	N/A	-	
Number of project technology-days included in the project database for baseline b/project p pair in year y (days)	N _{b,p,y}	1	day	Calculate for 1 day
Cumulative Usage rate for technologies in project scenario p in year y (fraction)	U _{p,y}	90%	-	Calculate for 1 stove
Specific fuel savings for an individual project technology of baseline b/project p pair in year y (mass or volume units/technology*day)	SFS _{p,b,y}	0.00576	tonne/ICS/day	
Net calorific value of the fuel(s) that is substituted or reduced in baseline b (TJ/mass or volume units)	NCV _{b,fuel}	0.0156	TJ/tonne	Methodology default as per TPDDTEC v4.0
Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.	f _{NRB,b,y}	0.9144	-	fNRB Calculation sheet
CO ₂ emission factor from use of fuel f (tCO ₂ /TJ)	EF _{b,f,CO2}	112	tCO ₂ e/TJ	Methodology default as per TPDDTEC v4.0
Non-CO ₂ emission factor arising from use of fuel f, when the baseline fuel f is biomass or charcoal (tCO ₂ e/TJ). This parameter is omitted when f is a fossil fuel.	EF _{b,f,nonCO2}	9.46	tCO ₂ e/TJ	Methodology default as per TPDDTEC v4.0
Leakage for project scenario p in year y (tCO ₂ e/yr)	LE _{p,y}	0.000453	tCO ₂ e/day	Applied leakage discount of 0.95 as per TPDDTEC v4.0

SDG 13: Climate Action (tCO ₂ e)			
Monitoring year	Baseline calculation	Project Calculation	Net benefit
Year-1 09/09/2023 to 31/12/2023	19,415	0	19,415

SDG 3 Calculations

Estimated % users perceiving improved health conditions after using project ICSs

The project's improved cookstoves save fuelwood consumption in household along with emitting less smoke when compared to the traditional mud cookstoves used in project area. Lower smoke helps in reducing respiratory diseases and other health hazards, as well as medical expenditure, which means less air pollution emission. Hence using high-efficiency cookstoves improves the health conditions in household.

The contribution of the project to SDG 3 is confirmed by a qualitative survey with a representative number of households in which pollution-related inconveniences (such as smoke levels, itchy eyes and breathing problems) in the project scenario are compared to the baseline scenario. The confirmation of households that due to the project there is less indoor air pollution and related inconveniences have decreased, compared to the baseline scenario, provides the evidence that the project positively contributes to SDG 3.

Calculated by Percentage of ICS users perceiving reduced indoor air pollution post deployment of the project improved cookstoves

$$\text{Net Benefit (SDG 3)} = \text{Health}_{\text{Project}} - \text{Health}_{\text{Baseline}} = 88.33\% - 0\% = 88.33\%$$

Beneficiary Name	Stove Model	Stove Serial Number	How much smoke is generated from ICS compared to mud stove?
Hadamtul Darje	Shri Stove	Aj2539	Less
DhirjaDevi Kumhar	Shri Stove	Ad0830	Less
Laxheram Khatek	Shri Stove	Aj2714	Less
Trebhuwan Chamar	Shri Stove	AJ3160	Less
Rahema Darje	Shri Stove	Ad0560	Less
Omkar Khatek	Shri Stove	AJ2721	Less
Kaylash Chamar	Shri Stove	AJ1971	-
Sangeta Loniya	Shri Stove	AJ2613	Less
Pawara Khatik	Shri Stove	AJ2522	Less
Juberali Shai	Shri Stove	AJ3103	Less
Virendrakumar Thoke	Shri Stove	Aj2745	Less
Dataram Chamar	Shri Stove	Aj2166	Less
Tila Ram	Shri Stove	AJ2427	Less
MohanKumar Oli	Shri Stove	AJ3057	Less
Meenakumare Loniya	Shri Stove	Aj2001	Less
Urmila Kurmi	Shri Stove	AJ2981	Less
Jaybulnesha Darje	Shri Stove	AJ3238	Less
HakimAli Shekh	Shri Stove	Aj2969	Less
Rita Kumari	Shri Stove	Aj2850	Less
Safemohd Behna	Shri Stove	AJ2478	Less
Rina Yadav	Shri Stove	Aj2190	Less
Ramkumar Chamar	Shri Stove	AJ2390	Less
Koele Khatek	Shri Stove	AJ2809	Less
Kharakbahadur Budhathoki	Shri Stove	Aj2546	Less
Saina Shek	Shri Stove	Aj3069	Less
Rukmaredevi Khatek	Shri Stove	AJ3385	Less

