



Verification Report

For

Gold Standard Verification of

PoA: “Improved cook stoves and sustainable charcoal initiative”

VPA: “Improved cook stoves and sustainable charcoal initiative, CPA 1”

Gold Standard Ref No:
GS 7776 (PoA); GS 10716 (VPA 1)
by
atmosfair gGmbH

Monitoring Period:

MP5: 01/01/2023 to 31/12/2023

Report No: CCIPL2189/CDM-GS/VER/ICSASI/20240305

Version Number: 02

Report Date: 10/06/2024

Carbon Check (India) Private Ltd.

Unit No. 1701, Logix City Centre Office Tower, Plot No. BW-58, Sector-32 Noida,
Uttar Pradesh, India

I. PROJECT DATA

Project title:	PoA: Improved cook stoves and sustainable charcoal initiative VPA: Improved cook stoves and sustainable charcoal initiative, CPA 1		
Registration No. / Date:	GS 7776 (PoA) GS 10716 (VPA 1) Design Certification date: 30/03/2021	Scale:	Small
Monitoring period:	MP5: 01/01/2023 to 31/12/2023 (Both days inclusive)	Monitoring Period Number:	5
Methodology:	AMS-II.G. version 12 and AMS-III.BG. version 03	Sectoral Scope/Technical Area:	3 and 5
Publication of MR:	N/A		
Final Monitoring Report:	Version 2 , 19/04/2024		
Average emission reductions:	Estimated: 628,768 tCO _{2e}	Verified:	642,589 tCO _{2e}
GHG reducing measure/technology:	GHG reduction due to reduction of fuel-wood consumption (non-renewable biomass) through implementation of efficient cookstoves and also the consumption of conventional charcoal, by traditional charcoal users, reduces by providing them charcoal generated in these ICSs.		

Party	Project participants	Party considered a project participant	Contract party
India (Host)	Nature Club of Rajasthan	No	No
Germany	atmosfair gGmbH	No	Yes

II. VERIFICATION TEAM

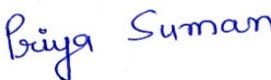
Verification Team				Role									Trainee Assessor
Full name	Affiliation	Appointed for Sectoral Scopes (Technical Areas)	Team leader	Acting/trainee Team Leader	Local Expert	Team Member (Auditor)	Technical Expert	Acting/Trainee Tech. Expert	Trainee Auditor	Technical Reviewer	Expert to TR	Trainee TR	
Mr. Manas Halder	Carbon Check	1.2, 3.1, 13.1	X										
Mr. Sanjay Kumar Agarwalla	Carbon Check	1.1, 1.2, 2.1, 3.1, 4.1, 5.1, 5.2, 9.1, 9.2, 13.1				X	X						
Mr. Tarpan Ghosh	Carbon Check	-											X
Mr. S.	Carbon	1.1, 1.2,								X			

Ranganathan.	Check	3.1, 4.1, 5.1 13.1, 13.2												
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III. VERIFICATION REPORT

Verification Phases and Status:

- ☒ Desk Review ☒ Follow up interviews, On Site Assessment
☒ Resolution of outstanding issues ☒ Corrective Actions / Clarifications Requested
☒ Full Approval and Submission for Issuance ☐ Rejected.

Final Approval Date	Approval	Distribution
☒ Date: 10/06/2024	 Priya Suman, Compliance Officer	☐ No distribution without permission from the Client or responsible organizational unit ☐ Limited Distribution ☒ Unrestricted distribution



Abbreviations

BAU	Business As Usual
CA	Corrective Action / Clarification Action
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO	Carbon Monoxide
CO₂	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
DVR	Draft Validation Report
EB	CDM Executive Board
ETN	Electricity Transaction Note
EF	Emission Factor
ER	Emission Reduction
FA	Final Approval
FAR	Forward Action Request
FVR	Final validation Report
GS	Gold Standard
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan or Monitoring Period
MWh	Mega Watt Hour
MRR	Monthly Reading Records
OSV	On Site Visit
PM	Particulate Matter
PP	Project Participant
QC/QA	Quality control/Quality assurance
RMP	Revised Monitoring Plan
SFR	Stakeholder Feedback Round
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVB	Validation & Verification Body
VVS	Validation and Verification Standard



Verification Opinion — summary

Carbon Check (India) Private Ltd. has performed the 5th periodic verification of the registered PoA “Improved cook stoves and sustainable charcoal initiative” GS reference number GS 7776, registration date 30/03/2021.

The monitoring period under assessment is 5th periodic verification from 01/01/2023 to 31/12/2023 (inclusive of both days). The verification team assigned by the VVB concludes that the GS PoA as described in the GS SSC PoA-DD (version 7.0, dated 21/09/2022) /B01/ and GS SSC VPA-DD (version 7, 21/09/2022) /B02/, meet all relevant requirements of the Gold Standard for Global Goals. The verification has been conducted in-line with the requirements of CDM VVS for PoAs (version 03.0) /B03/ and GS4GG Principles & Requirements version 1.2, /B08/, GS4GG Safeguarding Principles & Requirements version 2.1 /B08/, GS4GG Programme of Activity Requirements and Procedures, version 2.1 /B08/, GS4GG Community Services Activity Requirements version 1.2 /B08/ and other relevant requirements as applicable.

Verification methodology and process

The Verification team confirms the contractual relationship signed on 15/03/2024 between the VVB, Carbon Check (India) Private Ltd. and the Project Participant atmosfair gGmbH /17/. The team assigned to the verification meets the Carbon Check (India) Private Ltd. internal procedures including the UNFCCC and GS4GG requirements /B08/ for the team composition and competence. CCIPL has conducted a thorough contract review as per UNFCCC, GS4GG and Carbon Check procedures and requirements.

The verification has been performed as per the requirements described in the Gold Standard for the Global Goals Principles & Requirements (version 1.2) /B08/ and CDM VVS for PoA (version 03.0) /B03/ and constitutes the review and completion of the following steps:

- Reviewing the registered PoA-DD /B01/ (version 7.0, dated 21/09/2022), including the monitoring plan and the corresponding validation report;
- Reviewing the registered VPA-DD /B02/ (version 7, dated 21/09/2022), including the monitoring plan and the corresponding validation report;
- Desk review of the MR /01/ and other relevant documents including documents related to the project activities in emission reductions.
- Review of the applied monitoring methodology AMS-II.G. “Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass” (version 12) and AMS-III.BG., version 03,” Emission reduction through sustainable charcoal production and consumption /B04/
- Review of any CMP and EB decisions, clarifications and guidance from the Gold Standard;
- On-site visit on 16/04/2024 and 17/04/2024 for MP 5 ;
- Issuance of Draft Verification Report;
- Resolution of CARs and CLs raised during verification;
- Confirmation that any FARs raised during validation or previous verification have been addressed by the Project Participant;
- Issuance of Verification Report

In Carbon Check’s opinion the project activity has been implemented in accordance with the monitoring methodologies /B04/, monitoring plan as contained in the registered PoA-DD and VPA-DD /B01/, /B02/. Based on document review on-site visit and interviews, the verification team confirms that the project has resulted in 642,589 tCO₂e of emission reductions during the reported 5th monitoring period. The GHG parameters and non-GHG parameters were correctly calculated/monitored on the basis of the applied approved monitoring methodologies /B04/ and the registered PoA-DD / VPA-DD /B01/ /B02/.

Carbon Check, as the VVB, is therefore pleased to issue a positive verification opinion expressed in the attached Certification statement and certify the net emission reductions of 642,589 tCO₂e for MP5 from the PoA “Improved cook stoves and sustainable charcoal initiative” during the above stated monitoring period.



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1. INTRODUCTION

The Project Participant (atmosfair gGmbH) has appointed the VVB, Carbon Check (India) Private Ltd. (CC IPL) to perform an independent verification of the GS PoA “Improved cook stoves and sustainable charcoal initiative” in India (hereafter referred to as “Programme of Activities or PoA” with GS ID 7776) for the VPA titled “Improved cook stoves and sustainable charcoal initiative, VPA 1” (GS ID 10716) in West Bengal, India.

The PoA involves replacement of less efficient cooking stoves using woody biomass with improved cooking stoves (ICS) which are more efficient particularly micro wood gasifier stove (TLUD). The VPA is designed to generate emission reductions by distribution of energy efficient or improved stoves for household cooking purposes in India, the same micro wood gasifier stoves also produce charcoal. The ICS (TLUD gasifier cook stove) distributed under the VPA of the GS PoA are more efficient than the traditional cook stove. Moreover, the consumption of conventional charcoal, by traditional charcoal users, reduces by providing them charcoal generated in these ICSs. By replacing inefficient non-renewable biomass based traditional cookstoves, the GS PoA will save on consumption of woody biomass. Charcoal is the by-product in the ICS, this charcoal generated from the project cookstoves will be sold to the charcoal users.

As stated in the MR /01-b/ and verified by document review and during the on-site visit interviews, Nature Club of Rajasthan is the CME and atmosfair gGmbH is the project participant and has sponsored the distribution of the ICS. Sapient Infotech is the manufacturer and distributor of the project stoves along with monitoring.

The VPA is designed to generate emission reductions by distribution of the fuel-efficient charcoal stoves. The fuel-efficient cook stoves are replacing the less efficient baseline stoves in common use (baseline scenario). The CME and VPA implementer are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the component project activities.

This report summarises the findings of the verification of the project, performed on the basis of GS4GG Principles & Requirements version 1.2, GS4GG Safeguarding Principles & Requirements version 2.1, GS4GG Programme of Activity Requirements and Procedures version 2.1, GS4GG community services activity requirements version 1.2 /B08/ and paragraph 62 of the CDM M & P /B09/, as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the CDM Executive Board and Gold Standard Secretariat. Verification is required for all registered GS PoA /B01/ and VPA /B02/ intending to confirm their achieved emission reductions and proceed with request for issuance of GS-VERs. This report contains the findings and resolutions from the verification and a certification statement for the verified emission reductions.

Objective

Verification is the periodic independent review and ex post determination of both quantitative and qualitative information by a Validation & Verification Body (VVB) of the monitored reductions in GHG emissions that have occurred as a result of the registered GS PoA/VPA /B01//B02/ during a defined monitoring period.

Certification is the written assurance by a VVB that, during a specific period in time, a project activity achieved the emission reductions as verified.



The objective of this verification was to verify and certify emission reductions reported for the VPA 1 under the GS-PoA “Improved cook stoves and sustainable charcoal initiative”, in West Bengal, India for the monitoring period MP5 : 01/01/2023 to 31/12/2023.

The purpose of verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data and used to confirm the reductions in anthropogenic emissions by sources, is sufficient, definitive and presented in a concise and transparent manner. Other non-GHG parameters shall also be assessed as per the requirement of GS. Verification of emission reductions for Gold Standard crediting is only for eligible gases.

In particular the monitoring plan, monitoring report and the project's compliance with relevant GS4GG/UNFCCC and host party criteria are verified in order to confirm that the project has been implemented in accordance with the previously registered project design and conservative assumptions, as documented. And also, to confirm that monitoring plan is in compliance with the registered SSC PoA-DD /B01/ and approved monitoring methodologies AMS-II.G (version 12) and AMS-III.BG (version 03.0) /B04/.

Scope

The scope of the verification is:

- To verify the project implementation and operation with respect to the registered SSC-PoA-DD and VPA-DD /B01/, /B02/.
- To verify the implemented monitoring plan with the registered SSC-PoA-DD /B01/ and VPA-DD /B02/ and applied baseline and monitoring methodologies /B04/.
- To verify that the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data /02/ and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data and other non-GHG parameters as per the requirement of GS is sufficiently supported by evidence.

Carbon Check's scope of verification as a third-party verifier is to verify project emission reductions and sustainable development impacts against the requirements set out by the Gold Standard. The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

The verification comprises a review of the Monitoring Report over the monitoring period (MP5 : 01/01/2023 to 31/12/2023) and based on the registered SSC-PoA-DD /B01/ and VPA-DD /B02/ in part of the monitoring parameters and monitoring plan, emission reduction calculation spread sheet, monitoring methodology and all related evidence provided by project participant.