SDG 5 Calculations

Estimated % of user perceiving time savings in fuel collection and cooking

The use of the project improved cookstove in a household helps in reducing the time spent on fuelwood collection which is mostly done by women.

$$\text{Net Benefit (SDG 5)} = T_{\text{Project}} - T_{\text{Baseline}} = 93.33\% - 0\% = 93.33\% \text{ of users}$$

Fuel Usage Survey (in Kg)	3.74		% SDG 1 (Money Savings)	90.83	% SDG 5 (Time Savings)	93.33
Beneficiary Name	District	Village	Stove Model	Stove Serial Number	How much time in comparison to traditional stove it takes to collect fuel for daily meal preparation on ICS?	How much time in comparison to traditional stove it takes for meal preparation (and other usage) on ICS?
Sabstram Khatek	BARDIYA	village sekhapurwa	Shri Stove	AJ2090	Less	Less
Mangal Khatek	BARDIYA	village sekhapurwa	Shri Stove	AJ3337	Less	Less
MeetaKumari Gadariya	BANKE	thulo khajura janki	Shri Stove	AJ3006	Less	Less
Cheman Karwal	BARDIYA	village emileyalahar	Shri Stove	AJ3256	Less	Less
Kaylash Chamar	BARDIYA	village gurvagao	Shri Stove	AJ3052	Less	Less
Geetadevi Khatek	BARDIYA	village sekhapurwa	Shri Stove	AJ3362	Less	Less
Kumare Loniya	BARDIYA	village dethapur	Shri Stove	AJ2402	Less	Less
Sonenegam Baneya	BANKE	janki4 gejra	Shri Stove	AJ3047	Less	Less
Laxmikumari Budhamagar	BANKE	bhadrapur linepur khajurakhurd	Shri Stove	AJ3306	Less	Less
Patangi Chamar	BARDIYA	village emileyalahar	Shri Stove	AJ2994	Less	Less
Parasram Chamar	BARDIYA	village ramgao	Shri Stove	AJ2015	Less	Less
Prahlad Loniya	BARDIYA	village gurvagao	Shri Stove	AJ2050	Less	Less
Murtuja Sai	BANKE	janki ward 4 gijira	Shri Stove	Ad0791	Less	Less
Bhagoti Ahir	BANKE	thulo khajura janki	Shri Stove	AJ2807	Less	Less
Jafar Nau	BARDIYA	village gurvagao	Shri Stove	AJ3011	Less	Less

SDG 7 Calculations

Number of people/households with access to basic service provided by the project device

Derived from the cookstove distribution by the project i.e. 19,804 improved cookstoves in total among household end-users.

$$\text{Net Benefit (SDG 7)} = N_{\text{Project}} - N_{\text{Baseline}} = 19,804$$

Parameter	Description	Net benefit	Units
N	No. of people/households with access to basic service	19,804	Number

SDG 8 Calculations

Total number of jobs

20 job roles estimated to be created through stove production and distribution processes and other project activities to be executed.

$$\text{Net Benefit (SDG 8)} = N_{\text{Project}} - N_{\text{Baseline}} = 20$$

Parameter	Description	Net benefit	Units
SDG _{job}	Job roles created in project	20	Number

Sr No.	Nos of Male Employees	Nos of Female Employees	Total Employees
1	13	7	20

SDG 12 Calculations

Percentage reduction in fuelwood consumption

From the baseline Survey the average household size is 5 persons per household and the average woody biomass consumption is 9.5 kg/household/day. Under the project scenario average woody biomass consumption is 3.74 kg/household /day.

Hence, the percentage reduction in fuel wood consumption equals to $(1 - \text{FC}_{\text{Project}}/\text{FC}_{\text{baseline}}) \times 100$; i.e. $(1 - 9.5/3.74) \times 100 = 60.67\%$ Fuelwood savings

SDG 12 : Percentage reduction in fuelwood consumption			
Project year	Baseline calculation	Project Calculation	Net benefit
Year-1	9.50	3.74	60.67%

SDG 15 Calculations

Total non-renewable wood fuel saved

From the baseline Survey the average household size is 5 persons per household and the average woody biomass consumption is 9.5 kg/household/day. Under the project scenario average woody biomass consumption is 3.74 kg/household/day.