On-site visit interviews are also performed as part of the verification process.

Project Activity Description

Review of monitoring report /01-b/ reveals that the objective of the PoA is to distribute improved cookstoves (ICS) to domestic households in West Bengal, India. The PoA involves replacement of less efficient cooking stoves using woody biomass with improved cooking stoves (ICS) which are more efficient particularly micro wood gasifier stove (TLUD). The VPA is designed to generate emission reductions by distribution of energy efficient or improved stoves for household cooking purposes in India, the same micro wood gasifier stoves also produce charcoal. The ICS (TLUD gasifier cook stove) distributed under the VPA of the PoA are more efficient than the traditional cook stove. Moreover, the consumption of conventional charcoal, by traditional charcoal users, reduces by providing them charcoal generated in



these ICSs. By replacing inefficient non-renewable biomass based traditional cookstoves, the PoA will save on consumption of woody biomass and improves indoor air quality due to reduced emission of smoke, PM and indoor air pollutants. The ICS are a more environment friendly, sustainable and overall healthy means of cooking for rural households.

Nature Club of Rajasthan is the CME and atmosfair gGmbH is the project participant and has sponsored the distribution of the ICS. Sapient Infotech is the manufacturer and distributor of the project stoves along with monitoring. VPA 1 disseminated 165,140 stoves till the end of MP5 which was confirmed through stove distribution database /05/.

The GHG offset during the monitoring period is 642,589 tCO₂e respectively /02/. The PoA aims to support sustainable development in the host country, India. The implementation of ICSs has improved the environment and individual household conditions with respect to indoor air pollution by reduction in smoke, black soot and particulate matter emissions. These Improved biomasses cook stoves are built to reduce use of wood and therefore equivalent indoor air pollutants attributed to incomplete combustion of fuel wood (CO and PM) in baseline scenario. This project reduces greenhouse gas emissions by disseminating efficient biomass cook-stoves, which are more efficient than baseline traditional stoves as verified during onsite observation and interview with household users.

The verification team confirm that the project is in line with the plans contained in the registered GS PoA-DD and VPA-DDs /B01/,/B02/.

2. METHODOLOGY

The verification consists of the following four phases:

1. Completeness check of the Emission Reductions /02/, GS4GG Monitoring Report /01/ and Gold Standard Sustainability Monitoring Report, and Project Administration System;
2. Review of project documentation (monitoring plan, monitoring report, monitoring methodology, project design document, applicable tools in particular attention to the frequency of measurements, QA/QC procedures and other relevant documents and regulations);
3. On-site visit interview (including follow-up interviews with project stakeholders, when deemed necessary) includes the following;
 - An assessment of implementation and operation of project activity with respect to registered PoA-DD /B01/ and VPA-DD /B02/;
 - Review of information flows for generating, aggregating and reporting the monitoring parameters;
 - Interview with relevant personals to determine whether the operations and data collection procedures are implemented and in accordance with monitoring plan of the PoA-DD /B01/ and VPA-DD /B02/;
 - Cross check of information and data provided in the monitoring report with original monitoring survey questionnaires. Also, checking the consistency of the information reported as per the survey forms with actual physical conditions in sampled households;
 - Check of monitoring equipment's, calibration frequency and monitoring practice in-line with methodology and PoA-DD /B01/;
 - Review of assumptions made in calculating the emission reductions;
 - Implementation of QA/QC procedure in-line with the PoA-DD/B01/ and methodology requirement /B04/.
4. Resolution of outstanding issues and the issuance of the final Verification Report and Certification statement.

The following sections outline each step in more detail.

Desk review

The following table outlines the documentation reviewed during the verification:

No.	Title
/01/	Monitoring Report a. GS_MR_PoA10716_MP5_v1 (version 1, dated: 06/03/2024) b. GS_MR_PoA10716_MP5_v2 (version 2, dated: 19/04/2024)
/02/	Emission Reduction spread sheet corresponds to; a. /01-a/- GS_ERsheet_PoA10716_MP5_v1 b. /01-b/-GS_ERsheet_PoA10716_MP5_v2
/03/	Stove specifications by Manufacturer: Sapient infotech dated 13/03/2018
/04/	Survey records for the monitoring period 01/01/2023-31/12/2023
/05/	VPA stove distribution records with stove customer data base including evidence for the dates of distribution
/06/	Sample stoves sales receipt / user agreement
/07/	Water boiling test records (original raw data records and calculation spread sheets) by Sapient dated 03/02/2024 to 08/02/2024
/08/	Calibration records for the monitoring equipment (weigh balance for charcoal and weigh balance, thermometer & moisture meter for WBT) as mention in section D.2 of MR
/09/	Evidence for random number generator for sampling
/10/	Proof that end users are aware of and give up their rights on emission reductions – Samples of 'TLUD Stove Distribution Contract' / 'End User Agreement between CME and Beneficiary' signed on various dates ranging from 19/09/2018 to 16/12/2022
/11/	Copies of the contracts with stove manufacturer including manufacturing inventory sheets Contract between Sapient infotech and Kastury Consultancy dated 19/07/1018
/12/	Laboratory report for NCV of charcoal of reference number TC/201209-0003 dated 09/12/2020
/13/	Charcoal database Invoice/receipts for Charcoal sale including Charcoal Daily report from the Field Agents for the monitoring period
/14/	Training records to field assistant on charcoal weighment and collection on 20/06/2022 and competence of monitoring team (Survey and WBT)
/15/	Copy of contract in between CME/PP/VPA implementer and Sapient dated 12/10/2020 Contract in between Sapient, Kastury, Quality Enterprise
/16/	Employment records of charcoal collection field agents, sales person and factory workers 'Employee payment record for December 2023'
/17/	Contractual relationship signed between the VVB, Carbon Check (India) Private Ltd. and the Project Participant, atmosfair gGmbH on 15/03/2024
/18/	Sample size calculation sheet along with actual samples conducted and the reliability assessment (provided in ER spread sheets)

During the desk review, Carbon Check applied the standard auditing techniques to assess the quality of information provided.

Background documents:

Ref no.	Reference Document
/B01/	Registered PoA DD, version 7.0, dated 21/09/2022
/B02/	Registered VPA DD for VPA 1, version 7, dated 21/09/2022
/B03/	CDM VVS for PoA (version 03.0) CDM PS for PoA (version 03.0) CDM PCP for PoA (version 03.0)
/B04/	Applied CDM baseline and monitoring methodology, - AMS-II.G, version 12 "Energy efficiency measures in thermal applications of non-renewable biomass" - AMS-III.BG., version 03," "Emission reduction through sustainable charcoal production and

	consumption”
/B05/	Instructions for filling out the Gold standard for the global goals - Monitoring report (version 1.1)
/B06/	Guidelines: Sampling and surveys for CDM project activities and programmes of activities (version 04.0)
/B07/	Standard: Standard for sampling and surveys for CDM project activities and Programmes of Activities (version 09.0)
/B08/	GS4GG Principles & Requirements, version 1.2 GS4GG Safeguarding Principles & Requirements, version 2.1 GS4GG Programme of Activity Requirements and Procedures, version 2.1 GS4GG Community Services Activity Requirements, version 1.2
/B09/	CDM Modalities and Procedures

Remote and follow-up interviews with project stakeholders

A.1. On-site inspection

The on-site visit was conducted on 16/04/2024 and 17/04/2024.

Justification for not conducting on-site inspection:

N/A

On-site visit interviews were performed for MP5 by the verification team of Carbon Check on 16/04/2024 and 17/04/2024 and the following activities were performed:

- i. An assessment of the implementation and operation of the registered GS PoA as per the registered SSC-PoA-DD /B01/ and the respective VPA DD /B02/;
- ii. A review of information flows for generating, aggregating and reporting the monitoring parameters;
- iii. Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the SSC PoA-DD /B01/ and the VPA-DD /B02/;
- iv. A cross-check between information provided in the monitoring report /01-a/ and data from other sources such as sales records /06/, monitoring survey questionnaires /04/ or similar data sources;
- v. A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PoA-DD /B01/ and the selected methodologies /B04/ and corresponding tool(s), where applicable;
- vi. A review of calculations and assumptions made in determining the GHG data and emission reductions /02/
- vii. An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters. Verification of the monitoring of sustainable development indicators

The project representatives and stakeholders interviewed:

MP5 On-site interviews:

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Banerjee	Moulindu	Sapient Infotech	16/04/2024 to 17/04/2024	Project implementation and operation, monitoring procedure, data and information flow, Survey records, Sales/Distribution records, WBT procedure and records, Sampling Plan, CER waiver records and procedure, QA/QC Procedures, Management and operating system	Sanjay Kumar Agarwalla, Manas Halder
2.	Dutta	Sanjit K	Sapient Infotech	16/04/2024 to 17/04/2024	Project implementation and operation, monitoring procedure, data and information flow, Survey records, Sales/Distribution records, WBT procedure and records	Sanjay Kumar Agarwalla, Manas Halder
3.	Sing	Ananda	Kastury Consultancy	16/04/2024 to 17/04/2024	Sales/Distribution records, CER waiver records and procedure, Charcoal Production and collection	Sanjay Kumar Agarwalla , Manas Halder
4.	Naskar	Sudipta	Field Assistant, Kastury Consultancy	16/04/2024 to 17/04/2024	Charcoal collection	Sanjay Kumar Agarwalla , Manas Halder
5.	Bar	Ajay	Field Assistant, Kastury Consultancy	16/04/2024 to 17/04/2024	Charcoal collection	Sanjay Kumar Agarwalla , Manas Halder
6.	Payne	Rajat	New Ghosh Dhaba	16/04/2024 to 17/04/2024	Charcoal end user	Sanjay Kumar Agarwalla, Manas Halder
7.	Ghosh	Palash	Arghya Agarbati	16/04/2024 to 17/04/2024	Charcoal end user	Sanjay Kumar Agarwalla, Manas Halder

8.	Naik	Uttam	Medinipur Coal Centre (Charcoal buyer & Distributor)	16/04/2024 to 17/04/2024	Charcoal purchase and sell to end user	Sanjay Kumar Agarwalla , Manas Halder
9.	Kellner	Klara	atmosfair gGmbH	16/04/2024 to 17/04/2024	Project implementation and operation, monitoring procedure, data and information flow, Quality Assurance – Management and operating system, Monitoring records, MR and ER calculation	Sanjay Kumar Agarwalla , Manas Halder
10.	Goyal	Hitesh	Nature Club of Rajasthan	16/04/2024 to 17/04/2024	Project implementation and operation, monitoring procedure, data and information flow, Quality Assurance – Management and operating system, Monitoring records	Sanjay Kumar Agarwalla , Manas Halder
11.	Mallick	Ambika (Daughter-in law)	End User (stove id IN05587)	16/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
12.	Mallick	Rupa (Wife)	End User (stove id IN05536)	16/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
13.	Das	Maya (Wife)	End User (stove id A60357)	16/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
14.	Majhi	Sujata (Wife)	End User (stove id A33060)	16/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
15.	Begum	Najima (Wife)	End User (stove id A39355)	16/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
16.	Dolui	Mangala (Wife)	End User (stove id A55313)	16/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
17.	Samanta	Bula (Wife)	End User (stove id A59883)	16/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
18.	Shee	Rina (Wife)	End User (stove id A43919)	16/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder

19.	Polley	Anjali (Wife)	End User (stove id IN08431)	16/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
20.	Madari	Kalyani (Wife)	End User (stove id A119730)	16/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
21.	Maity	Archana (Wife)	End User (stove id A44272)	17/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
22.	Kuilya	Maya (Wife)	End User (stove id A130950)	17/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
23.	Manna	Chaya Rani (Wife)	End User (stove id A115248)	17/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
24.	Bibi	Rejiya	End User (stove id A110682)	17/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
25.	Samanta	Durga Rani (Wife)	End User (stove id A105127)	17/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
26.	Mondal	Sonali (Wife)	End User (stove id A115290)	17/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
27.	Samanta	Laxmi (Wife)	End User (stove id A70835)	17/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder
28.	Sau	Arati	End User (stove id A143378)	17/04/2024	Monitoring Survey	Sanjay Kumar Agarwalla, Manas Halder

As per the above interviews conducted with the stakeholders/beneficiaries to summarize the discussion the below questions were asked;

- Name of the beneficiaries, address and contact details
- Serial number of the stoves distributed under this project
- Cooking habits (amount of fuel consumption and any other source of cooking (Traditional stoves and LPG...etc)
- Feedback on the project stove
- Any grievance

During on-site visit interviews with the stakeholders/beneficiaries, no grievances has been observed and reported.

Through the above-mentioned activities, the verification team confirmed the following Gold Standard project aspects in relation to the project activity:

- The implementation and operation of the project activity is as described in the monitoring plan in the registered PoA-DD /B01/.
- The operational and data collection procedures are implemented as per the monitoring plan in the PoA-DD /VPA-DD /B01/, /B02/.
- The information flow for generating, grouping and reporting of the monitored parameters.

- Procedures to avoid double counting are in place.

A.2. Sampling approach

The total population of the stoves distributed under VPA 1 till the end of this monitoring period dated 31/12/2023 is 165,140.

The sampling plan implemented by the CME is in accordance with the applied approved monitoring methodologies /B04/ and the registered PoA-DD and VPA-DD. The CME/PP has appropriately performed Simple Random Sampling in accordance with the applied methodologies and the monitoring plan provided in the PoA-DD and the VPA-DD.

The sampling surveys and WBTs have been carried out by the well-trained personnel. Monitoring parameters $\eta_{y,i,j}$ and $\text{fillings}_{y=1}$ are monitored through monitoring sample surveys. Monitoring parameters $\eta_{\text{new},j}$ and $\text{load}_{y=1}$ are monitored through conducting water boiling tests. Monitoring of the parameters ensures compliance with the applied methodologies AMS-II.G, version 12 and AMS-III.BG, version 03 /B04/. Verification team has checked the survey records /04/ and water boiling test records /07/ to confirm the test results. Parameter $\eta_{y,i,j}$ monitors the drop out from total population of ICS in the monitoring period. Parameter $\text{fillings}_{y=1}$ monitors the number of fillings and $\text{load}_{y=1}$ monitors the filling size. Both the parameters $\text{fillings}_{y=1}$ and $\text{load}_{y=1}$ are used to calculate the value of the parameter $B_{y=1,\text{new,survey}}$.

CME has done a sampling for the PoA and the only VPA reported in the monitoring periods, VPA 1 for the current monitoring periods. A confidence/precision level of 95/10 has been used by the PP for all the 4 monitoring parameters determined through applying simple random sampling. An annual survey has been carried out from 04/02/2024 to 18/02/2024. This is in accordance with the sampling plan provided in the registered PoA-DD / VPA-DD. The sample size calculations for each of the monitoring parameters monitored through the sampling has been checked by the verification team and found to be appropriate.

The resultant applied sample size by the PP are summarized below:

Parameters	$DO_{II,G,y}$	$\text{fillings}_{y=1}$	$\text{load}_{y=1}$	$\eta_{\text{new},j}$
Calculated Sample Size	43	8	2	3
Applied Sample Size (to account for non-responses)	43	43	10	10
Precision achieved	0%	2.61%	0.28%	0.84%

Calculated sample size for $DO_{II,G,y}$ was 43 and $\text{fillings}_{y=1}$ was 8. Considering a possible non-response rate of 90%, the size of the monitoring list for common survey of $DO_{II,G,y}$ and $\text{fillings}_{y=1}$ was increased to 48. However, 43 stove users from the sampling list were interviewed during the time of the interview period (04/02/2024 to 18/02/2024), thus the final applied sample size of 43 meets the required sample size calculated as 43 according to the sampling standard and the VPA-DD. The list of samples for the common sample for $\eta_{\text{new},j}$ and $\text{load}_{y=1}$ included 10 households.

As per paragraph 25 of the Sampling Standard, version 09 /B07/, the verification team has to verify whether the project participants or the coordinating/managing entity have implemented the sampling and surveys according to the sampling plan in the registered monitoring plan. The verification includes determining:

- Whether the required confidence/precision has been met;
- Whether the selected sample was representative of the population.

In line with paragraph 26 of the Sampling Standard, the verification team has applied a sampling approach for on-site visit interviews as part of verification. Now as the CME had



applied sampling approach, the verification team has chosen to apply acceptance sampling in accordance with paragraph 28 of the sampling standard /B07/.

VVB used sampling during verification for checking the reported values for the monitoring parameters to check the operational status, fillings sizes, load sizes and to check if the WBT tests have been done in the households. As per the sampling standard /B07/, for this monitoring period, VVB had identified 18 samples each out of the PP's 43 samples for the parameters $\eta_{y,i,j}$, and $fillings_{y=1}$ and confirmed all the 10 samples for the parameters $load_{y=1}$ and $\eta_{new,j}$ based on the AQL/UQL stated below. A sample size of 18 which were interviewed and mentioned in A.1 section above was required, based on an AQL of 1% and UQL of 20%, the producer risk used is 10 % and consumer risk used was 10 %. Acceptance number (c) thus determined for the sample is 1. All the identified 18 samples had the same operational status, average load sizes and fillings as reported in the sampling frame of the CME and hence no discrepancy was found (i.e. c=0). All the households sampled for the monitoring parameter $\eta_{new,j}$ confirmed that the WBT tests were conducted on the stoves from those households. Thus, PP's set of records has been accepted in line with §32 of the sampling standard (version 09.0) /B07/. Verification team has cross verified these sample documents.

The sampling plan implemented by the CME is in accordance with the applied approved monitoring methodology and the PoA-DD/VPA-DD. The CME has appropriately performed Simple random Sampling procedure in line with the applied methodology. As the registered PoA-DD mentions the option for Simple random Sampling procedure, it is acceptable to the verification team.

The necessary confidence / precision of 95/10 each of the parameters are met. This has been cross verified by the verification team from the supporting documents submitted /09/.

Sustainability Monitoring Plan (links the parameter already monitored to the closest, most relevant SDG Target as per GS4GG requirements)

The verification team has cross checked the field survey records /04/, Water boiling test records /07/ during on-site visit interviews with the PP, HHs on sampling basis where the monitoring survey was conducted. Based on the records and information collected on each parameter by VVB during on-site visit interviews, it is concluded whether the values determined and stated in the monitoring report for following parameters are appropriate and correct.

1. Relevant SDG Target: 1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day.

Indicator (Parameter): Income generated by the sales of charcoal

Description: Stove users can sell the charcoal generated in the stove during cooking to the project. This parameter was verified by checking charcoal sales record/13/.

2. Relevant SDG Target: 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services

Indicator (Parameter): Number of households using clean cooking devices such as Improved Cook Stoves

Description: The measurement of the parameter will be based on the number of sales contracts stored and the corresponding number of entries of ICS sold in the database. This parameter was verified by checking stove data base /05/.

3. Relevant SDG Target: 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.



Indicator (Parameter): Number of jobs created by the project activity

Description: The project will employ Field Assistants for stove distribution and charcoal collection. Depending on the number of stoves distributed, additionally drivers will be employed to support charcoal collection. Most jobs will be full time or near to full time. The payment will be above normal local level. This parameter was verified by checking employment records /16/

Resolution of outstanding issues

The objective of this phase of the verification is to resolve any outstanding issues (issues that require further elaboration, research or expansion) which have to be clarified/corrective action done prior to final GS VVB's conclusions on the project implementation, monitoring practices and achieved emission reductions. In order to ensure transparency a verification protocol is completed for the project activity. The protocol shows in transparent manner criteria (requirements), means of verification and resulting statements on verification actual project activity against identified criteria.

The verification protocol serves the following purposes:

- It organises in a table form, details and clarifies the requirements, a GS project is expected to meet GS4GG requirements.
- It ensures a transparent verification process where the GS VVB will document how a particular requirement has been verified and the result of the verification.
- It ensures that the issues are accurately identified, formulated, discussed and concluded in the validation report.
- It ensures the determination of achieving credible emission reductions from the project activity.

The verification protocol consists of two tables. Table 1 reflects the verification requirements and reference to the materials used to verify the project activity against those requirements, as well as means of verification, reference to Table 2 (i.e. tables of findings) and preliminary and final opinion of the GS VVB on every particular requirement listed in table 1.

Verification Protocol Table 1: Requirement checklist

Checklist question	Verification Team Comment/MoV	Reference	Findings comments references, data source / Draft Conclusion	Final Conclusion
<i>The checklist items in Table 1 are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further sub-divided as per the requirements of the topic and the individual project activity.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the Verification team and how the assessment was carried out. The reporting requirements of the VVS and Project Standard shall be covered in this section.</i>	<i>Gives reference to the information source on which the assessment is based on</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR is raised (see below). The assessment refers to the draft verification stage.</i>	<i>In case a corrective action or a clarification request the final assessment at the final verification stage is given.</i>

The findings of verification process are summarized as per the table below. Please see Appendix C for details.

CAR/ CL/ FAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of CAR/ CL/ FAR				
CME response				Date: DD/MM/YYYY
Documentation provided by the CME				
GS VVB assessment				Date: DD/MM/YYYY

Corrective action requests (CARs) are raised, in case:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient.
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants.
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions.
- Issues identified in a FAR during validation/previous verification(s) that are not been resolved by the project participant(s) to be verified during current verification.

Requests for clarification (CLs) are raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A forward action request (FAR) is raised during verification to highlight issues related to project implementation/monitoring that require review during the subsequent verification of the project activity. FARs shall not relate to the CDM requirements for issuance.

Internal quality control

The final verification report has passed a technical review before being submitted to the project participant(s) and GS4GG Certification Team / Board. The technical review was performed by a technical reviewer qualified in accordance with CCIPL's qualification scheme for GS4GG validation and verification.

Verification Team

Carbon Check has appointed a competent team as per the Accreditation Standard and Carbon Check internal procedures, the team is outlined below:

Verification Team		Type of Involvement							
Full name	Appointed for Sectoral Scopes (Technical Areas)	Supervising the work	Desk review	On-site Interview	Report and protocol Writing	Technical Expert Input	Reporting Support	Technical Reviewer	Trainee Assessor
Manas Halder	1.2, 3.1, 13.1	X	X	X	X	-	X	-	-
Sanjay Kumar Agarwalla	1.1, 1.2, 2.1, 3.1, 4.1, 5.1, 5.2, 9.1, 9.2, 13.1	X	X	X	X	X	X	-	-
Tarpan Ghosh	-	-	X	-	X	-	X	-	X
S. Ranganathan	1.1, 1.2, 3.1, 4.1, 5.1, 13.1, 13.2	-	-	-	-	-	-	X	-

Manas Halder: He is qualified as Auditor in TA 1.2, 13.1 and 3.1. He has also attended Several Gold Standard VVB webinar trainings including training on GS4GG.

Sanjay Kumar Agarwalla: He is an appointed Technical Expert for technical area 1.1, 1.2, 2.1, 3.1, 4.1, 5.1, 5.2, 8.1, 9.1, 9.2 and 13.1. He is having more than 23 years of experience, which involves more than 10 years of industrial experience and almost thirteen years in Climate Change. He worked in various capacities at Kesoram Rayon, Durgapur Chemicals Limited, Gensol Consultants, TUV Rheinland India Pvt. Ltd. and LRQA. He is involved in more than 70 GHG audits including validation/verification/post registration changes. He also has GS4GG Audit Experience and attended the requisite Gold Standard webinars. The GS projects on which he has worked are 1309, 850, 6191, 411, 1353 and 939.

Tarpan Ghosh: He is qualified as Trainee Assessor and involved in various verifications under GS and VCS projects. He holds a Master of Business Administration degree in Energy Management from Indian Institute of Social Welfare and Business Management, Calcutta University, Kolkata.

S. Ranganathan.: He is a qualified internal technical reviewer for validation and verification of GHG emission reduction projects under CDM, VCS and Gold Standard (GS).

3. VERIFICATION FINDINGS

The findings of the verification are described in the following sections. The verification criteria (requirements), the means of verification and the results of verification are documented in detail below and in the verification protocol in Appendix A.

Project implementation

The implementation of the project activity

CME	Nature Club of Rajasthan
Project Participants:	atmosfair gGmbH
Title of PoA:	Improved cook stoves and sustainable charcoal initiative
Title of VPA:	Improved cook stoves and sustainable charcoal initiative, CPA 1
GS registration No:	PoA – GS7776 VPA1 – GS10716
Applied Baseline and monitoring methodology:	AMS-II.G. version 12 and AMS-III.BG. version 03 /B04/
Project Scale:	Small scale
Location of the project activity:	India
Project's crediting period:	VPA1: 26/06/2020 - 25/06/2027 (7 years, renewable)
Reported monitoring Period verified in this verification:	VPA1: MP5: 01/01/2023 - 31/12/2023 (both days inclusive)

As part of the on-site visit, the verification team was able to confirm that the project implementation is in accordance with the project description contained in the registered PoA-DD and VPA-DD /B01/, /B02/

Project physical features (technology, project equipment, monitoring and metering equipment)	Review of monitoring report reveals that the objective of the PoA is to distribute improved cook stoves (ICS) to domestic households in India. Nature Club of Rajasthan is the coordinating/ managing entity (CME) for the programme and atmosfair gGmbH is the Project Participant and has sponsored the distribution of the ICS. Sapient Infotech is the manufacturer and distributor of the project stoves along with monitoring. The VPA aims to support sustainable development in the host country, India. The implementation of ICSs has improved the environment and quality of indoor air in individual household by reduction in smoke, black soot and particulate matter emissions. The stove type distributed within the geographical boundary of India in the West Bengal state for the VPA 1 is TLUD ICS /03/. These Improved biomass cook stoves are built to reduce the use of wood and therefore related indoor air pollutants viz., CO and PM, which result from incomplete combustion of fuel wood. This project reduces greenhouse gas emissions by disseminating efficient biomass cook-stoves, which are more efficient than three stones and other traditional stoves as verified during on-site interviews with household users.	
	Any Project Design Change been sought and approved by EB for the project?	☐ Yes ☒ No No change sought

Project activity is implemented in line with the registered GS PoA-DD/VPA-DD. Verification team reviewed the ER spread sheets /02-b/ and found that a total of 165,140 cookstove units were distributed under the VPA 1 till the end of the monitoring period covered in the monitoring report. The total number of cook-stoves sold during monitoring period was verified from stoves sales database /05/.



During on-site visit interviews, verification team checked the design and technology of stoves of different users, which are in line with the description provided in registered PoA-DD/VPA-DD/B01/,/B02/. There were no changes observed from the registered monitoring plan of the registered PoA-DD and VPA-DD /B01/, /B02/. Monitoring procedure of GHG data is found sufficient and in accordance with the procedures stipulated under the registered monitoring plan.

The project activity was implemented and stoves installed as described in the registered PoA-DD and VPA-DD. The start date of the VPA 1 is 10/09/2018.

On the basis of on-site visit interviews and the reviewed project documentation along with documentary evidence, it can be confirmed that the project implementation is in accordance with registered PoA DD, VPA DD /B01/, /B02/. The project has been implemented and operated as described in the registered PoA-DD and corresponding VPA-DD /B02/. The GHG related parameters and sustainable development indicators are also monitored as per the registered PoA-DD/VPA-DD /B01/, /B02/ and is found to be appropriate.

Verification team reviewed the validation report (inclusion of VPA 1) /B02/ and confirms that the waiver of emission reduction credits can be done during stakeholder feedback round (SFR) or through warranty cards, customer agreements or by any other appropriate means. Based on interview with PP and further interviewing end users it can be confirmed that the transfer of ownership of credits is being communicated to them. Furthermore, the verification team reviewed agreement signed with end users /10/. The verification team considers the above as an appropriate measure taken by PP to spread awareness amongst its end users regarding right of use or waiver of all ER resulting from usage of cookstoves.

Verification team has also assessed the monitoring and impact on the sustainable development indicators by the project implementation and found them to be appropriate as per the approved PoA DD/VPA DD /B01/, /B02/.

Carbon Check's verification team considers the project description of the project contained in the registered SSC PoA-DD and VPA-DDs /B01/,/B02/ to be complete and accurate. The SSC PoA-DD and VPA-DD /B01/, /B02/ complies with the relevant methodologies /B04/, tools, forms and guidance at the time of submission for registration.

The actual operation of the Gold Standard programme of activity

The starting date of the VPA 1 is 10/09/2018, the day on which the first ICS was first disseminated in VPA 1. The total number of ICS sold during the reported monitoring period has been verified from stoves sale data base /05/.

Operation of the devices was confirmed during the on-site visit interviews by the verification team as follows via verifying:

- Actual implementation of the stoves
- Household-representatives were interviewed regarding the usage of stove
- Household-representatives were interviewed to confirm if baseline technology is still in use or not.
- Process of data collection during installation of stove.
- Agreements/warranty cards/ carbon rights waiver communication between households and Project Participant.

Carbon Check's verification team confirms that the project activity is implemented within the boundary of the project activity as described in the PoA-DD /B01/ and VPA-DD /B02/ and the implementation and operation of the project activity has been conducted in accordance with



the description contained in the registered PoA-DD /B01/, VPA-DD /B02/. The monitoring report /01-b/ has been submitted for monitoring period, 01/01/2023 to 31/12/2023.

In summary, the operation of the project activity is in accordance with the registered PoA-DD /B01/ and the VPA-DD /B02/.

Compliance of the monitoring plan with the monitoring methodology including applicable tool(s)

The monitoring has been carried out in accordance with the monitoring plan contained in the registered PoA-DD /B01/ and the VPA-DD /B02/.

During the course of verification, all relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement method and applied QA/QC procedures. According to the methodology, a Total Sales Record /05/, Detailed Customer Database /05/, and Project Database /05/ are maintained.

The verification team reviewed the monitoring plan in the PoA-DD /B01/ and compared it against the requirements of the applied methodologies /B04/ and confirms that appropriate provisions are included for the monitoring and reporting procedures, data management, and QA/QC procedures, including maintaining the detailed customer database and project database and found in line with the requirements of CDM VVS for PoA (version 03.0) /B03/ and GS4GG requirements /B08/.

The sampling plan implemented by the PP is in accordance with the applied approved monitoring methodologies /B05/ and registered PoA-DD/VPA-DD /B01/, /B02/. The PP has appropriately performed Simple random sampling procedure in line with the applied methodology and deemed suited for this type of project.

Verification team confirms that the sampling conducted by the PP is in conformance with the Standard for Sampling and Survey for CDM project activities and programme of activities, version 09.0 requirements /B07/. Verification team confirms that the end users have been selected at random and without any bias. Furthermore, based on review of the ex-post monitoring survey records /04/, the verification team confirms that the sampling survey covered end users covered in the VPA. Thus, the survey design covers the region of distribution of the population (within the geographical boundary) and is representative in nature.

The verification team thus confirms that the sampling plan ensures that:

- Samples are randomly selected
- Samples are representative of the population

The sampling survey has been carried out by the well-trained people in Sapient Infotech, which has been certified by the PP as a proof of training /14/ and also confirmed during the on-site visit interviews.

CC IPL confirms with a reasonable level of assurance that the claimed emission reductions are free from material errors, omissions or misstatements.

Monitored Parameters

EX-Post Parameters:

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
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Data / Parameter: (as in monitoring plan of VPA-DD):	Quantity of woody biomass used by project devices in tonnes per project device ($B_{y=1,new,survey}$)														
Measuring frequency/Time Interval:	Annual														
Reporting frequency:	Annual														
Reported value:	1.606														
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes														
Details of monitoring equipment:	This parameter value is calculated as below: $B_{y=1,new,survey} = fillings_{y=1} * load_{y=1} * 0.052$ (conversion factor to from kg /week to t/a) $fillings_{y=1}$, was determined using the questionnaires and no monitoring equipment was used. $load_{y=1}$, the average weight of a TLUD fuelwood load was determined by applying the average value obtained over all WBTs conducted to determine $\eta_{new,j}$. The number of fillings is generated through interviews during the monitoring. The amount of charcoal generated is also monitored via interviews as a crosscheck parameter. These interviews are signed by users. VVB carried out OSV and verified statements of the end users (through interviews) during the OSV. User with 4 daily fillings generate between 28-30kg of charcoal per month. Users with 5 daily fillings generate between 31-33kg of charcoal. This parameter was determined using a weighing balance during sampling. <table border="1"> <thead> <tr> <th colspan="2">Weigh Balance</th></tr> </thead> <tbody> <tr> <td>Type/Name</td><td>Simandar Technology/ Shri Sai</td></tr> <tr> <td>Accuracy class</td><td>+/- 0.5 gm</td></tr> <tr> <td>Serial number</td><td>3330</td></tr> <tr> <td>Calibrating agency</td><td>Newtech Calibration Laboratory</td></tr> <tr> <td>Calibration date</td><td>05/01/2024 (The monitoring survey for the current monitoring period (01/01/2023 to 31/12/2023) for this parameter using this equipment was conducted in February 2024. Hence, the calibration of this equipment is valid for the current monitoring period)</td></tr> <tr> <td>Validity of calibration</td><td>04/01/2025</td></tr> </tbody> </table>	Weigh Balance		Type/Name	Simandar Technology/ Shri Sai	Accuracy class	+/- 0.5 gm	Serial number	3330	Calibrating agency	Newtech Calibration Laboratory	Calibration date	05/01/2024 (The monitoring survey for the current monitoring period (01/01/2023 to 31/12/2023) for this parameter using this equipment was conducted in February 2024. Hence, the calibration of this equipment is valid for the current monitoring period)	Validity of calibration	04/01/2025
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Calibration date	05/01/2024 (The monitoring survey for the current monitoring period (01/01/2023 to 31/12/2023) for this parameter using this equipment was conducted in February 2024. Hence, the calibration of this equipment is valid for the current monitoring period)														
Validity of calibration	04/01/2025														
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	No, accuracy of equipment is not stated in the VPA-DD. The monitoring equipment represents good monitoring practise as the equipment is calibrated by an independent accredited laboratory (Newtech Calibration Laboratory).														
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards /	The equipment used has valid calibration certificate for the monitoring period.														

manufacturers specification	
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	The calibration interval has not been provided in the VPA-DD. However, the selected frequency represents good monitoring practise.
Company performing the calibration (internal or external calibration):	External. The weighing balance has been calibrated by Newtech Calibration Laboratory.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is (are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with monitoring survey records /04/ and the ER sheet /02/.
How were the values in the monitoring report verified?	The values in the monitoring report /01/ were compared against the values in ER sheet /02/ and the survey records /04/. The values obtained by the PP through sampling were compared with the VVB's sampling during the on-site visit interviews.
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Efficiency of the baseline system being replaced (η_{old})
Measuring frequency/Time Interval:	Fixed for each individual household when included in the project activity database
Reporting frequency:	Fixed for each individual household when included in the project activity database
Reported value:	10%
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	According to AMS II.G, ver. 12, Table 9, a default value of 0.10 can be used, if the "pre-project device, which 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". In the end user agreement the type of baseline stove used by each of the households is captured which is traditional fire wood stove in all the cases. This was further

	confirmed during the baseline surveys which could be confirmed by the verification team during the on-site visit interviews.
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA
Company performing the calibration (internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with end user agreements / sales receipts /06/, monitoring survey records /04/ and the ER sheet /02/.
How were the values in the monitoring report verified?	The values in the monitoring report /01/ were compared against the values in ER sheet /02/, the survey records /04/ and end user agreements / sales receipts /06/.
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Efficiency of the device of each type <i>i</i> and batch <i>j</i> implemented as part of the project activity. calculated without accounting for the remaining charcoal ($\eta_{new,j}$)
Measuring frequency/Time Interval:	Annually
Reporting frequency:	Annually
Reported value:	26.34%
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The stove efficiency testing has been determined by

	WBTs conducted in line with the guidance provided by the CME in the VPA-DD. The monitoring equipment used for conducting the stove efficiencies by WBTs are thermometer, weigh balance and moisture meter. Moisture meter is a self-calibrating type as confirmed in its manual. Calibration details of the weigh balance and thermometer are provided below: <table><tr><td></td><td><u>Thermometer</u></td></tr><tr><td>Type/Name</td><td>Digital Thermometer Elanco</td></tr><tr><td>Accuracy class</td><td>0.01°C, Temperature range - 50° C - +200° C</td></tr><tr><td>Serial number</td><td>T18978</td></tr><tr><td>Calibrating agency</td><td>Newtech Calibration Laboratory</td></tr><tr><td>Calibration date</td><td>05/01/2024 (The monitoring survey for the current monitoring period (01/01/2023 to 31/12/2023) for this parameter using this equipment was conducted in February 2024. Hence, the calibration of this equipment is valid for the current monitoring period)</td></tr><tr><td>Validity of calibration</td><td>04/01/2025</td></tr></table> <table><tr><td></td><td><u>Weigh Balance</u></td></tr><tr><td>Type/Name</td><td>Simandar Technology/ Shri Sai</td></tr><tr><td>Accuracy class</td><td>+/- 0.5 g</td></tr><tr><td>Serial number</td><td>3330</td></tr><tr><td>Calibrating agency</td><td>Newtech Calibration Laboratory</td></tr><tr><td>Calibration date</td><td>05/01/2024 (The monitoring survey for the current monitoring period (01/01/2023 to 31/12/2023) for this parameter using this equipment was conducted in February 2024. Hence, the calibration of this equipment is valid for the current monitoring period)</td></tr><tr><td>Validity of calibration</td><td>04/01/2025</td></tr></table>		<u>Thermometer</u>	Type/Name	Digital Thermometer Elanco	Accuracy class	0.01°C, Temperature range - 50° C - +200° C	Serial number	T18978	Calibrating agency	Newtech Calibration Laboratory	Calibration date	05/01/2024 (The monitoring survey for the current monitoring period (01/01/2023 to 31/12/2023) for this parameter using this equipment was conducted in February 2024. Hence, the calibration of this equipment is valid for the current monitoring period)	Validity of calibration	04/01/2025		<u>Weigh Balance</u>	Type/Name	Simandar Technology/ Shri Sai	Accuracy class	+/- 0.5 g	Serial number	3330	Calibrating agency	Newtech Calibration Laboratory	Calibration date	05/01/2024 (The monitoring survey for the current monitoring period (01/01/2023 to 31/12/2023) for this parameter using this equipment was conducted in February 2024. Hence, the calibration of this equipment is valid for the current monitoring period)	Validity of calibration	04/01/2025
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Validity of calibration	04/01/2025																												
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	VPA-DD does not specify the accuracy of the monitoring equipment. Verification team confirms that the accuracy of the monitoring equipment used represent good monitoring practice based on sectoral expertise as the equipment is calibrated by an independent accredited laboratory (Newtech Calibration Laboratory).																												
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	The equipment used has valid calibration certificate for the monitoring period.																												

Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	The calibration interval has not been provided in the VPA-DD. However, since the equipment is calibrated prior to use the selected frequency represent good monitoring practise.
Company performing the calibration(internal or external calibration):	External. The thermometer and weigh balance have been calibrated by Newtech Calibration Laboratory
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, the calibration confirmed proper functioning of the monitoring equipment.
Is (are) calibration(s) valid for the whole reporting period?	Yes, the calibration is valid for the whole monitoring period.
If applicable, has the reported data been cross-checked with other available data?	Yes, the value of parameter has been crosschecked with the raw data sheets for the WBTs and calculation sheets /07/, ER sheet /02/ and the personnel were interviewed during the OSV interviews.
How were the values in the monitoring report verified?	The reported data has been cross-checked against the raw data sheets for the WBTs and calculation sheets /07/ and compared with the ER sheet /02/ and the MR /01/.
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes. As the monitoring parameter under consideration is determined by standardized test procedures (WBT), the QA/QC and calibrations are at the test conduction by the measuring team for WBT. Accordingly, the verification team has focused on abilities, qualifications and recognition of involved personnel and institutions of the measuring team involved in the WBT. The WBT has been carried out by the well-trained personnel and training certificate of the personnel has been provided to the verification team in this respect. The training content has also been provided to the verification team. The verification team based on on-site interviews and review of competency documents and training records confirms that the team was qualified to carry out the WBT in line with the protocol.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Number of commissioned project devices of type i and batch j ($N_{o,ij}$)
Measuring frequency/Time Interval:	annual
Reporting frequency:	Yearly
Reported value:	164,748
Is measuring and reporting frequency in accordance with the monitoring plan	Yes

and monitoring methodology? (Yes / No)	
Details of monitoring equipment:	No monitoring equipment is used. The parameter is calculated based on the stoves sales database /05/.
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	An electronic sales database has been maintained for the project activity
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA.
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, reported data in MR /01/ has been compared with ER sheet /02/ and the sales database /05/.
How were the values in the monitoring report verified?	The values in the monitoring report were compared against the values in ER sheet and the sales database.
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place. The data collection has been done by the trained individuals working with the PP and the transfer of data and reporting of emission reductions has been done by the personnel from the project participant, atmosfair gGmbH, project participant involved in multiple PoAs under CDM.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Proportion of commissioned project devices of type i and batch j ($N_{0,i,j}$) that remain operating in year y (fraction) ($n_{y,i,j}$)
Measuring frequency/Time Interval:	Annual

Reporting frequency:	Annual
Reported value:	1
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	NA. Data is collected through sampling questionnaires.
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the value of parameter has been crosschecked with the sales database, ER sheet and sample household questionnaires and the hard copy records were also checked during the OSV interviews.
How were the values in the monitoring report verified?	The reported data has been cross-checked against the questionnaire answers, records in the ER sheet and compared with the MR. The Drop-outs (Proportion of commissioned project devices of type i and batch j (N0,i,j) that remain operating in year) is determined by PD by sampling through interviews and found that all the devices are operational in all 43 samples selected by PD. The same is confirmed by verification team during OSV interviews with the end users and found that all the stoves were operational. The data was then verified against the sample households checked during the site visit interview.
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC process are in place. The data collection has been done by the trained individuals working with the PP and the transfer of data and reporting of emission reductions has been done by the personnel from the project participant, atmosfair gGmbH, project participant involved in multiple PoAs under CDM.
In case only partial data are available because activity levels or non-activity	NA.

parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	
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Monitoring Parameter Requirement	Assessment/ Observation by the VVB																												
Data / Parameter: (as in monitoring plan of PDD):	$Q_{CCP,y}$ Produced quantity of charcoal in year y																												
Measuring frequency/Time Interval:	Continuously at the time of delivery to charcoal buyers or retailers																												
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes																												
Reported value:	56,590 tonnes																												
Details of monitoring equipment:	This parameter was monitored using weighing balances. <table border="1"> <tr> <td></td><td><u>Weigh Balance (Deganga)</u></td></tr> <tr> <td>Type/Name</td><td>AMI</td></tr> <tr> <td>Accuracy class</td><td>Class III</td></tr> <tr> <td>Serial number</td><td>60750201</td></tr> <tr> <td>Calibrating agency</td><td>Nutech Calibrators & Engineers</td></tr> <tr> <td>Calibration date and validity of calibration</td><td>24/01/2022 valid till 23/01/2023</td></tr> <tr> <td>Calibration date and validity of calibration</td><td>05/01/2023 valid till 04/01/2024</td></tr> </table> <table border="1"> <tr> <td></td><td><u>Weigh Balance (Uluberia)</u></td></tr> <tr> <td>Type/Name</td><td>B.M. Group, Model BMP III</td></tr> <tr> <td>Accuracy class</td><td>Class III</td></tr> <tr> <td>Serial number</td><td>1625</td></tr> <tr> <td>Calibrating agency</td><td>Nutech Calibrators & Engineers</td></tr> <tr> <td>Calibration date and validity of calibration</td><td>24/01/2022 valid till 23/01/2023</td></tr> <tr> <td>Calibration date and validity of calibration</td><td>05/01/2023 valid till 04/01/2024</td></tr> </table>		<u>Weigh Balance (Deganga)</u>	Type/Name	AMI	Accuracy class	Class III	Serial number	60750201	Calibrating agency	Nutech Calibrators & Engineers	Calibration date and validity of calibration	24/01/2022 valid till 23/01/2023	Calibration date and validity of calibration	05/01/2023 valid till 04/01/2024		<u>Weigh Balance (Uluberia)</u>	Type/Name	B.M. Group, Model BMP III	Accuracy class	Class III	Serial number	1625	Calibrating agency	Nutech Calibrators & Engineers	Calibration date and validity of calibration	24/01/2022 valid till 23/01/2023	Calibration date and validity of calibration	05/01/2023 valid till 04/01/2024
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Calibration date and validity of calibration	24/01/2022 valid till 23/01/2023																												
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		Weigh Balance (Purba Medinipur)
	Type/Name	Silver Eagle, MMH-PF
	Accuracy class	Class III
	Serial number	E 16429
	Calibrating agency	Nutech Calibrators & Engineers
	Calibration date and validity of calibration	24/01/2022 valid till 23/01/2023
	Calibration date and validity of calibration	05/01/2023 valid till 04/01/2024
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	No, accuracy of equipment is not stated in the VPA-DD. The monitoring equipment represent good monitoring practise as the equipment are calibrated by an independent accredited laboratory (Nutech Calibrators & Engineers).	
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	The equipment used has valid calibration certificate for the monitoring period.	
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	The calibration interval has not been provided in the VPA-DD. However, the selected frequency represents good monitoring practise.	
Company performing the calibration (internal or external calibration):	External Calibration. Weighing balance has been calibrated by Nutech Calibrators & Engineers in 2022 and 2023.	
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes, the calibration confirmed proper functioning of the monitoring equipment.	
Is (are) calibration(s) valid for the whole reporting period?	Yes, the calibration is valid for the whole monitoring period.	
If applicable, has the reported data been cross-checked with other available data?	The value of the parameter has been cross-checked with the total quantity of charcoal generated by the micro gasifiers based on monitored fuelwood consumption and the observed conversion-rate to charcoal.	
How were the values in the monitoring report verified?	The values in the monitoring report were verified through the review of the collection records and the retailer sales records and the values are comparable, as demonstrated in the ER sheet. Verification team also verified by the value by interviews with the end users of charcoal generated through TLUD stoves during monitoring period.	
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC process are in place.	
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA. Full data is available for the monitoring period.	

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Net calorific value of charcoal type i generated in ICSs in the project activity (NCV _{charcoal})
Measuring frequency/Time Interval:	Monitored once during the first year of the crediting period.
Reporting frequency:	Once during the first year of the crediting period.
Reported value:	28.67 GJ/tonne
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The value is provided by an independent accredited laboratory (Mangalam Testing Bureau)
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA
Company performing the calibration (internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the value of parameter has been crosschecked with report from an independent accredited laboratory (Mangalam Testing Bureau)
How were the values in the monitoring report verified?	The value of parameter has been crosschecked with report from an independent accredited laboratory (Mangalam Testing Bureau)
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The value of parameter has been measured by an independent accredited laboratory (Mangalam Testing Bureau). As required by the applied methodology AMS-III.B.G, version 03, the value of the monitored parameter "NCV _{charcoal,i} ", determined by an independent third party laboratory, has been cross checked with IPCC default value. The verification team confirms that the monitored value is deemed acceptable within the IPCC default value range. Revised.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	The operating life time of the project device (Life Span)
Measuring frequency/Time Interval:	Fixed and recorded at the time of commissioning
Reporting frequency:	Fixed and recorded at the time of commissioning
Reported value:	7 years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	NA
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported value is cross checked with the manufacturer's specification
How were the values in the monitoring report verified?	The reported value is cross checked with the manufacturer's specification
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The reported value is cross checked with the manufacturer's specification
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Latest date of commissioning of a device within the batch (Date of commissioning of batch j)
Measuring frequency/Time Interval:	Fixed and recorded at the time of commissioning /distribution of the last project device in the batch
Reporting frequency:	Fixed and recorded at the time of commissioning /distribution of the last project device in the batch
Reported value:	No batches are established

Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	No monitoring equipment is used.
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA.
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, reported data has been compared with ER sheet and the sales database
How were the values in the monitoring report verified?	Yes, reported data has been compared with ER sheet and the sales database
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Actual date of commissioning of the project device (Date of commissioning of project device i)
Measuring frequency/Time Interval:	Fixed and recorded at the time of commissioning /distribution
Reporting frequency:	Fixed and recorded at the time of commissioning /distribution
Reported value:	Several dates starting from 10/09/2018
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	No monitoring equipment is used.
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does	NA

not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA.
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, reported data has been compared with ER sheet and the sales database
How were the values in the monitoring report verified?	Yes, reported data has been compared with ER sheet and the sales database
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VPA-DD):	Number of project devices distributed per household ($N_{d,HH}$)
Measuring frequency/Time Interval:	Fixed and recorded at the time of commissioning /distribution
Reporting frequency:	Fixed and recorded at the time of commissioning /distribution
Reported value:	1
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	No monitoring equipment is used. The parameter is calculated based on the stoves sales database /6/.
Is accuracy of the monitoring equipment as stated in the VPA-DD? If the VPA-DD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB	NA

guidance / local or national standards / manufacturers specification	
Is the calibration interval in line with the monitoring plan of the VPA-DD? If the VPA-DD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA.
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross-checked with other available data?	Yes, reported data in MR has been compared with ER sheet and the sales database.
How were the values in the monitoring report verified?	The values in the monitoring report were compared against the values in ER sheet and the sales database.
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

PP has provided precision calculation tables for parameters $n_{y,i,j}$, $\eta_{new,i,j}$, $load_y$ and $fillings_y$ in the ER spreadsheet, the same confirms that the survey met the desired precision and which has been checked and confirmed by the verification team.

In summary, the verification team confirms that all the ex-post parameters are monitored in accordance with the approved monitoring plan and applied methodologies.

Data and parameters fixed ex ante

Ex-Ante Parameters:

Parameter:	NCV _{wood} or NCV _{biomass}
Default values used:	0.0156 TJ/tonne (IPCC default value)
Purpose of data	Baseline calculations
Source and Verification of the source	AMS-II.G, (version 12), default value

Parameter:	NCV _{charcoal,default}
Default values used:	29.5 GJ/tonne
Purpose of data	Baseline calculations
Source and Verification of the source	AMS-III.BG (version 03)

Parameter:	EF _{projected_fossilfuel}
Default values used:	63.7 tCO ₂ /TJ
Purpose of data	Baseline calculations
Source and Verification of the source	AMS-II. G (version 12)

Parameter:	L _y
Default values used:	0.95
Purpose of data	Baseline calculations
Source and Verification of the source	AMS-II. G (version 12)

Parameter:	CF
Default values used:	6
Purpose of data	Baseline calculations
Source and Verification of the source	AMS – III. BG (version 3)

Parameter:	f _{NRB,y}
Default values used:	87.18%
Purpose of data	Baseline calculations
Source and Verification of the source	The f _{NRB} value is the weighted average value based on state-wise distribution of sales under each monitoring session and cross checked from the registered VPA-DD /B02/. 2) The TLUD stoves were only sold in one state (West Bengal) of India and therefore the f _{NRB} value for West Bengal state was applied by PD.

Parameter:	GWP _{CH4}
Default values used:	21 tCO ₂ e/tCH ₄
Purpose of data	Baseline calculations
Source and Verification of the source	CDM-EB113-A01, Clarification: Regulatory requirements under temporary measures for post-2020 cases, Version 02.0

Parameter:	SMG _{y,b}
Default values used:	0.030 tCH ₄ /t
Purpose of data	Baseline calculations
Source and Verification of the source	AMS–III.BG, version 3

Parameter:	Md
Default values used:	0 tCH ₄ /t
Purpose of data	Baseline calculations
Source and Verification of the source	AMS–III.BG, version 3

3.6 Monitoring responsibility

Verification team assessed the management systems of implemented monitoring plan of the project activity. The management system includes the organizational structure, roles and responsibilities, data collection, transfer and aggregation procedures, training of personnel



/14/, data storage and archiving and emergency procedures for the monitoring system. Based on on-site visit interviews with the employees of Sapient Infotech (involved in the project monitoring and data collection, inspection of data storage logbook & equipment's and document review) Carbon Check confirms that the responsibilities and authorities for monitoring and reporting are appropriate and effective for the project type and hence in accordance with monitoring plan of the registered PoA-DD and applied monitoring methodology.

3.6.1 Accuracy of equipment

As per the registered monitoring plan as contained in the PoA-DD /B01/ and VPA-DD /B02/, only duly calibrated monitoring equipment were used for the project activity. Please refer to section 3.4 above for details of the calibration status of all the monitoring equipment.

3.7 Deviation from and/or Revision of the registered monitoring plan

This is the fifth periodic verification of the PoA and after a thorough assessment during documents review, on-site visit remote interviews with the stakeholders it can be concluded that there has not been any deviation and/or revision of the registered monitoring plan.

3.8 Assessment of data and calculation of greenhouse gas emission reductions

The Project Participant submitted all the relevant data and parameters required to be monitored to the verification team along with the monitoring report. All the monitoring parameters are as per the registered PoA-DD/VPA-DD /B01//B02/ and have been monitored and reported in the monitoring report. CCIPL reviewed the calculation worksheets /02/ for the emission reduction calculation for the monitoring period (MP5: 01/01/2023 to 31/12/2023). CCIPL confirms that the formulas, conversions, aggregations and factors are consistent with the monitoring plan in the PoA-DD, VPA-DD /B01//B02/. The reported data was checked as follows:

- Necessary data for all the parameters required to be monitored in the registered PoA-DD and respective VPA-DD /B01/ were reviewed to ensure accuracy.
- The Project Sales Database kept electronically /06/ was reviewed along with an interview with the person responsible for data entry and data review from the Sapient Infotech, to confirm the number of stoves sold during the monitoring period. Sample sales invoices were also assessed for further check.

3.8.1 Baseline emissions

The Project Participant has submitted the spreadsheet showing the detailed calculation of baseline emissions and corresponding emission reduction for the VPA.

The overall GHG reductions achieved by the project activity in year y are calculated as follows:

$$ER_{total} = ER_{II.G} + ER_{III.BG}$$

Where:

ER_{total}	Total emission reductions of the VPA
$ER_{II.G}$	Emission reductions of the stove efficiency component
$ER_{III.BG}$	Emission reductions of the charcoal generation component

Emission reductions from the Stove Efficiency Improvements Component (AMS-II.G)

$$ER_y = \sum \sum ER_{y,i,j} - LE_y$$

Where:

- i = Indices for the situation where more than one type of project device is introduced to replace the pre-project devices
- j = Indices for the situation where there is more than one batch of project device
- ER_y = Emission reductions during year y in t CO₂e
- $ER_{y,i,j}$ = Emission reductions by project device of type i and batch j during year y in tCO₂e
- LE_y = Leakage emissions in the year y (tCO₂e)

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{0,i,j} \times n_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil\ fuel}$$

Where:

- $B_{y,savings,i,j}$ = Quantity of woody biomass that is saved per cookstove device of type i and batch j during year y (tonnes)
- $f_{NRB,y}$ = Fraction of woody biomass that can be established as non-renewable biomass (fraction or %)
- $NCV_{biomass}$ = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried')
- $EF_{projected_fossil\ fuel}$ = Emission factor of fossil fuels projected to be used to substitute non-renewable woody biomass by similar consumers (tCO₂e/TJ).
- $N_{0,i,j}$ = Number of project devices of type i and batch j commissioned (number)
- $n_{y,i,j}$ = Proportion of commissioned project devices of type i and batch j ($N_{0,i,j}$) that remain operating in year y (fraction)
- μ_y = Adjustment to account for any continued use of pre-project devices during the year y

As per equation 8 of AMS II.G version 12, $B_{y,savings,i,j}$ is determined as below;

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

Where:

- $B_{y=1,new,i,survey}$ = Quantity of woody biomass used by project devices in tonnes per device of type i .
- $\eta_{old,i,j}$ = Efficiency of the old devices being replaced by project devices of type i and batch j .

$\eta_{new,i,j}$

= Efficiency of the project device i and batch j .
Charcoal generated in the ICS will not be considered to derive η_{new} if this charcoal will be used outside the ICS, according to AMS–III.BG.

The formula used for emission reductions on account of the methodology AMSIII.BG, version 3. AMS-III.BG gives the following baseline formula:

$$ER_{III.BG,y} = \sum_i Q_{CCP,i,y} \times \left[\left(CF \times NCV_{wood} \times \frac{NCV_{charcoal}}{NCV_{charcoal,default}} \times f_{NRB,BL,wood} \times EF_{projected_fossilfuel} \right) + (SMG_{y,b} - M_d) \times (1 - f_{NRB,BL,wood}) \times GWP_{CH4,y} \right] - PE_{y,fugitive} - PE_{y,flaring} - PE_{FF,y} - PE_{El,y} - PE_{BC,y}$$

Where:

$ER_{III.BG,y}$

= Emission reductions in year y (t CO₂e/yr)

$Q_{CCP,i,y}$

= Quantity of charcoal type i produced and used in year y (t)

CF

= Default wood to charcoal conversion factor

NCV_{wood}

= Net calorific value of wood (TJ/t)

$NCV_{charcoal}$

= Net calorific value of the charcoal produced during the project (TJ/t)

$NCV_{charcoal,default}$

= Default net calorific value of charcoal (TJ/t)

$f_{NRB,BL,wood}$

= Fraction of biomass used in the absence of the project activity that can be established as non-renewable biomass; determined as per the procedure found in the latest version of AMS-I.E. Determined here as described in this section B.6.1 under AMS-II.G.

$EF_{projected_fossilfuel}$

= Emission factor for the substitution of non-renewable woody biomass by similar consumers (t CO₂/TJ)

$GWP_{CH4,y}$

= Global warming potential of methane applicable to the crediting period (t CO₂e/t CH₄)

$SMG_{y,b}$

= Specific methane generation for the baseline charcoal generation process in the year y ; a default value of 0.030 t CH₄/t charcoal may be used.

M_d

= Factor to account for any legal requirement for capture and destruction of methane in the charcoal production facility (tonne of CH₄/tonne of raw material)

- $PE_{y,flaring}$ = If applicable, emissions due to the flare inefficiency. In case captured pyrolysis gas is gainfully used (e.g. used for production of heat as in the case of micro-gasifier), then it can be taken as zero.
- $PE_{FF,y}$ = Project emissions due to fossil fuel consumption in charcoal production facilities in year y (t CO₂)
- $PE_{El,y}$ = Project emissions due to electricity consumption in charcoal production facilities in year y (t CO₂)
- $PE_{BC,y}$ = Project emissions due to biomass cultivation in year y (t CO₂)

$PE_{y,flaring}$ is not applicable since pyrolysis gas is used for cooking. M_d is set to zero since there is obviously no legal requirement to capture methane in micro gasifier stoves. $PE_{FF,y}$ and $PE_{El,y}$ are not considered since no fossil fuels or electricity are used in the ICS; $PE_{BC,y}$ is not applicable since no biomass will be cultivated for charcoal production since it is produced as a by-product of daily cooking.

$PE_{y,fugitive}$ is calculated as follows:

$$PE_{y,fugitive} = \sum_i Q_{CCP,i,y} \times GWP_{CH_4,y} \times SMG_{y,b} \times f$$

Where:

- $PE_{y,fugitive}$ = Fugitive emissions from operation of charcoal producing facility (physical leakage) in the year y (t CO₂e)
- f = A fraction attributed to project charcoal production technology, use a default value of 0.1
- $Q_{CCP,i,y}$ = Quantity of charcoal type i produced and used in year y (t)

From the above equations and the parameter values, emission reductions are calculated as 56,590 tCO₂e for this monitoring period.

Parameter ID	Description	Derived as	Unit	Value
A	$B_{y=1,new,survey}$	Monitored	tons/a	1.606
B	$\eta_{new,j}$ (efficiency of the project device batch j implemented as part of the project activity from a WBT without considering remaining charcoal)	Monitored	%	26.34%
C	η_{old} (efficiency of replaced stove)	AMS-II.G default	%	10.00%
D	L_y : Discount for leakage	AMS-II.G		95.00%
E	$B_{savings}$ per stove	$A * ((B/C) - 1) * D$	tons/a	2.49

F	$N_{0,i,j}$	Monitored		164,748
G	$n_{y,i,j}$	Monitored	%	1.00
H	f_{NRB} : fraction of non-renewable biomass	NRB/(NRB+DRB), for West Bengal	%	87.18%
I	$EF_{projected_fossilfuel}$	AMS-II.G default	tCO ₂ /T _J	63.70
J	$NCV_{biomass\ or\ wood}$	AMS-II.G default	TJ/t	0.0156
ER _{II,G} total		$E*F*G*H*I*J$	tons	355,667.44

K	$Q_{CCP,i,y}$: Quantity of charcoal produced and used per ICS	Monitored	tons/a	0.34
L	CF : Conversion factor wood to charcoal	AMS-II.G defaults, IPCC guidelines		6.00
M	$NCV_{charcoal} / NCV_{charcoal,default}$	Default value for $NCV_{charcoal}$, default according to AMS-III.BG, $NCV_{charcoal}$ was monitored		0.97
N	$SMG_{y,b}$	Default given in AMS-III.BG.		0.03
O	GWP_{CH4}	Default IPCC value		21.00
ER _{III,BG} total		$K*((L*J*M*H*I)+(N*(0.9-H)*O))$	tCO ₂	286,921.79

Total ER			tCO ₂ /a	642,589.00
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The verification team confirms that the calculation of baseline emission and emission reductions is in accordance with the applied methodological equations and the PoA-DD/VPA-DD. Calculations have been checked and confirmed from the ER spread sheet /02/.

3.8.2 Project emissions

There are no project emissions identified in the monitoring methodologies /B04/ and the VPA-DD /B02/.

3.8.3 Leakage emissions

As per the registered PoA-DD/B01/, the default value of Leakage adjustment factor i.e. 0.95 should be used. PP has used the default value of 0.95; checked and confirmed by the verification team.

3.9 Assessment of actual emission reductions with the estimate emission reductions in POA-DD

Estimated emission reduction in the VPA-DD /B02/ and emission reduction reported in the MR /01-b/ for the monitoring period was comprehensively assessed by the verification team, through documents review /01/, /02/ and on-site visit interviews of the households / end users of project technology i.e. cook stoves.

Following table provides comparison of estimated/ex-ante value and actual emission reduction value:

VPA	Estimated ER within the Monitoring Period tCO _{2e}	Actual ER within the Monitoring period tCO _{2e}	Has any increase of ER's occurred?
VPA 1	628,768	642,589	Yes

In summary, verification team confirms the actual emission reduction is higher than the estimated ERs of the VPA for the reported monitoring period. The number of ERs achieved during this monitoring period was more than projected, according to PP, because the number of operational stoves (Ny) was higher, at 164,748 instead of 146,727.

Following is the summary of ER value calculated:

ER Summary			
Symbol	Description	Unit	MP5
BE _y	Baseline Emissions achieved by the project activity VPA 1	t CO _{2e}	642,589
PE _y	Project Emissions achieved by the project activity	t CO _{2e}	0
L _y	Leakage Emissions achieved by the project activity	t CO _{2e}	0
Total Emission reduction achieved		t CO _{2e}	642,589

3.10 Compliance with the sustainability monitoring plan

The monitoring system complies with the sustainability monitoring plan as contained in the registered PoA-DD /B01/ and VPA-DD /B02/ and the same is provided in the monitoring report. Sustainability monitoring plan was assessed and verified by the verification team during on-site visit interviews and by means of interview with the local stakeholders and Sapient Infotech Personnel.

All the non-neutral indicators that are monitored by PP have been discussed in the monitoring report and verified by the verification team. Following documents are reviewed during the verification process:

- Ex post Monitoring Survey Questionnaire /04/ sheets and stove distribution records /05/
- HR record of employment certificate /16/

All mitigation measures have been put in place to prevent the violation of the “do no harm assessment” or to neutralise an SDG indicator.

3.11 Monitoring of Gold Standard SDG Indicators

Verification team checked the sustainable development indicator parameters through documents review /02/, /04/,/05/, /16/ and on-site visit interviews.

Parameters that are monitored in accordance with the monitoring plan for data and parameters monitored and SDG indicators as referred in the VPA-DD /B02/ are as the table below

SDG Indicator	Chosen parameter in the registered VPA-DD and monitoring report	Way of monitoring	Assessment	Verified Score
SDG 13: Climate Action	Emission Reductions	Ex-post monitoring and calculation	Please refer to section D.2 of MR and 3.4 of this report for the detailed assessment for this parameter. Quantity of woody biomass used by project devices in tonnes per project device is calculated by PD using monitoring survey appropriately, hence the ER value calculated for SDG 13 for this monitoring period is also found to be Suitable to verification team.	+ (Positive)
			MP5: 01/01/2023-31/12/2023642,589 tCO ₂ e	
SDG 07: Ensure access to affordable, reliable, sustainable and modern energy for all	No,i,j Number of commissioned project devices	Sales records	Please refer to section D.2 of MR and 3.4 of this report for the detailed assessment for this parameter. The number of households using clean cooking devices such as Improved TLUD Cook Stoves are verified by verification team through sales records and found to be appropriate hence claims for SDG 7 is found to be suitable to verification team.	+ (Positive)
			MP5: 01/01/2023-31/12/2023165,140	
SDG 01: No Poverty	Income generated by the sales of the charcoal	Charcoal database purchased by the field assistants	Please refer to section D.2 of MR and 3.4 of this report for the detailed assessment for this parameter. Income generated by TLUD stove end users through the sales of the charcoal generated as by product of TLUD stove, is verified by verification team by checking sales records and interview with end TLUD stove end users. Hence SDG 1 claimed by PD is found to be appropriate.	+ (Positive)

			MP5: 01/01/2023-31/12/2023 509,314,275 INR	
SDG 08: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Number of jobs created by the project activity.	Employment records	Please refer to section D.2 for the detailed assessment for this parameters. The parameter is monitored through the total number of jobs created and their responsibilities / positions (both part time and full time). MP5: 01/01/2023-31/12/2023 320 The above was verified by the verification team with the employment records provided by the CME /16/ and further cross-checked through interviews with personnel employed by the CME, VPA implementers, retailers as well as personnel employed for conducting the monitoring survey. The same was found to be acceptable to Verification Team	+ (Positive)

Furthermore, during on-site visit interviews it was confirmed that no disputes, inputs and comments have been received via the Continuous Input and Grievance Mechanism together during the monitoring period.



APPENDIX A: GOLD STANDARD VERIFICATION PROTOCOL

CC IPL's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1. Sustainability Monitoring					
1.1 Have all non-neutral indicators been monitored as per the sustainability monitoring plan?	/1/	DR	Yes, all the non-neutral indicators have been monitored as per the sustainability monitoring plan.	OK	OK
1.2 Have the methods to monitor data changed? And are they suitable to the project scale and type?	/1/	DR	Methods to monitor data have not changed as compared with the monitoring plan in the registered VPA DD and monitoring plan.	OK	OK
1.3 Has the way of monitoring been followed? With the inclusion of dates and parameters?	/1/	DR	The sustainability monitoring plan has been followed as per described in the VPA DD.	OK	OK
1.4 Have mitigation measures been put in place to prevent the risk of the violation of the safe guarding principle of "Do No Harm" assessment or to neutralise a Sustainable Development Indicator that is being monitored?	/1/	DR	The mitigation measures have been put in place that has been put in records as a proof of the same. Several supporting documents as listed under section 2.1 have been provided. Also, the on-site visit interview of the households and interviews of the trained personals of PP were performed during on on-site visit interview.	OK	OK

¹ MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.



CC IPL's Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1.5 Has all the data in the Sustainability development matrix been verified and cross checked against available sources of project data? Has it been described how sustainable development would be affected if a variance occurred?	/1/	DR and on-site visit interview	Yes, all data in the sustainability development matrix have been verified and cross checked from the supporting documents and during on-site visit audit.	OK	OK
2. Other					
2.1 Are there any issues from the previous validation/verification? (ie FARs, requests / approvals for RMP)	/1/	DR	There are no FARs from the previous verification.	OK	OK
2.2 Has the project ever received any requests for reviews or incompletes from the UNFCCC or GS Secretariat?	/1/	DR	No there are no request for reviews or incomplete for the project.	OK	OK
2.3 The evaluation of the status of mitigation and compensation measures has been verified.	/1/	DR	Yes, the status of mitigation and compensation measures has been verified.	OK	OK



APPENDIX B

CARBON CHECK Certification Statement for the Verification Report CCIPL2189/CDM-GS/VER/ICSASI/20240305

Carbon Check (India) Private Ltd., the VVB, has performed the verification of VPA 1 (GS 10716) registered with the GS-PoA “Improved cook stoves and sustainable charcoal initiative” in West Bengal, India and GS registry number GS 7776.

The project activity is designed to generate emission reductions by distribution of energy efficient or improved stoves for household cooking purposes in India, the same micro wood gasifier stoves also produce charcoal. The ICS (TLUD gasifier cook stove) distributed under the VPA of the PoA are more efficient than the traditional cook stove. Moreover, the consumption of conventional charcoal, by traditional charcoal users, reduces by providing them charcoal generated in these ICSs. By replacing inefficient non-renewable biomass based traditional cookstoves, the project activity will save on consumption of woody biomass. Charcoal is the by-product in the ICS, this charcoal generated from the project cookstoves will be sold to the charcoal users. Hence resulting in social benefits such as money savings, time saving and health benefits, etc.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project. It is VVB's responsibility to express an independent verification statement on the reported GHG emission reductions from the project. The verification is carried out in-line with the VVS and GS4GG requirements.

Verification was performed to identify the compliance of the project activity with implementation and monitoring requirements and to verify the actual amount of achieved net emission reductions, through obtaining evidence and information and by conducting on-site visit that includes:

- i. To confirm whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and
- ii. To check the evidence supporting the reported data.

The VVB had raised 03 CLs and 05 CARs. All the raised findings have been resolved by the PP. No FAR has been raised during this verification.

The VVB with reasonable assurance confirms that reported net GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology and the monitoring plan (as contained in the registered PoA-DD and VPA-DD) and are fairly stated.

The VVB hereby certifies that the project activity, achieved net emission reductions of 642,589 tCO_{2e} equivalent in 5th MP (01/01/2023 to 31/12/2023) and all monitoring requirements have been fulfilled and is substantiated by an audit trail that contains evidence and records.

APPENDIX C: Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FARs from validation and/or previous verification

Nil.

Table 2. CAR from this verification

CAR ID	CAR 01	Section no.	MR	Date: 15/04/2024
Description of CAR				
In section D.3 of the Monitoring Report, PP has provided a comparison of monitored parameters in section D.2 with the previous monitoring period but has not provided explanation for the values that have increased or are less conservative as per the Monitoring Report template guide version 1.1. CME is requested to revise the Monitoring Report accordingly.				
Project participant response				Date: 24/04/2024
PP revised the MR.				
Documentation provided by project participant				
GS_MR_PoA10716_MP5_v2.docx				
VVB assessment				Date: 01/05/2024
CME has provided the explanation for the values that have increased or are less conservative in section D.3 of revised MR, 'GS_MR_PoA10716_MP5_v2' as per the Monitoring Report template guide version 1.1. The VVB has found this explanation reasonable and acceptable. Hence CAR 01 is closed.				

CAR ID	CAR 02	Section no.	ER sheet	Date: 15/04/2024
Description of CAR				
1. The 'Start of monitoring period' and 'End date of monitoring period' mostly entered incorrectly in 'Ny' tab of the ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v1'. Correction is requested. 2. The formulae used for the weekly fillings in several cells of column V in 'Survey results' tab of the ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v1' are incorrect. Correction is requested. 3. A few 'Name of person interviewed' reported in 'Survey results' tab of the ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v1' are inconsistent with scanned survey questionnaires. CME is requested to clarify on this discrepancy and rectify as required.				
Project participant response				Date: 24/04/2024
1. PP revised ER spreadsheet. 2. PP revised ER spreadsheet. 3. PP revised ER spreadsheet.				
Documentation provided by project participant				
GS_ERsheet_PoA10716_MP5_v2.xlsx				
VVB assessment				Date: 01/05/2024

1. CME has correctly entered the 'Start of monitoring period' and 'End date of monitoring period' in 'Ny' tab of the revised ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v2'. This has increased the $N_{0,i,j}$ parameter value and ER value in turn, which is reasonable and appropriate.
 2. CME has corrected the formulae used for the weekly fillings in several cells of column V in 'Survey results' tab of the revised ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v2'.
 3. CME has made necessary corrections for the 'Name of person interviewed' in 'Survey results' tab of the ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v2' and all names are now consistent with scanned survey questionnaires.
- Hence, CAR 02 is closed.

CAR ID	CAR 03	Section no.	MR / ER sheet	Date: 15/04/2024
Description of CAR				
1. The ER value mentioned throughout the monitoring report is inconsistent with ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v1'. 2. In section D.2 of MR, the reported value for parameter $B_{y=1,new,survey}$, is inconsistent with that of ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v1'. 3. The values of the charcoal collection and sales in 'charcoal data' tab of ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v1' are inconsistent with the collection data sheet and bills. CME is requested to clarify on the above discrepancies and rectify as required.				
Project participant response				Date: 24/04/2024
1. PP revised ER spreadsheet and MR 2. PP revised ER spreadsheet 3. PP revised ER spreadsheet and MR				
Documentation provided by project participant				
GS_MR_PoA10716_MP5_v2.docx				
GS_ERsheet_PoA10716_MP5_v2.xlsx				
VVB assessment				Date: 01/05/2024
1. The ER value mentioned throughout the monitoring report is now consistent with revised ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v2'. 2. In section D.2 of MR, the reported value for parameter $B_{y=1,new,survey}$, is now consistent with that of revised ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v2'. 3. The values of the charcoal collection and sales in 'charcoal data' tab of revised ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v2' are now consistent with the collection data sheet and bills. Hence, CAR 03 is closed.				

CAR ID	CAR 04	Section no.	ER sheet	Date: 17/04/2024
Description of CAR				
In 'Ex-ante CPA 1' tab of the ER sheet, parameters $N_{0,i,j}$ and $n_{y,i,j}$ are missing and not as per the applicable registered and approved VPA-DD and not in line with the applied methodology AMS-II.G v12 CME is requested justify this.				
Project participant response				Date: 24/04/2024
PP revised ER spreadsheet				
Documentation provided by project participant				
GS_ERsheet_PoA10716_MP5_v2.xlsx				
VVB assessment				Date: 01/05/2024
CME has revised the ER sheet to include the missing parameters in ex-ante ER calculation sheet to be in line with applied methodology and registered and approved VPA-DD. Hence, CAR 04 is closed.				

CAR ID	CAR 05	Section no.	MR / ER sheet	Date:	19/05/2024
Description of CAR					
In section D.4 it is stated, <i>"Taking into account possible non response rate of 90%, we increased the size of the monitoring list for the common survey of DO_{II,G,y} and fillings_{y=1} to 48"</i> but this is not reflected in 'precision Calc Doy' worksheet of ER calculation spreadsheet "GS_ERsheet_PoA10716_MP5_v2.xlsx". CME is requested to clarify and rectify as required.					
					Date: 27/05/2024
Revised "PoA10516_MP5_sample size calculation_24012024". Sample size is 43. Taking into account a possible non-response rate of 90%, we increased the size of the monitoring list to 48. 43 stove users from the sampling list were interviewed during the time of the interview period which meets the required sample size of 43.					
Documentation provided by project participant					
PoA10716_MP5_sample size calculation_24012024.xls					
VVB assessment					Date: 28/05/2024
Although the size of the monitoring list for common survey of DO _{II,G,y} and fillings _{y=1} was increased to 48, a total of 43 stove users from the sampling list were actually interviewed during the time of monitoring, thus the final applied sample size of 43 meets the required sample size calculated as 43 according to the sampling standard and the VPA-DD, as reflected in 'precision Calc Doy' worksheet of ER calculation spreadsheet "GS_ERsheet_PoA10716_MP5_v2.xlsx". This is deemed acceptable to VVB. Hence, CAR 05 is closed.					

Table 3. CLs from this verification

CL ID	CL 01	Section no.	MR	Date:	15/04/2024
Description of CL					
In the section B.1 of MR, the number of stoves distributed vintage wise under ' <i>Vintage in which the stoves have been distributed</i> ' is inconsistent with the monitoring report corresponding to previous monitoring period (MP4). Clarification is requested.					
Project participant response					Date: 24/04/2024
5 stoves from 2018 were found as inactive during this monitoring period. They had been excluded from the project. 2 inactive stoves from 2020 were accidentally mentioned in the database. PP revised the stove database and the ER sheet.					
Documentation provided by project participant					
PoA10516_MP5_Sales Database_31122023_edit17042024.xlsx GS_ERsheet_PoA10716_MP5_v2.xlsx GS_MR_PoA10716_MP5_v2.docx					
VVB assessment					Date: 01/05/2024
CME has revised the sale database by excluding the 2 inactive stoves from 2020 and now the total active stoves are 165,140. VVB has crosschecked this and the value is consistent with updated MR 'GS_MR_PoA10716_MP5_v2' and emission reduction sheet 'GS_ERsheet_PoA10716_MP5_v2'. Hence CL 01 is closed.					

CL ID	CL 02	Section no.	ER sheet	Date:	15/04/2024
Description of CL					

A few of the stove IDs mentioned in 'WBT overview' tab of ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v1' are inconsistent with the WBT records and 'Survey results' tab.

Moreover, stove IDs mentioned are inconsistent between different tabs of WBT record spreadsheets.

PP is required to clarify this and rectify as required.

Project participant response	Date: 24/04/2024
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PP revised ER spreadsheet and WBT records spreadsheets.

Documentation provided by project participant

GS_ERsheet_PoA10716_MP5_v2.xlsx

WBT record spreadsheets

VVB assessment	Date: 01/05/2024
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CME has corrected the stove IDs in the 'WBT overview' tab of updated ER spreadsheet 'GS_ERsheet_PoA10716_MP5_v2'. VVB has crosschecked and the stove IDs are consistent with the revised WBT records spreadsheets.

Hence CL 02 is closed.

CL ID	CL 03	Section no.	MR / ER sheet	Date: 17/04/2024
Description of CL				
In section D.4 of the MR, under summary of estimated and applied sample sizes table on page 35:				
1. The value reported for parameter $n_{y,i,j}$ is inconsistent with 'ER CPA 1' tab of the ER calculation spreadsheet and section D.2 of the Monitoring Report.				
2. The value reported for parameter fillings $_{y,j}$ is inconsistent with ER spreadsheet.				
CME is requested to clarify.				
Project participant response				Date: 14/04/2024
1. PP revised ER spreadsheet and MR				
2. PP revised ER spreadsheet and MR				
Documentation provided by project participant				
GS_ERsheet_PoA10716_MP5_v2.xlsx				
GS_MR_PoA10716_MP5_v2.docx				
VVB assessment				Date: 01/05/2024
The CME has revised the ER spread sheet and MR. The VVB has observed the following:				
1. The parameter name has been corrected to DOI $_{I,G,y}$ and the value is consistent throughout the MR and with ER spreadsheet.				
2. The value for parameter fillings $_{y,j}$ has been corrected and is now consistent with ER spreadsheet.				
Hence, CL 03 is closed.				

Table 4. FARs from this verification

Nil.

APPENDIX D

Certificates of Competence



Carbon Check (India) Private Limited

Certificate of Competency

Mr. Manas Halder

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ Validator	☒ Verifier	☒ Team Leader	☒ Technical Expert
☐ Technical Reviewer	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☐ Financial Expert	☐ Environmental, Health and Safety financial matters
☐ SDG+	☐ Social no-harm(S+)	☐ Environment no-harm(E+)	
☒ Local Expert for India and Bangladesh			

in the following Technical Areas:

☐ TA 1.1	☒ TA 1.2	☐ TA 2.1	☒ TA 3.1	☐ TA 4.1
☐ TA 4. n	☐ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☒ TA 13.1	☐ TA 13.2
☐ TA 14.1	☐ TA 15.1	☐ TA 16.1		

Issue Date

5th December 2023

Priya Suman

Ms. Priya Suman
Compliance Officer

Expiry Date

31st December 2024

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
2022	Initial Adoption
Jan 2023	Annual revision
Dec 2023	Change in the template due to revision in TA and function

CCIPL_FM 7.9 Certificate of Competency_V4.0_11.2023

¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Mr. Sanjay Kumar Agarwalla

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|---|--|---|---|
| ☒ Validator | ☒ Verifier | ☒ Team Leader | ☒ Technical Expert |
| ☒ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☒ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☒ SDG+ | ☒ Social no-harm(S+) | ☒ Environment no-harm(E+) | |
| ☒ Local Expert for India and Bangladesh | | | |

in the following Technical Areas:

- | | | | | |
|--|--|---|---|---|
| ☒ TA 1.1 | ☒ TA 1.2 | ☒ TA 2.1 | ☒ TA 3.1 | ☒ TA 4.1 |
| ☐ TA 4. n | ☒ TA 5.1 | ☒ TA 5.2 | ☒ TA 7.1 | ☐ TA 8.1 |
| ☒ TA 9.1 | ☒ TA 9.2 | ☒ TA 10.1 | ☒ TA 13.1 | ☒ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☒ TA 16.1 | | |

Issue Date
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Priya Suman

Ms. Priya Suman
Compliance Officer

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CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Mr. S Ranganathan

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|--|---|---|
| ☒ Validator | ☒ Verifier | ☒ Team Leader | ☒ Technical Expert |
| ☒ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☐ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☒ SDG+ | ☒ Social no-harm(S+) | ☒ Environment no-harm(E+) | |
| ☒ Local Expert for India | | | |

in the following Technical Areas:

- | | | | | |
|--|--|----------------------------------|---|---|
| ☒ TA 1.1 | ☒ TA 1.2 | ☐ TA 2.1 | ☒ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☒ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☒ TA 13.1 | ☒ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

Issue Date

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Expiry Date

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Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

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¹ Please refer to previous version of FM 7.9 for the revision history