Hence a total of $\text{Wood}_{\text{Baseline}} - \text{Wood}_{\text{Project}} (9.5 - 3.74) = 5.76$ kg/household/day Fuel savings

SDG 15: Life on Land (kg/household/day)			
Project year	Baseline calculation	Project Calculation	Net benefit
Year-1	9.50	3.74	5.76

E.3. Calculation of leakage

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As per "para 3.11.2 of the applied methodology TPDDTEC v4.0¹⁶", The default leakage fraction (0.95) is accounted for in the Emission Reduction Calculations

E.4. Calculation of net benefits or direct calculation for each SDG Impact

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
13	Reduction in GHGs emissions	19,415	0	19,415
3	Perceived health conditions improved by the ICS users	0%	88.33%	88.33%

¹⁶ [Reduced emissions from cooking and heating – Technologies and Practices to Displace Decentralized Thermal Energy Consumption \(TPDDTEC\) – Gold Standard for the Global Goals](#)

5	Perceived time saved by women in fuel collection and cooking	0%	93.33%	93.33%
7	Number of people/households with access to basic service provided by the distributed project improved cookstove	0	19,804	19,804
8	Total number of jobs created	0	20	20
12	Percentage reduction in fuelwood consumption	0%	60.67%	60.67%
15	Total non-renewable wood fuel saved	9.5	3.74	5.76

E.5. Comparison of actual SDG Impacts with estimates in approved PDD

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values ¹⁷ achieved during this monitoring period
13	22,028	19,415
3	100%	88.33%
5	100%	93.33%
7	20,000	19,804
8	20	20
12	68.42%	60.67%
15	6.5	5.76

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

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SDG 13

¹⁷ Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

Amount estimated ex ante in the VPA-DD (tCO₂e) is calculated from the Total emission reduction estimated for the entire year of operation of the VPA and number of crediting days in the current monitoring period.

The updated calculation as per the actual operational days is demonstrated in Ex – post ER spreadsheet.

SDG 3 & SDG 5: Majority, but not 100% respondents perceived the benefits during the monitoring surveys

SDG 12 & SDG 15

Project developer estimated project fuel consumption as 3kg/hh/day and actual KPT results produced a value of 3.74 kg/hh/day, therefore reducing the savings slightly and hence the difference observed.

E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

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As demonstrated by the monitoring survey responses provided in a separate spreadsheet i.e. “Ex – post ER sheet”, the decrease in SDG 13 is due to reduction in operational days of each individual stove because of different installation dates. Further, decrease in SDG 3 & 5 is the result of perceived response by the user which differs in case of a small proportion of stove users. The same is demonstrated transparently in the “Ex – post ER sheet.”

SECTION F. SAFEGUARDS REPORTING

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In the first monitoring period there has been no rising requirement of additionally monitoring any specific safeguard. The grievances received during this period have been resolved from the CME’s end which mostly included guidance on the usage of the stove. All grievance channels are fully operational as well.

Other grievances related to the stove like small parts repair, cleaning of stove, fixing handles arise due to mishandling of stove. Such grievances are duly recorded and the representative of CME takes corrective action so that stove usage is not hampered.

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.

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Name of Beneficiary	Date of Issue Raised	Issues Raised	Date of Issue Resolved	Resolution
Amar Bahadur	12/12/2024	Stove Base Broken	22/12/2024	Stove base replaced
Vishnu Maya Mazi	04/10/2025	Stove Burner Damaged	12/10/2024	Stove Burner Replaced
Dinesh Bote	11/11/2024	Stove Burner Damaged	21/11/2024	Stove Burner Replaced
Dhanbahadur	29/09/2024	Stove Handle Damaged	29/09/2024	Stove Handle Replaced

G.2. Report on any stakeholder mitigations that were agreed to be monitored.

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There was no mitigation that was agreed to be monitored with any stakeholder during the monitoring period.

G.3. Provide details of any legal contest that has arisen with the project during the monitoring period

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No legal contest arose due to the project or against the project during the monitoring period. Project is in compliance with the Host Country's legal, environmental, ecological, and social regulation. Additionally, no dispute has arisen with any other party and has not reported any challenges related to the same in the current monitoring period

Revision History

Version	Date	Remarks
1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption