Verification and certification report form for Gold Standard project activities

BASIC INFORMATION	
Title and GS reference number of the project activity	TASC Clean Cooking PoA – VPA01 (Zambia) (GS11145) TASC Clean Cooking PoA – VPA03 (Zambia) (GS11596)
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the verification and certification report	06
Completion date of the verification and certification report	09/01/2024
Monitoring period number and duration of this monitoring period	VPA01 3rd Monitoring period 24/07/2022 – 02/06/2023 (Inclusive) VPA03 2nd Monitoring period 24/07/2022 – 02/06/2023 (Inclusive)
Version number of the monitoring report to which this report applies	1.7 dated 08/01/2024
Crediting period of the project activity corresponding to this monitoring period	VPA01- 24/07/2020 to 23/07/2025 VPA03- 21/09/2021 to 20/09/2026
Project representative(s)	The African Stove Company Ltd. (TASC)
Host Party	Zambia
Applied methodologies and standardized baselines	Technologies and Practices to Displace Decentralized Energy Consumption (version 3.1)
Mandatory sectoral scopes	03
Conditional sectoral scopes, if applicable	-
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	VPA01- 444,183 tCO_2e VPA03- 290,377 tCO_2e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	VPA01- 378,346 tCO2e VPA03- 503,676 tCO2e
SDG Impacts:	1. SDG 1: No poverty 2. SDG 3: Good health and wellbeing 3. SDG 5: Gender Equality

	4. SDG 7: Affordable and Clean Energy 5. SDG 8: Decent work and Economic Growth 6. SDG 12: Responsible Consumption & Production 7. SDG 13: Climate Action
Name and UNFCCC reference number of the VVB	E-0052: Carbon Check (India) Private Ltd.
Name, position and signature of the approver of the verification and certification report	Priya Suman Priya Suman, Compliance Officer

SECTION A. Executive summary

Carbon Check (India) Private Ltd. (CCIPL) is performing the periodic verification of the VPAs {TASC Clean Cooking PoA – VPA 1 (Zambia) and (TASC Clean Cooking PoA – VPA 3 (Zambia)} under GS4GG of their registered PoA titled "TASC Clean Cooking PoA" in "Zambia". Project reference number: -PoA ID- GS11009, VPAs ID- GS11145, GS11596, for the period 24/07/2022 – 02/06/2023 (inclusive). The VPAs will stimulate the installation of Kuniokoa Model wood fuel cookstoves manufactured by Burn Manufacturing LLC, with a thermal efficiency of 41.6%. For VPA01 stoves were distributed from the date 24th July 2020, and for VPA03 the stoves were distributed from the date 21st September 2021.

According to the PDD /B04/ & MR /01/, the project activity " TASC Clean Cooking PoA - VPA01 (Zambia) " and " TASC Clean Cooking PoA - VPA03 (Zambia) " is part of the African Stove Company & are the VPAs that are implemented in Zambia. The overall objective of both the VPAs is to contribute to the achievement of the Sustainable Development Goals (SDGs) through the distribution of Improved Cookstoves (ICS) in households of Zambia.

This report summarises the findings of the verification of the project, performed on the basis of Gold standard for global goals (GS4GG), as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the Gold Standard. Verification is required for all registered GS project activities intending to confirm their achieved emission reductions and proceed with request for issuance of CERs. This report contains the findings and resolutions from the verification and a certification statement for the verified emission reductions.

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 project activity during a defined monitoring period.

Certification is the written assurance by a validation & verification body (VVB) that, during a specific period, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the "TASC Clean Cooking PoA - VPA01 (Zambia)" and "TASC Clean Cooking PoA - VPA03 (Zambia)" in the host country "Zambia" for the period 24/07/2022 – 02/06/2023 (Inclusive).

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. CCIPL's objective is to perform a thorough, independent assessment of the registered project activity.

In particular, the monitoring plan, monitoring report and the project's compliance with relevant GS and Host Party criteria are verified in order to confirm that the component project/s has/have been implemented in accordance with the previously registered project design and conservative assumptions, as documented. It is also confirmed if the monitoring plan is in compliance with the registered PoA-DD/VPA-DDs and the approved monitoring methodology.

Scope:

The scope of the verification is:

- To verify the project implementation and operation with respect to the registered PoA-DD/ VPA-DDs
- To verify the implemented monitoring plan with the registered PoA-DD/VPA-DDs and applied baseline and monitoring methodology.

- 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 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 is sufficiently supported by evidence.

The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

Verification process:

The verification comprises a review of the monitoring report /01/ over the monitoring period from 24/07/2022 – 02/06/2023 (Inclusive) and based on the registered PoA-DD/VPA-DDs as part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology, and all related evidence provided by the project representative.

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

Conclusion:

The verification team assigned by the validation & verification body (VVB) concludes that the monitoring report /01/, meets all the relevant requirements of the Gold Standard as per the requirements of GS4GG. The verification has been conducted in-line with the GS4GG requirements.

The project activity was correctly implemented according to the selected monitoring methodology, monitoring plan and the registered PoA-DD/VPA-DDs /B04/. The monitoring system was installed, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. The following table provides the resulted emission reduction from the project as verified through the document review and on-site interviews by the verification team.

Vintage (VPA01)	**ER (tCO_2e)**
24/07/2022 – 31/12/2022	193,993 tCO_2e
01/01/2023 – 02/06/2023	184,353 tCO_2e
Total for the monitoring period	**378,346 tCO_2e**

Vintage (VPA03)	**ER (tCO_2e)**
24/07/2022 – 31/12/2022	161,772 tCO_2e
01/01/2023 – 02/06/2023	341,904 tCO_2e
Total for the monitoring period	**503,676 tCO_2e**

CCIPL as a Validation & verification body (VVB) is therefore pleased to issue a positive verification opinion expressed in the attached Certification statement.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	⊢ >	Last name	First name	Affiliation	Involvement in

					(e.g. name of central or other office of VVB or outsourced entity)	Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader / Verifier / Technical Expert	IR	Choudhary	Aparna	CCIPL	X	X	X	X
2.	Assessor	IR	KV	Kiran	CCIPL	X			X
3.	Trainee assessor	IR	Bijani	Vishal	CCIPL	X	X	X	X
3.	Local Expert	EI	Msoni	Joyce	CCIPL		X	X	

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer	IR	Dimri	Anubhav	CCIPL
2.	Approval	IR	Suman	Priya	CCIPL

SECTION C. Means of verification

C.1. Desk/document review

The verification was performed primarily based on the review of the Monitoring report /01/ and the supporting documentation. This process included review of the data and the information presented to verify their completeness and review of the monitoring plan and the monitoring methodology. Documents reviewed or referenced during the verification are listed in the Appendix 3 below.

C.2. On-site inspection

Onsite physical audit has been performed. The Team leader has conducted the on-site inspection and in particular the simple random sampling.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
/01/	Kambungo	Reuben	TASC	14/09/2023 to 16/09/2023	Details of survey, methodology, Survey results, QA/QC procedure etc.	Aparna Choudhary, Vishal Bijani, Joyce

						Msoni
/02/	Cogho	Edwin	TASC	14/09/2023 to 16/09/2023	MR preparation, GS requirements, Emission reduction calculations, methodology applicability, start date justification, Project Design, ownership details, carbon credit ownership arrangements, monitoring and reporting arrangements, QA/QC procedures, baseline assessment, Project technology etc.	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/03/	Phiri	Falesi	KPT Survey Participant (215391381)	14/09/2023 to 16/09/2023	KPT Survey	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/04/	Banda	Patercia	KPT Survey Participant (214368215)	14/09/2023 to 16/09/2023	KPT Survey	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/05/	Phiri	Regina	KPT Survey Participant (221785363)	14/09/2023 to 16/09/2023	KPT Survey	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/06/	Phiri	Chizola	KPT Survey Participant (222018061)	14/09/2023 to 16/09/2023	KPT Survey	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/07/	Mwanza	Mercy	KPT Survey Participant (M6UWVB)	14/09/2023 to 16/09/2023	KPT Survey	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/08/	Phiri	Nelia	KPT Survey Participant (6YCXB)	14/09/2023 to 16/09/2023	KPT Survey	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/09/	Mvula	Juliet	KPT Survey Participant (H6YAJx)	14/09/2023 to 16/09/2023	KPT Survey	Aparna Choudhary, Vishal Bijani, Joyce

						Msoni
/10/	Zulu	Malita	KPT Survey Participant (223481135)	14/09/2023 to 16/09/2023	KPT Survey	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/11/	Pizando	Enika	Habit Survey Participant (218057178)	14/09/2023 to 16/09/2023	Habit Survey Questionnaire	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/12/	Manchishi	Linten	Habit Survey Participant (216105622)	14/09/2023 to 16/09/2023	Habit Survey Questionnaire	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/13/	Banda	Jenifer	Habit Survey Participant (221988202)	14/09/2023 to 16/09/2023	Habit Survey Questionnaire	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/14/	Phiri	Elebeti	Habit Survey Participant (216380210)	14/09/2023 to 16/09/2023	Habit Survey Questionnaire	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/15/	Zulu	Enala	Habit Survey Participant (223099786)	14/09/2023 to 16/09/2023	Habit Survey Questionnaire	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/16/	Njobvu	Pauline	Habit Survey Participant (225218736)	14/09/2023 to 16/09/2023	Habit Survey Questionnaire	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/17/	Daka	Janet	Habit Survey Participant (K6YTJT)	14/09/2023 to 16/09/2023	Habit Survey Questionnaire	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/18/	Banda	Margret	Habit Survey Participant (P6YX82)	14/09/2023 to 16/09/2023	Habit Survey Questionnaire	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/19/	Khondowe	Monica	Habit Survey	14/09/2023 to	Habit Survey Questionnaire	Aparna Choudhary,

			Participant (J6YUXX)	16/09/2023		Vishal Bijani, Joyce Msoni
/20/	Banda	Tiwinenji	Habit Survey Participant (H6YPGS)	14/09/2023 to 16/09/2023	Habit Survey Questionnaire	Aparna Choudhary, Vishal Bijani, Joyce Msoni
/21/	Jere	Catherine	Habit Survey Participant (K6YXCH)	14/09/2023 to 16/09/2023	Habit Survey Questionnaire	Aparna Choudhary, Vishal Bijani, Joyce Msoni

C.4. Sampling approach

As the target population is homogeneous, PP has proposed simple random sampling plan using 90/10 as confidence/precision. This is in line with the applied methodology /B02/. The sample size for each parameter is determined following guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 9.0 /B05/ in accordance with the paragraph 27 of the sampling standard.

In line with paragraph 27 of the Sampling Standard, the verification team has applied simple random sampling approach through on-site interviews on the monitoring survey as part of verification. The project participant had applied sampling approach to the monitoring survey /05/, conducted by the representatives of project participant. The verification team has chosen acceptance sampling in accordance with paragraph 27 of the sampling standard /B05/.

Applying paragraph 39 (c) of the sampling standard, version 09 /B05/, a sample size of 11 was Chosen for user habit survey /05/, based on an AQL of 0.5% and UQL of 20%; producer risk 10% and consumer risk of 10% each in determining the VVB's sample size Acceptance number (c) thus determined for the sample is 0. A sample size of 8 was chosen for KPT survey /04/ based on an AQL of 1% and UQL of 20%; producer risk 10% and consumer risk of 20% each in determining the VVB's sample size Acceptance number (c) thus determined for the sample is 0.

The Information provided in the monitoring survey /05/, has been cross checked during the Onsite visit. As a part of the simple random sampling, the Verification team could confirm the monitoring survey data /05/ with no discrepant records. Thus, PP's set of records has been accepted in line with the § 33 of the sampling standard, version 09 /B05/.

Parameter	Verification approach	Population (for VVB's sample)	VVB's Sample Size
Usage & monitoring surveys/05/	Sampling Survey	117	11
KPT Surveys/10/	Sampling Survey	48	8

The details of the sample interviewed are listed in section C.3 (under the list of interviewed persons). No discrepancy was found in any of the 11 samples for user habit survey and 8 samples for the KPT survey and thus c=0, i.e., no discrepant records were observed. Thus, PP's set of records has been accepted in line with §33 of the sampling standard (version 09.0) /B05/. For the impact parameters, questionnaire was prepared and was used during the survey by the PP. During the on-site interviews, the verification team cross-checked these sample documents, and no discrepancies were found in the impact parameters as well. Furthermore, the training & competency of the personnel/13/, who conducted such tests was checked. They were also interviewed to ensure that the process, method used, and their competency to confirm such standardised test was appropriately applied. The sampling technique to draw such samples was found adequate and the sample collectors were found competent to perform such task.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

The VVB has raised 03 clarifications (CLs) and 08 corrective action requests (CARs) and satisfactorily closed**.**

SECTION D. Verification findings

D.1. Remaining forward action requests from validation and/or previous verifications

During Performance Review number 2 (GS11145) and Performance Review number 1 (GS11596) the following far was raised for both projects

FAR ID	**01**	**Section no.**		**Date: NA**
Description of FAR				
KPT shall be conducted prior to the next monitoring period verification.				
PP response				**Date:** NA
It is unclear from the FAR raised which KPTs the reviewer was referring to. We believe that this FAR is from the initial Design Review of GS11145, which was closed in the first Monitoring Report and therefore should not be raised again in subsequent performance reviews. For this monitoring period 24/07/2022 – 02/06/2023 in-field project KPTs were conducted from 09/05/2023 – 02/06/2023. Baseline KPTs were conducted and verified during the 1st performance review of GS11145. This FAR should be closed for future monitoring periods because baseline KPTs have been completed and conducting KPTs is a part of the monitoring for parameter Bp,y,i (see Section D2 below).				
Documentation provided by the PP				
VVB assessment				**Date:** NA
PP has conducted KPT surveys for both the projects (GS11145 and GS11596) during current monitoring period. VVB has confirmed the same during the on-site visit by visiting the households took part in KPT survey on sampling basis. Details of the households interviewed is given in section C.3 of this report.				

D.2. Compliance of the project implementation and operation with the registered project design document

Means of verification	Document Review, Interview
Findings	--

Conclusion	Verification team confirms that the latest available version of the monitoring report template has been used and the MR is in compliance with the monitoring report form and related monitoring report template guide. As verified from on-site interview and third-party survey report, the audit team confirm the project implementation and operation complies with the project design document /B03/. The starting date of stove distribution is 24/07/2020 for VPA01 and 21/09/2021 for VPA03 which is confirmed from the registered PoA-DD/VPA-DDs /B04/ and validation report /B04/. The project boundary in the registered PoA-DD/VPA-DDs /B04/ is in line with the actual project boundary. CCIPL confirms that the project cookstoves are operational through on-site visits and interviews with end users. Each cookstove has a unique identification number that was provided in the end user agreement and are correct according to the project database. Each cookstove is also physically marked with its unique identification number. Along with the serial number, the stove technology, end-user name, address, commissioning date etc. had also been noted which were found to be consistent on ground. It is noted that no changes have been observed or identified, that may impact the additionality. No addition of component nor extension of technology, no addition nor removal of project sites, no change of values of the actual operational parameter relevant to determination of emission reductions which are within the control of the PP; no change has been observed or identified that may impact the scale of the project activity or applicability of baseline and monitoring methodology Technologies and Practices to Displace Decentralized Energy Consumption (version 3.1) /B01/. The first ICS's distribution was commissioned from 24 July 2020 for VPA01 and 21/09/2021 for VPA03. A total of 44,517 (VPA01) and 99,785 (VPA03) cookstoves were distributed in the monitoring periods. No new distributions/03/ have been done during the reported monitoring period. Verification team based on the review of the MR /01-g/ and provided evidence confirms that the households/end users relinquish their right of carbon credits. Furthermore, the ICS implemented under the project are uniquely identified, thus avoiding any potential double counting. As verified through document review and on-site interviews, the project implementation and operation, all physical features of the project comply with the VPA-DDs /B03/. Verification team has checked the information in the monitoring report /01/ and compared it against the registered PoA-DD/ VPA-DDs /B04/ and found to be consistent. Verification team confirms that: a) The project activity is implemented as per the registered PoA-DD/VPA-DDs/B04/. b) The actual operation of the proposed project activity is in line with the registered/revised PoA-DD/VPA-DDs /B04/. c) It has reviewed the registered PoA-DD/VPA-DDs /B04/ including the monitoring plan, the applied monitoring methodology and found that the final MR/01/ for this monitoring period is in line with all the above-mentioned documents. Verification team of CCIPL based on review of records and on-site

	interviews confirms that a robust and effective grievance addressal mechanism is in place and however, no grievances were reported during the monitoring period/11/. The joint stakeholder feedback round/12/ for VPA 1 ad VPA 3 was conducted on 19/05/2022 by the project proponent. The list of participants/12/ has also been provided to the verification team. In summary, the monitoring period is reasonable, and the operation of the project activity is in accordance with the registered/revised PoA-DD/VPA-DDs /B04/.

D.3. Post-registration changes

D.3.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents[1]

Not applicable

D.3.2. Corrections

There are two corrections made, for the value of $B_{b.y}$ which was raised as a FAR and addressed in the first verification by the PP and the value of the parameter $B_{b.y}$ has been set as 6.44, which is deemed appropriate by the verification team.
The other correction is regarding the value of the parameters $EF_{b,i,CO2}$, $EF_{b,i,nonCO2}$, $EF_{p,i,CO2}$, $EF_{p,i,nonCO2}$, the values are not entirely as per the VPA-DD /B04/, the reason provided in the MR is as follows “as on registration the NCV value of 0.0156 was used in the calculation instead of the default value of 0.015 as per the methodology. Furthermore, the most recent global warming potential values for CH4 and N20 was used in calculating the non-CO2 emissions factor, which also resulted in a change of the values.” These changes in the said parameters are accepted in the previous performance reviews, hence deemed appropriate by the verification team.

D.3.3. Changes to the start date of the crediting period

Not applicable

D.3.4. Inclusion of a monitoring plan

Not applicable

D.3.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

Not applicable

D.3.6. Changes to the project design

Not applicable

D.3.7. Changes specific to afforestation and reforestation project activities

Not applicable

[1] Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

D.4. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents

Means of verification	Document Review, Interview
Findings	-
Conclusion	The verification team is able to confirm that the monitoring plan contained in the included VPA-DDs /B04/ is in accordance with the approved methodology applied by the project activity, i.e. Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1 /B02/. The monitoring plan is in accordance with the approved methodology, Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1 /B02/, applied by the VPA and as provided in the included VPA-DDs /B04/. The verification took cognizance of § 341 to § 343 of CDM VVS for PoAs, version 03.0 /B01-1/.

D.5. Compliance of monitoring activities with the registered monitoring plan

D.5.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	Document Review, Interview
Findings	---
Conclusion	The following parameters have been fixed ex-ante for the VPA considered under this monitoring period:

Parameter	Description of the parameter	Value	Source	Assessment by VT
$B_{b,y}$	Quantity of fuel consumed in baseline scenario b during year y, in tonnes	6.44 tonnes (VPA 1 and VPA3)	Baseline kitchen performance tests (KPTs)	The value is found to be not consistent with included VPA-DD/B04/. CAR05 was raised in this regard and closed successfully. The revised value is accepted and used in the previous monitoring periods based on the FAR 2 raised during the 1st verification, and therefore is deemed to be acceptable to VVB. The parameter is fixed ex-ante for the duration of the crediting period.
$EF_{b,i,CO2}$	CO_2 emission factor arising from use of fuel type i in	1.6800 tCO_2/t_{fuel} (VPA 1 & VPA3)	2006 IPCC Guidelines for National Greenhouse Gas Inventories,	The value is inconsistent with included VPA -DD /B04/. CAR05 has been raised in this regard and closed

		baseline scenario		Chapter 2: Stationary Combustion, Table 2.5– - Default emission factors for stationary combustion in the residential and agriculture/forestry/ fishing/fishing farms categories	successfully. Explanation has been provided by PP in section B.2.2 of MR and in Section D.1 as additional comments. The parameter is fixed ex -ante for the duration of the crediting period.
	$EF_{b,l,nonCO2}$	Non-CO_2 emission factor arising from use of fuel type i in baseline scenario	0.5588 tCO_2/t_{fuel} (VPA1 & VPA3)	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.9	The value is inconsistent with included VPA -DD /B04/. CAR05 has been raised in this regard and closed successfully. Explanation has been provided by PP in section B.2.2 of MR and in Section D.1 as additional comments. The parameter is fixed ex -ante for the duration of the crediting period.
	$EF_{p,i,CO2}$	CO_2 emission factor arising from use of fuel type i in baseline scenario	1.6800 tCO_2/t_{fuel} (VPA 1 & VPA3)	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.5– - Default emission factors for stationary combustion in the residential and agriculture/forestry/ fishing/fishing farms categories	The value is inconsistent with included VPA -DD /B04/. CAR05 has been raised in this regard and closed successfully. Explanation has been provided by PP in section B.2.2 of MR and in Section D.1 as additional comments. The parameter is fixed ex -ante for the duration of the crediting period.
	$EF_{p,l,no}$	Non-CO_2	0.5588	2006 IPCC	The value is

	nCO_2	emission factor arising from use of fuel type i in baseline scenario	tCO_2/t_{fuel} (VPA1 & VPA3)	Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.9	inconsistent with included VPA -DD /B04/. CAR05 has been raised in this regard and closed successfully. Explanation has been provided by PP in section B.2.2 of MR and in Section D.1 as additional comments. The parameter is fixed ex -ante for the duration of the crediting period.	
	$NCV_{b,i}$	Net calorific value of the fuel type i used in the baseline	Fuelwood: 0.015 TJ/tonnes (VPA 1 & VPA3)	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1: Introduction, Table 1.2–- Default net calorific values	The value is consistent with included VPA-DD /B04/ and fixed ex-ante for the duration of the crediting period.	
	$NCV_{p,i}$	Net calorific value of the fuel type i used in the project scenario	Fuelwood: 0.015 TJ/tonnes (VPA 1 & VPA3)	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1: Introduction, Table 1.2–- Default net calorific values	The value is consistent with included VPA-DD /B04/ and fixed ex-ante for the duration of the crediting period.	
	$f_{NRB,b,i,y}$	Fraction of biomass used in year y for baseline scenario b that can be established as non-renewable biomass	Fuelwood: 0.91 Renewable solid biomass fuels (Crop residues / cow dung): 0.0000 Fossil fuels: 1(VPA 1 & VPA3)	From C4 EcoSolutions study; dated 11/03/2022	The value is consistent with included VPA-DD /B04/ and fixed ex-ante for the duration of the crediting period.	

	Verification team confirms that the Data and parameters fixed ex-ante are in accordance with the registered PoA-DD and registered/ included VPA-DD /B04/ and the monitoring plan. The verification took cognizance of §344, §345l) and §357 of CDM VVS for PoAs, version 03.0 /B01-1/.

D.5.2. Data and parameters monitored

Means of verification	Document Review, Interview
Findings	--
Conclusion	The verification team confirms that the data and parameters monitored are in compliance with the registered PoA-DD/ VPA-DDs /B04/ and the monitoring plan. It is confirmed that the verification team assessed the data / information flow from the point of monitoring to emission reduction calculation and found no gap in the same. Please refer to the Annex 4 for assessment of each parameter.

D.5.3. Implementation of sampling plan

Means of verification	Document Review, Interview
Findings	--
Conclusion	According to the standard for sampling and survey /B05/ and related guidelines /B05/ the sampling plan was determined at the time of project registration and applied during the monitoring. Sampling method: Simple random sampling method is adopted as the target population is homogeneous. The sampling frame is homogenous within itself, with respect to service level, established ex-ante baseline and user characteristics. The sample size is determined by the requirement to achieve 90/10 precision, in line with the methodology for annual survey for Habit Surveys and Biennial surveys for KPTs. The sample size calculated for habit surveys is 117 based on a confidence interval/ precision level of 90/10. The precision level achieved for the sample size is 0%. The sample size was done according to the TPDDTEC Version 3.1/B02/, here it states that for a group size > 1000 a minimum sample size of 100 is needed for such a survey. The habit survey was carried out for 119 households to account for the non-responses and is acceptable to the verification team. The sample size calculated for KPT surveys based on a confidence interval/ precision level of 90/10 is 45. After the initial 45 KPT's the 90/10 precision was not met, so a further 4 KPT's were done, totalling at 49 KPT's. This led to a precision of 7.52% being achieved which falls within the 90/10 precision. The calculated sample was also checked during the previous monitoring period (MP1). The Usage Rate used by the PP for the VPA is 90% based on the Good Practice. Checklist for evaluating the compliance of project with requirement and guidelines -Usage rate requirement has been provided in

	annex 3 of this document.

D.6. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	Document Review, Interview
Findings	-
Conclusion	N/A since there is no monitoring equipment which require calibration as per the monitoring plan. The equipment's used for the monitoring consists of reviewing the documents and on-site interviews.

D.7. Assessment of data and calculation of emission reductions or net removals

D.7.1. Calculation of baseline value of each SDG Impacts

Means of verification	Document Review, Interview
Findings	--
Conclusion	**SDG 1: No Poverty** $BSA_{Baseline}$: Number of ICS distributed in baseline = 0 $HHS_{Baseline}$: % HH reporting money saving due to reduced fuel consumption in baseline = 0 **SDG 3: Good Health and Well Being** $SPMHH,_{Baseline}$: % HH reporting reduction in smoke/PM emissions while cooking on improved stove in baseline = 0 **SDG 5: Gender Equality** $HHTS_{Baseline}$: % HH reporting time saving from fuel collection due to reduced fuel consumption in baseline = 0 **SDG 7: Affordable and Clean Energy** $ACS_{Baseline}$: Access to affordable and clean energy (Number of operating ICS units under Baseline) = 0 **SDG 8: Decent Work and Economic Growth** QE $IG_{Baseline}$: Quantitative Employment and income generation (Number of person (male and female) hired under Baseline) = 0 **SDG 12: Responsible Consumption and Production** $B_{b,y,i}$: Fuel consumption for fuel type i used in baseline b in year y in tonnes, from baseline KPTs = 6.44t **SDG 13: Climate Action** $BE_{b,y}$: Baseline emissions for baseline scenario b in year y (tCO_2e/yr) = 452,404 (VPA 1) = 602,265 (VPA 3) $BE_{b,y} = \Sigma_{b,p} N_{p,y} * U_{p,y} * (ER_{b,p,y,CO2} + ER_{b,p,y,nonCO2})) - \Sigma LE_{p,y}$ Where: $\Sigma_{b,p}$: Sum over all relevant (baseline b) couples = 44,517 ICS (VPA 1) = 99,785 ICS (VPA 3) $N_{p,y}$: Cumulative number of project technology-days included in the sales/distribution database for project scenario p against baseline scenario b in year y = 44,517 * Total Technology days (VPA 1) = 13,975,338 days (VPA 1)

	= 99,785 * Total Technology days (VPA 3) = 18,608,743 days (VPA 3) $U_{p,y}$: Cumulative usage rate for technologies in baseline scenario p in year y, = 90% $ER_{b,p,y,CO2}$: Specific CO_2 emission savings for an individual technology of Baseline b in year y, in tCO_2/day as derived from the statistical analysis of the data collected from the field tests and adjusted for the 90% usage rate = 0.0269 tCO_2/day (Ex-Post, cell I9) $ER_{b,p,y,nonCO2}$: Specific non-CO_2 emission savings for an individual technology of Baseline b in year y, in tCO_2/day as derived from the statistical analysis of the data collected from the field tests and adjusted for the 90% usage rate = 0.0089 tCO_2/day (Ex-Post, cell I10) $ER_{b,p,y,CO2} = \Sigma_i \{ fNRB,_{b,i,y} * B_{b,y,i} * NCV_{b,i} * EF_{b,i,CO2} \}$ Where: $fNRB,_{b,i,y}$: Fraction of woody biomass used in year y for fuel type i that can be established as non-renewable biomass (NRB) = 0.91 $B_{b,y,i}$: Fuel consumption for fuel type i used in baseline b in year y in tonnes, from baseline KPTs = 6.44t $NCV_{b,i}$: Net calorific value of the fuel type i used in baseline b (TJ/tonnes) = 0.015 $EF_{b,i,CO2}$: CO_2 emission factor of the fuel type i used in the baseline = (112 tCO2/TJ * 0.015 TJ/t) as per calculation in the ER sheet (Ex-Ante, cell E13) = 1.68 tCO_2/tonne of wood (Ex-Post, cell I7) i: Fuel Type $ER_{b,p,y,nonCO2} = \Sigma_i \{ B_{b,y,i} * NCV_{b,i} * EF_{b,i,nonCO2} \} - \Sigma_i \{ B_{p,y,i} * NCV_{p,i} * EF_{p,i,nonCO2} \}$ Where: $EF_{b,i,nonCO2}$: non-CO_2 emission factor of the fuel type i used in the baseline = (34.27 (CH_4)+ 2.98 (N_2O) tCO_2/TJ) * 0.015 TJ/t, as per calculation in the ER sheet (Ex-Ante, cell E14) = 0.5588 tCO_2/tonne of wood (Ex-Post, cell I8) CCIPL confirms that the calculation of baseline emissions have been carried out in accordance with the formulae and methods described in the registered PDD and the applied methodology.

D.7.2. Calculation of project value of each SDG Impacts

Means of verification	Document Review, Interview
Findings	--
Conclusion	**SDG 1: No Poverty** Net Benefit (SDG 1) = $BSA_{Project} – BSA_{Baseline}$ = 44,517 (VPA 1) = 99,785 (VPA 3) Where: $BSA_{Baseline}$ Number of ICS distributed in baseline = 0 $BSA_{Project}$ Number of ICS distributed in Project = 44,517 (VPA 1) $BSA_{Project}$ Number of ICS distributed in Project = 99,785 (VPA 3)

Net Benefit (SDG 1) = $HHS_{Project} – HHS_{Baseline}$ = 100%
Where:
$HHS_{Baseline:}$ % HH reporting money saving due to reduced fuel consumption in baseline = 0
$HHS_{Project}$: % HH reporting money saving due to reduced fuel consumption in project = 100%

SDG 3: Good Health and Well Being
Net Benefit (SDG 3) = $SPMHH_{,Project} – SPMHH_{,Baseline}$ = 100%
Where:

$SPMHH_{,Baseline}$: % HH reporting reduction in smoke/PM emissions while cooking on improved stove in baseline = 0
$SPMHH_{,Project:}$ % HH reporting reduction in smoke/PM emissions while cooking on improved stove in project = 100%

SDG 5: Gender Equality
Net Benefit (SDG 5) = $HHTS_{Project} – HHTS_{Baseline}$ = 100%

Where:
$HHTS_{Baseline}$: % HH reporting time saving from fuel collection due to reduced fuel consumption in baseline = 0
$HHTS_{Project}$: % HH reporting time saving from fuel collection due to reduced fuel consumption in project = 100%

SDG 7: Affordable and Clean Energy
Net Benefit (SDG 7) = $ACS_{Project}$ - $ACS_{Baseline}$
= 44,517 (VPA 1)
= 99,785 (VPA 3)
Where:
$ACS_{Baseline}$: Access to affordable and clean energy (Number of operating ICS units under Baseline) = 0
$ACS_{Project}$: Access to affordable and clean energy (Number of operating ICS units under Project) = 44,517 (VPA 1)
= 99,785 (VPA 3)

SDG 8: Decent Work and Economic Growth
Net Benefit (SDG 8) = QE $IG_{Project}$ - QE $IG_{Baseline}$ = 17 (VPA 1 & 3)
Where:
QE $IG_{Baseline}$: Quantitative Employment and income generation (Number of person (male and female) hired under Baseline) = 0
QE $IG_{Project}$: Quantitative Employment and income generation (Number of person (male and female) hired under Project) = 17 (Total across both VPAs)

SDG 12: Responsible Consumption and Production

$B_{y,savings} = B_{b,y,i} – B_{p,y,i}$
Where:
$B_{y,savings}$ Reduction in domestic fuel consumption (tonnes/year)
= 5.3880t
$B_{b,y,i}$ Fuel consumption for fuel type *i* used in baseline b in year y in tonnes, from baseline KPTs
= 6.44t

	$B_{p,y,i}$ Fuel consumption for fuel type *i* used in project p in year y in tonnes, as derived from the statistical analysis of the data collected from the field tests = 1.0546t **SDG 13: Climate Action** CCIPL confirms that the calculation of project emissions have been carried out in accordance with the formulae and methods described in the registered PDD and the applied methodology.

D.7.3. Calculation of leakage GHG emissions

Means of verification	Document Review, Interview
Findings	--
Conclusion	A justification has been provided for each condition as per the methodology TPDDTEC, version 3.1/B02/. There are no leakages applicable for the reported monitoring period.

D.7.4. Summary calculation of SDG impacts

Means of verification	Document Review, Interview
Findings	-
Conclusion	

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
13	Tonnes CO2 equivalent emissions	452,404 (VPA1) 602,265 9VPA3)	74,056 (VPA1) 98,588 (VPA3)	378,346 (VPA1) 503,676 (VPA3)
1	Number of ICS distributed	0 (VPA1) 0 (VPA3)	44,517 (VPA1) 99,785 (VPA3)	44,517 (VPA1) 99,785 (VPA3)
3	% HH reported reduction in smoke/PM Emissions while cooking on ICS	0 (VPA1) 0 (VPA3)	100% (VPA1) 100% (VPA3)	100% (VPA1) 100% (VPA3)
5	% HH reporting time saving from fuel collection due to reduced consumption	0 (VPA1) 0 (VPA3)	100% (VPA1) 100% (VPA3)	100% (VPA1) 100% (VPA3)
7	Access to affordable and clean energy (number of ICS distributed)	0 (VPA1) 0 (VPA3)	44,517 (VPA1) 99,785 (VPA3)	44,517 (VPA1) 99,785 (VPA3)
8	Quantitative employment and income generation (Number of persons hired)	0 (VPA1) 0 (VPA3)	17 (VPA1) 17 (VPA3)	17 (VPA1) 17 (VPA3)
12	Wood fuel savings	6.44	1.05 (VPA1)	5.38 (VPA1)

	while cooking on project ICS in tonnes per annum	(VPA1) 6.44 (VPA3)	1.05 (VPA3)	5.38 (VPA3)

The data presented in the monitoring report /01/ and emission reduction worksheet /02/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidence were presented and verified by the CCIPL for the reported emission reductions as listed above.

D.7.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	Document Review, Interview
Findings	--
Conclusion	The ex-ante estimate value of the emission reductions for the monitoring period as per the registered PoA-DD/ VPA-DDs /B04/ is 444,183 (VPA 1) and 290,377 (VPA 3) and the actual emission reductions achieved for the monitoring period is 378,346 (VPA 1) and 503,676 (VPA 3)

SDG	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period
13	444,183 (VPA 1) 290,377 (VPA 3)	378,346 (VPA 1) 503,676 (VPA 3)
1	45,000 (VPA 1) (Number of ICS distributed) 32,700 (VPA 3) (Number of ICS distributed)	44,517 (VPA 1) (Number of ICS distributed) 99,785 (VPA 3) (Number of ICS distributed)
3	100%	100%
5	100%	100%
7	45,000 (VPA 1) (Number of ICS distributed) 32,700 (VPA 3) (Number of ICS distributed)	44,517 (VPA 1) (Number of ICS distributed) 99,785 (VPA 3) (Number of ICS distributed)
8	30 (Number of persons hired)	17 (Number of persons hired)/15/
12	4.89 (tonnes/year) (VPA 1) 4.89 (tonnes/year) (VPA 3)	5.38 (tonnes/year) (VPA 1) 5.38 (tonnes/year) (VPA 3)

The emission reduction calculations provided in the spreadsheet /02/ have been verified to be correct and in line with the registered PDD /B04/.

D.7.6. Remarks on difference from estimated value in registered PDD

Means of verification	Document Review, Interview
Findings	--
Conclusion	The ex-ante estimate value of the emission reductions for the monitoring

	period as per the registered PDD /B04/ is 444,183 (VPA 1) and 290,377 (VPA 3) and the actual emission reductions achieved for the monitoring period is 378,346 (VPA 1) and 503,676 (VPA 3). For SDG 13, since actual emission reduction is lower than the estimated value and hence it is acceptable to the verification team. The monitoring report /01/ provides reason for decrease in the actual emission reduction and the same was confirmed by the verification team by interviewing the representatives of PP and by reviewing the actual implementation status of the project. For other SDG parameters, PP has provided justification in the Monitoring report and assessment of the same is provided below: • SDG 1: The actual value is less than the estimated value for VPA1, the actual value is found to be more than estimated for VPA3 due to increased number of stoves distributed that expected, which is deemed appropriate and thus acceptable to the VVB. • SDG 3: The actual value is same as the estimated value, which is deemed appropriate and thus acceptable to the VVB. • SDG 5: The actual value is same as the estimated value, which is deemed appropriate and thus acceptable to the VVB. • SDG 7: The actual value is less than the estimated value for VPA1, the actual value is found to be more than estimated for VPA3 due to increased number of stoves distributed that expected, which is deemed appropriate and thus acceptable to the VVB. • SDG 8: The actual value is less than the estimated value, which is deemed appropriate and thus acceptable to the VVB/15/. • SDG 12: The actual value is less than the estimated value, which is deemed appropriate and thus acceptable to the VVB. • SDG 13: The actual value exceeds the estimated value, which is deemed appropriate and thus acceptable to the VVB.

SECTION E. Internal quality control

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The verification report has passed a technical review before being submitted to the Gold Standard. The technical review is performed by a technical reviewer qualified in accordance with CCIPL's qualification scheme for validation and verification.

SECTION F. Verification/Certification opinion

>>

Carbon Check (India) Private Ltd. (CCIPL) has performed the 3rd periodic verification of the registered GS Project Activity "TASC Clean Cooking PoA- VPA01 (Zambia)" and 2nd periodic verification of "TASC Clean Cooking PoA - VPA03 (Zambia)".

The verification team assigned by the VVB concludes that the project activity as described in the PDD /B03/ and the Monitoring report /01/, meets all the relevant requirements of the Gold Standard. The verification has been conducted in-line with the GS4GG requirements project activities.

<u>Verification methodology and process</u>

The Verification team confirms the contractual relationship signed between the VVB, Carbon Check (India) Private Ltd. and the Project Participant. The team assigned to the verification meets the CCIPL's internal procedures including the UNFCCC/GS requirements for the team composition and competence. The verification team has conducted a thorough contract review as per UNFCCC and CCIPL's procedures and requirements.

The verification has been performed as per the requirements described in the GS4GG and constitutes the review and completion of the following steps:

- Reviewing the PoA-DD/ VPA-DDs /B04/, including the monitoring plan and the corresponding validation report /B03/;
- 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 Technologies and Practices to Displace Decentralized Energy Consumption (version 3.1) /B02/;
- On-site inspection (14/09/2023 to 16/09/2023)
- Resolution of CARs and CLs raised during verification
- Issuance of Verification Report

The project activity was correctly implemented according to selected monitoring methodology, monitoring plan and the registered PoA-DD/ VPA-DDs. The monitoring system was installed, maintained in a proper manner, while collected monitoring data allowed for the verification of the amount of achieved GHG emission reductions. Through the document review and remote interviews, the verification team confirms that the project activity has resulted in the 378,346 tCO_2e and 503,676 tCO_2e emission reductions during the reported monitoring period for VPA 1 and VPA 3 respectively.

Year	GSVERs(VPA1)	GSVERs(VPA3)
2022 (24/07/2022 - 31/12/2022)	193,993	161,772
2023 (01/01/2023 – 02/06/2023)	184,353	341,904

This statement covers verification period from 24/07/2022 – 02/06/2023 (Inclusive).

The VVB has raised 03 clarifications and 08 corrective action requests, all of which are satisfactorily closed.

The VVB considers necessary to give reasonable assurance that reported GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology and the monitoring plan contained in the registered PDD are fairly stated.

The VVB, hereby certifies that the project activity, achieved emission reductions by sources of GHG equal to 378,346 tCO_2e for VPA01 and 503,676 tCO_2e for VPA03 equivalent and all monitoring requirements have been fulfilled and is substantiated by an audit trail that contains evidence and records.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CA	Corrective Action/ Clarification Action
CER	Certified Emission Reduction
CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
CL	Clarification Request
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GS	Gold Standard
GWh	Giga Watt Hour
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LE	Leakage Emissions
MP	Monitoring Period
MR	Monitoring Report
MWh	Mega Watt Hour
OSV	On Site Visit
PE	Project Emissions
PP(s)	Project Participant(s)
QC/QA	Quality Control/ Quality Assurance
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VVB	Validation & verification body

Appendix 2. Competence of team members and technical reviewers

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Ms. Aparna Choudhary

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

5th December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
2022[1]	Annual revision
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_112023

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

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Kiran KV

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

5th December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

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_112023

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

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Anubhav Dimri

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, RSA and Spanish speaking countries**			

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

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
2022[1]	Annual revision
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_112023

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

Appendix 3. Documents reviewed or referenced

S. No.	Document
/01/	Monitoring Report a. Version 1.0 dated 10/07/2023 (initial version) b. Version 1.1 dated 09/10/2023 c. Version 1.2 dated 19/10/2023 d. Version 1.3 dated 30/10/2023 e. Version 1.4 dated 07/11/2023 f. Version 1.5 dated 10/11/2023 g. Version 1.6 dated 05/12/2023 h. Version 1.7 dated 08/01/2024(final version)
/02/	Emission reductions sheet Corresponding to a. /01-a/ TASC Clean Cooking PoA Joint ER calc sheet v1.0 b. /01-b/TASC Clean Cooking PoA Joint ER calc sheet v1.1 c. /01-c/ TASC Clean Cooking PoA Joint ER calc sheet v1.2 d. /01-d/ TASC Clean Cooking PoA Joint ER calc sheet v1.2 e. /01-e/ TASC Clean Cooking PoA Joint ER calc sheet v1.3 f. /01-f/ TASC Clean Cooking PoA Joint ER calc sheet v1.3 g. /01-g/ TASC Clean Cooking PoA Joint ER calc sheet v1.4 (final version)
/03/	VPA distribution records a. GS11145 (VPA1) b. GS11596 (VPA3)
/04/	KPT Survey records (VPA 1 & 3 combined)
/05/	Monitoring Habit survey records (VPA1 & 3 combined)
/06/	Habitat and KPT survey sample selection
/07/	Lab report from the Kenya Industrial Research and Development (KIRDI) for the thermal efficiency testing of cookstoves dated 19/11/2017
/08/	Proof of Carbon Wavier certification dated 12/05/2022
/09/	Awareness program evidences
/10/	KPT survey equipment details
/11/	Grievance evidences
/12/	End user training and follow up evidences
/13/	Field training evidences
/14/	Verification call evidences

/15/	Measuring instrument Purchase orders a. Moisture meter purchase order b. Scale purchase order
/16/	Measuring instrument technical specification a. Moisture meter technical specification b. Scale technical specification
/17/	Employment records
/18/	VPA 1and3 ER Calcs_Outliers_Included_Example

Background Documents

Ref no.	Reference Document
/B01/	1. Validation and Verification Standard for PoAs, version 03.0 2. Project Standard for PoAs, version 03.0 3. Project Cycle Procedure for PoAs, version 03.0
/B02/	Technologies and Practices to Displace Decentralized Energy Consumption (version 3.1)
/B03/	1. Gold standard Validation and verification standard version 1.0, dated 06/03/2023 2. Gold Standard Principles and Requirements version 1.2, dated 24/10/2019 3. Gold Standard Programme of Activity Requirements version 1.2, dated 24/10/2019 4. GS Validation & Verification Body Requirements version 2.0, dated 14/01/2021 5. Community Services Activity Requirements (version 1.1) under GS4GG https://globalgoals.goldstandard.org/200-gs4gg-community-services-activity-requirements/
/B04/	i. Registered VPA 1- Version 5 dated 14/03/2022 ii. Registered VPA 3 – Version 1.6 dated 16/09/2022 iii. Registered PoA-DD, Version 05, dated 03/02/2022
/B05/	Sampling and Survey a) CDM Sampling Standard, version 09.0 b) Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 4.0.
/B06/	Site Visit and Remote Audit Requirements and Procedures, version 2.0 dated 30/05/2023

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. FARs from this verification

FAR ID	**NA**	**Section no.**		**Date:**
Description of FAR				
NA				
PP response				**Date:**
Documentation provided by the PP				
VVB assessment				**Date:**

Table 2. CARs from this verification

CAR ID	01	**Section no.**	Key Project Information table	**Date:** 06/10/2023
Description of CAR				
PP is requested to provide the "Date of last annual report" in the KPI table. Also, it has been observed that the version number of VPA DD provided in KPI table of MR is 5.0 Version number of VPA 3 DD is 1.6 while version number of VPA 1 DD is 5.0. PP Is requested to mention in separately in KPI table of MR.				
PP response				**Date:** 09/10/2023
1. The date of last annual report for GS11145 was provided in the KPI section as 08/12/2022, which was the date of submission of the last annual report. GS11596 has not had an annual report submitted as of yet as the project only completed design review in December 2022, thus "n/a" was filled in. 2. The version numbers have been added in the KPI section for the respective VPA's. Please note the most recent version numbers for the VPA-DD's of GS11145 is v.5 and for GS11596 is v1.6.				
Documentation provided by PP				
GS11145 – Annual Report 2022 v1.pdf				
VVB assessment				**Date:** 13/10/2023
PP has mentioned the date for 'last annual report' in the KPI table, also the annual report has been provided as supporting document. PP also mentioned the version number for both the VPAs in the KPI table. . Hence, CAR01 is closed				

CAR ID	02	**Section no.**	Key Project Information	**Date:** 06/10/2023

Description of CAR				
In the section A.4, the start and end date provided by the PP is of total crediting period. PP is requested to mention the start and end date of current crediting period in the section A.4.				
PP response				**Date:** 09/10/2023
1. Section A.4 has been amended to reflect the first crediting period dates of the respective VPA's. VPA 1: 24/07/2020 – 23/07/2025 VPA 3: 21/09/2021 – 20/09/2026				
Documentation provided by PP				
VVB assessment				**Date:** 13/10/2023
PP has update the section A.4 and mentioned the duration of the current monitoring period. Hence, CAR02 is closed.				

CAR ID	03	**Section no.**	B.1	**Date:** 06/10/2023
Description of CAR				
In the section B.1 of the MR, it is mentioned that "The monitoring period covered within this report is 24/07/2022 to 02/06/2022 (VPA 1)". The date provided for the monitoring period is not matching with the cover page. PP is requested to revise this line				
PP response				**Date:** 09/10/2023
1. The date in section B.1 has been erroneously stated as "24/07/2022 to 02/06/2022" and has been corrected to "24/07/2022 to 02/06/2023" in section B.1.				
Documentation provided by PP				
VVB assessment				**Date:** 13/10/2023
PP has updated the duration of monitoring period in the section B.1, the duration of monitoring period is now consistent throughout the MR. Hence, CAR03 is closed.				

CAR ID	04	**Section no.**	B.1	**Date:** 06/10/2023
Description of CAR				
In the section B.1 PP has mentioned "For VPA 3, 32,514 of the 99,785 ICS were distributed prior to the MP and 67,121 were distributed during the MP", on adding up the number of stoves pre-MP and during MP, the numbers don't add up to the total stoves distributed, in the distribution records provided for the VPA 3 has also 99,785 entries which aligns with the total stoves for VPA 3, PP is requested to provide the correct number of stoves distributed pre-MP and during the MP for VPA 3. Also, It has been observed that, in section D.2 of MR, the value of Npy for VPA03 is given as 99,785. This value is not provided in the ER sheet, while the value corresponding to two batches are given in ER. PP is requested to provide the total ICS distributed for VPA 3 in ER or provide the value for 2 batches separately in MR.				
PP response				**Date:** 09/10/2023
1. The value in section B.1 for the total number of stoves distributed during the monitoring period of VPA 3 has				

been erroneously stated as 67,121. This has been corrected to the actual value of 67,271. The pre-MP and during MP number of stoves now add up to 99,785 which is the total number of devices in the distribution database for VPA 3 (GS11596). Furthermore, the reference to batches have been removed in the MR and the technology days calculations in the ER sheet for VPA 3 has been consolidated in to one tab.

2. The value has been added in cell I25 of the "Ex-Post VPA 3 MP 2" tab of the ER calculation sheet, the value is also included in cell E7 of the "ER Summary" tab in the ER calculation sheet.

Documentation provided by PP

VVB assessment	**Date:** 13/10/2023

PP has updated the number of stoves distributed in the VPA3 in the section B.1, the sum of the stoves distributed pre-MP and during MP now add up to the total stoves distributed in the VPA3 and values are consistent with the ER sheet.

Hence, CAR04 is closed.

CAR ID	05	**Section no.**	D.1	**Date:** 06/10/2023

Description of CAR

For all the Ex-ante parameters, PP is requested to provide values separately for both the VPAs in the section D.1 of MR

PP response	**Date:** 09/10/2023

1. Section D.1 of the MR has been amended to reflect the values for VPA 1 and 3 separately in each of the tables.

Documentation provided by PP

VVB assessment	**Date:** 13/10/2023

PP has provided ex ante values separately for VPA1 and VPA3 in the section D.1.

However, the value of Bby, project and baseline CO2 and non CO2 emission factor, is found to be inconsistent with the respective VPA DDs.

1. The Bb,y value mentioned in MR is higher than the value present in VPA DD. PP is requested to clarify the conservativeness in this approach.

2. PP may provide the justification for the revision in the values in "Additional Comment" column of the respective table or as a footnote.

3. Moreover, referring to GS MR template guideline section B.2.2 "*Indicate whether any corrections to project information or parameters fixed at validation have been applied*." Corrections to be documented in section B.2.2 of MR as well.

Thus, finding is open.

PP response	**Date:** 19/10/2023

1. The value in the VPA DD of VPA 1 was calculated using statistical values and not determined through in field

KPT's. FAR 2 as per Section B.1.1 was raised during the validation to conduct in field KPT's to determine the parameter. FAR 2 was addressed and closed during the first verification and performance review of GS11145 and the value of 6.44 tonnes for parameter $B_{b,y}$ has been accepted. Furthermore, to be consistent the value in the MR has been noted as 6.44.

2. Justification for the parameter values have been added in the justification sections.

3. Justifications of the value corrections have been added in section B.2.2 of the MR.

VVB Assessment	**Date:** 19/10/2023

Verification team has reviewed the previous monitoring report of VPA01 and has observed that the value for Bby has been revised since MP1 itself based on the FAR raised during the design certification review. The value of CO2 and nonCO2 emission factor has been applied in the MR to be consistent with the applied methodology which is deemed to be acceptable to VVB.
All the corrections has been appropriately mentioned in the section B.2.2 of MR.

The finding is closed.

CAR ID	06	**Section no.**	D.2	**Date:** 06/10/2023

Description of CAR

PP is requested to provide the value and calculation method of SDG 3 and SDG 5 in the ER sheet. The provided calculation should be able to be traced to the survey responses.

PP response	**Date:** 09/10/2023

1. The calculations for SDG 3 and 5 have been added in to the "SDG Calculations" tab of the ER calculation sheet. Furthermore, the calculations are also presented in the "Time Saved" and "Stove Performance" tabs of the Habit survey data sheet.

Documentation provided by PP

VVB assessment	**Date:** 13/10/2023

PP has provided the calculation for SDG 3 and SDG 5 in the ER sheet, the values in MR are consistent with the ER sheet for SDG 3 and SDG 5.

Hence CAR06 is closed.

CAR ID	07	**Section no.**	D.4	**Date:** 06/10/2023

Description of CAR

As per para 2.1.1 of GS Guideline and requirement: usage rate monitoring, "*In order to apply a higher level of usage rate, all of the Monitoring Requirements from the levels beneath must be followed*."

It has been observed that PP has provided the demonstration of only good practice level usage rate requirements in MR. But the mandatory level usage rate requirement has not been demonstrated. PP is requested to provide the same with evidences required. The evidence for good practice usage level requirement is also requested to be provided.

Also, PP is requested to provide the calculation of u_{py} determined through survey (weighted average) in the ER sheet.

PP response	**Date:** 09/10/2023

1. According to Table 1 in the GS Requirements and Guidelines: Usage Rate Monitoring v2.0 document it is stated that to practice "Good Practice" monitoring the PD need to do the following activities:

I. Field team training and supervision

TASC uses an experienced team of distribution and monitoring officers who have been actively working on the projects since the inception of the original VPA GS11145. The team have been trained pre distribution as well as during distribution on monitoring activities. Please review the documents labelled "KPT_ODK_Instructions" and "Walkthrough_Field training_Zambia" which are training presentations for in field monitoring activities.

II. End-user training and follow ups

Before distribution occurs in an area the team conducts large sensitization meetings which also forms part of the awareness campaign. At these meetings all the benefits of cooking on the ICS is explained together with how the project works. Cooking demonstrations are also part of the sensitization meetings which practically trains beneficiaries how to use the stoves. Please see evidence for these sensitization meetings in the database labelled "Zam_Village_Sensitization". Furthermore, upon receipt of the ICS each user receives an End User Guide (Please see document labelled "Cookstove Guide for Zambia") which also gives information on the project and how to safely use the ICS. In addition to this, there is a monitoring team who randomly visits households to conduct in house monitoring surveys and to encourage stove usage/adoption. Please see the document labelled "Internal_Survey_Monitoring_Dashboard" which is the Survey CTO dashboard that shown the number of surveys done across the project database. So far, an extra 3,335 surveys have been done in excess of the surveys required for verification purposes.

III. Awareness campaign

Before distribution occurs in an area the team conducts large sensitization meetings which also forms part of the awareness campaign. At these meetings all the benefits of cooking on the ICS are explained together with how the project works. Cooking demonstrations are also part of the sensitization meetings which practically trains beneficiaries how to use the stoves. Please see evidence for these sensitization meetings in the database labelled "Zam_Village_Sensitization". A call centre also regularly phones beneficiaries to discuss the project and the stoves. Please see the call centre dashboard labelled "Survey Monkey Call Centre Survey Dashboard" which shows the number of calls that have been made and Survey Monkey surveys that have been completed thus far. So far a total of 19,550 surveys have been completed. Monitors also complete regular community meetings to discuss the project as well as the advantages of using the project ICS, please see the database labelled "Zam_Community_Meeting".

Please note that all the evidence mentioned above has been placed in the "Good Practice Monitoring" folder that was shared with the VVB.

2. A calculation for Upy was added into the ER calculation sheet in the tab labelled "Upy". Please note that the data used to calculate Upy is from column AZ in the "2023" tab of the habit survey database. Furthermore, as we are only applying good practice monitoring, we can only claim a usage value of 90% even if a higher usage rate has been monitored.

Documentation provided by PP

Cookstove Guide for Zambia
Internal_Survey_Monitoring_Dashboard
KPT_ODK_Instructions
Walktrhough_Field training_Zambia
Survey Monkey Call Centre Survey Dashboards
Zam_Community_Meeting
Zam_Village_Sensitization

VVB assessment	**Date:** 13/10/2023

It has been observed that PP has only provided Good practice usage rate requirements.

As per the para 2.1.1 of Requirements and guidelines for usage rate monitoring version 2.0, PP needs to mention the requirements of Mandatory usage as stated in the section 2.2 of the GS Requirements and Guidelines: Usage Rate Monitoring v2.0.

The demonstration of these requirements(Good practice and mandatory usage) to be documented in MR as well.

Also, Information on the following to be provided under "field team training and supervision"
Date of trainings provided with evidence.
Evidence for details of the staffs trained.
Training attendance sheet

As per section 3 of methodology, "*The usage survey provides a single usage parameter that is weighted based on drop off rates that are representative of the age distribution for project technologies in the total sales record.".* PP has not provided the usage rate calculation as per the methodology requirement. Therefore for Up,y calculations, PP is requested to use weighted average for calculating the results.

Hence, CAR07 remains open.

PP response	Date: 18/10/2023

1. As per para 2.1.1 of Requirements and guidelines for usage rate monitoring version 2.0 the requirements for all 3 usage rate levels have been mentioned in section D.4. of the MR.

2. Demonstration of all the applicable requirements have been documented in section D.4. of the MR.

3. Evidence for training that occurred during the project lifetime has been shared with the VVB and more elaboration on the training provided has been added in section D.4. of the MR.

4. As we have applied a simple random sampling approach as stated in section D.4. of the MR, a weighted average calculation according to stove age is not appropriate as the usage/habit surveys were not stratified by age.

VVB Assessment	**Date:** 26/10/2023

1. It has been observed that in MR, PP has not defined use and non use as per the GS REQUIREMENTS AND GUIDELINES: USAGE RATE MONITORING version 2.0.

   Referring to para 2.2.4 of above mentioned report. PP is requested to describe Use and no use appropriately in MR.

2. As per para 2.2.13 of above mentioned document, *"The verification checks of survey data shall be performed by the project developer prior to verification by the Verification/Validation Body (VVB). At the conclusion of the data collection phase of the survey, the project developer representative shall telephone a randomly selected 5-10% of the surveyed households to verify that homes were visited by surveyors and the recorded responses are correct. As per para 2.2.13 of above mentioned report, The project developer shall record the details of the households and responses provided that have been reached via telephone.* ". From the explanation provided in D.4 of MR, PP is requested to confirm if the verification calls were conducted or not. PP is requested to perform the verification check and provide the evidence to VVB and add the same in MR.

3. Referring to page 31 of methodology TPDDTEC version 3.1,

   For monitoring of usage survey, "The minimum total sample size is 100, with at least 30 samples for project technologies of each age being credited".

   Therefore, PP is requested to provide the weighted average usage rate.

Thus, finding is open.

PP response	**Date:** 30/10/2023

1. Usage and Non-usage have been defined in the MR in section D.4 as follows: *"As of yet, usage has not formally been defined in the respective VPA-DD's. This has occurred erroneously and was not picked up during validation and design review. Project device usage is defined as "Everyday" and "Several times a week" as determined through the habit survey. Non-usage is defined as "Once a week" and "Never" usage as determined through the habit survey. As the project utilizes KPT's to measure/quantify fuel use, any*

residual baseline stove usage is also captured in the project wood use. Thus, a higher-than-expected project wood usage value is monitored."

2. Verification checks have been carried out and evidence is shared with the VVB. Please see the excel sheet labelled "Zam_Stove_MRV_HabitSurvey_VPA 1 & 3_Verification_Checks_V1.0" and the recordings from the calls. Please note that the calls were carried out in Nyanje as this is the language spoken by the locals.

3. Usage has been calculated using an age weighted calculation. Please refer to the "Stove Use Frequency" tab in "Zam_Stove_MRV_HabitSurvey_VPA 1 & 3_v1.1".

VVB Assessment	**Date:** 02/11/2023

1. The usage and non-usage has been defined in the MR which is in line with the applied methodology.

2. The verification checks evidences have been provided by PP and cross checked to check the compliance with the GS usage rate guideline and is deemed to be acceptable.

3. The weighted calculation has been provided for uy.

Thus, finding is closed.

CAR ID	08	**Section no.**	E.5	**Date:** 06/10/2023
Description of CAR				
The ex ante emission reduction value of VPA 1 and VPA 3 provided in section E.5 of MR is not found to be consistent with the value provided in ER sheet.				
PP response				**Date:** 09/10/2023

1. The values in Section E.5 are correctly stated from the ER calculation sheet. The Ex-Ante value for VPA 1 (444,183) can be found in cells F 27 – 31 in the "Ex-Ante VPA 1" tab and the VPA 3 value (290,377) can be found in cells F 28 – 32 of the "Ex-Ante VPA 3" tab in the ER calculation sheet.

Documentation provided by PP	
VVB assessment	**Date:** 13/10/2023

The ex ante valued in the section E.5 are consistent with the ER sheet.

Hence, CAR08 is closed.

Table 3. CL from this verification

CL ID	01	**Section no.**	D.1	**Date:** 06/10/2023
Description of CL				
The value of CO2 and nonC2 emission factor provided in section D.1 of MR is not consistent with the value provided in VPA DD . PP is requested to clarify.				
PP response				**Date:** 09/10/2023

1. The CO2 and non-CO2 emission factors used for the MR have been used before and accepted by Sustain-Cert during previous certifications/issuances. Please see the respective monitoring reports as evidence labelled "TASC_Zam_VPA_1_Monitoring_report_V1.5_Clean" and "TASC_Zam_VPA_3_MP1_v1.4" which are both available on the GS public registry.

   The reason for the differences is that during the initial design review of GS11145 a NCV value of

0.0156 instead if the methodology default of 0.015 was used erroneously to calculate the emission factors. Furthermore, for GS11596 the values were rounded up in the VPA-DD. It was found to be more conservative to not round the values up and use the values with up to 4 decimals.
VVB assessment **Date:** 13/10/2023
The emission factors for CO_2 and non-CO_2 are more conservative if the value of NCV is used as 0.015, so the values of emission factors used in the MR are deemed acceptable. Hence, CL01 is closed.

CL ID	02	**Section no.**	D.4	**Date:** 06/10/2023
Description of CL				
PP is requested to clarify how the wood moisture content (dry basis and wet basis) has been determined in the KPT survey.				
PP response				**Date:** 09/10/2023
1. The moisture content of the wood used during the KPT tests were measured as per the guidance provided in the KPT version 4.0 protocol using Ryobi moisture meters. Moisture content is measured in dry basis and to get the wet basis value the following equation is applied: $MC_{wet} = \frac{MC_{dry}}{1 + MC_{dry}}$ This equation was extracted from the KPT protocol v3.0 spreadsheet and can be used to calculate the wet-basis moisture content (MC_{wet}) if the dry-basis moisture content (MC_{dry}) is known.				
VVB assessment				**Date:** 13/10/2023
On the review of the KPT survey sheet and the pg. 26 section 1.3 of WBT v4.2.3, the method used to calculate the moisture content of fuel is deemed to be appropriate. Hence, CL02 is closed.				

CL ID	03	**Section no.**	E.1	**Date:** 06/10/2023
Description of CL				
As per the section B.6.3 of VPA 1 and VPA 3, the ER is expected to be quantified as per following, ERy = Σb,pNp,y* Up,y* (Erb,p,y,CO2 + Erb,p,y,nonCO2))–Σ Lep,y Erb,p,y,CO2= Σi { fNRB,b,I,y* Bb,y,i* NCVb,i *eFb,i,CO2} – Σi { fNRB,b,i,y* Bp,y,i* NCVp,i *eFp,i,CO2} eRb,p,y,nonCO2= Σi { Bb,y,i* NCVb,i * eFb,i,nonCO2} – Σi { Bp,y,i* NCVp,i * eFp,i,nonCO2}. This approach merges baseline and project emissions into the same equation. However, in MR, the ER has eenn found to be quantified as follows. Baseline emission in section E.1 of MR is quantified as bEb,y = Σ b,pNp,y* Up,y* (eRb,p,y,CO2 + eRb,p,y,nonCO2))- Σ lEp,y eRb,p,y,CO2= Σ i { fNRB,b,i,y* Bb,y,i* NCVb,i *eFb,i,CO2}				

eRb,p,y,nonCO2 = Σi { Bb,y,i* NCVb,i * eFb,i,nonCO2} - Σi { Bp,y,i* NCVp,i * eFp,i,nonCO2},

While the project emissions in section E.2 of MR is quantified as

ERy = Σb,pNp,y* Up,y* (eRb,p,y,CO2 + eRb,p,y,nonCO2)) - Σ lEp,y

eRb,p,y,CO2= Σi { fNRB,b,i,y* Bb,y,i* NCVb,i *eFb,i,CO2} - Σi { fNRB,b,i,y* Bp,y,i* NCVp,i *eFp,i,CO2}

eRb,p,y,nonCO2= Σi { Bb,y,i* NCVb,i * eFb,i,nonCO2} - Σi { Bp,y,i* NCVp,i * eFp,i,nonCO2}.

The equations provided in the MR is not the actual equations in which baseline and project emissions are quantified in the ER sheet.

PP is requested to clarify how the quantification approach mentioned in the MR in line with the applicable PDD and applied methodology. The ER equations used in the ER sheet should be appropriately and consistently documented in the MR.

Also, in the ER sheet, fnrb is found to be multiplied with the nonCO2 emission factor in the specific nonCO2 emission saving equation, which is not provided in PDD or methodology. PP is requested to clarify the use of this approach

PP response	**Date:** 18/10/2023
The calculation approach in the registered PDD has been erroneously included. This has been corrected in the MR and the ER calculation sheet. The ERy calculation is now strictly according to equation 1 on p.19 of the TPDDTEC v3.1 methodology and updated in Section E2. As a result of the update, parameters EF_{bCO2}, EF_{pCO2}, $EF_{bnonCO2}$ and $EF_{pnonCO2}$ have been changed to $EF_{fuel,CO2}$ and $EF_{fuel,nonCO2}$. Also, fNRB is now also treated in accordance with Equation 1. A statement regarding the correction have been added in section B.2.2 of the MR. It should be noted that this correction has no impact on actual ER calculations; the output numbers are identical to the previous approach.	
Documentation provided by PP	
VVB assessment	**Date:** 26/10/2023
It has been observed that PP has provided the revised calculation based on the equation 1 of applied methodology. Therefore the calculation approach is deemed to be acceptable to VVB. The value of Co2 and non CO2 emission factor has been revised in the MR as required by the methodology. All values and calculation provided in ER spreadsheet and MR is found to be consistent with methodology. Thus, finding is closed.	

Annex 2: Assessment of data and parameters monitored

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Relevant SDG Indicator	SDG 13 Indicator 13.2.1 "Amount of CO2e emissions reduced by the project per year"
Data / Parameter: **(as in monitoring plan of PDD):**	$B_{p,y,i}$
Unit	Tonnes per household per annum
Measuring frequency/Time Interval:	Updated every two years
Reported value	1.05 tonnes (VPA 1) 1.05 tonnes (VPA 3)
Verified Source of Data	Field Performance Tests (FPTs) VVB, based on sampling surveyed the households took part in KPT survey, from the survey, it has been confirmed that KPT has been conducted as per the procedures provided in section D.2 and D.4 of MR. The KPT datasheet/04/ has also been reviewed and confirms that the KPT calculations are done appropriately. The calculation including the exclusion of outlier threshold is found to be consistent between baseline and project KPT. Moreover, the file "VPA 1and3 ER Calcs_Outliers_Included_Example" /18/ provided by PP which calculates ER without outlier threshold exclusion shows that the resultant ER is found to be less conservative compared to the ER obtained by excluding outlier threshold.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	VVB based on the review of purchase orders/15/ dated 13/04/2023 confirms that the equipment used for KPT surveys were newly purchased. The technical specification document /16/ provided by PP has been reviewed and confirm that the information provide by PP in section D.2 of MR is deemed to be acceptable.
VVBs 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
Relevant SDG Indicator	SDG 13 Indicator 13.2.1 "Amount of CO2e emissions reduced by the project per year"
Data / Parameter: **(as in monitoring plan of PDD):**	$U_{p,y}$
Unit	Fraction (or %)
Measuring frequency/Time Interval:	Annual
Reported value	90%
Verified Source of Data	Annual usage survey VVB has conducted household surveys to verify the value provided by PP. VVB observed that all the households visited is in possession of project ICS and has been in use. However, PD based on Good practice usage level has only claimed for 90% of usage. VVB confirms that the requirements provided in requirements and guidelines: usage rate monitoring version 2.0 has been followed. Checklist for the usage rate assessment has been added in annex 3 of this report
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
VVBs 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
Relevant SDG Indicator	SDG 13 Indicator 13.2.1 "Amount of CO2e emissions reduced by the project per year"
Data / Parameter: **(as in monitoring plan of PDD):**	$N_{p,y}$
Unit	Number
Measuring frequency/Time Interval:	Continuous
Reported value	44,517 (VPA 1) 99,785 (VPA 3)

Verified Source of Data	Monitoring Database. The value provided in MR has been cross checked with the database/03/ provided by PP and is found to be consistent
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
VVBs 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
Relevant SDG Indicator	SDG 13 Indicator 13.2.1 “Amount of CO2e emissions reduced by the project per year”
Data / Parameter: **(as in monitoring plan of PDD):**	$LE_{p,y}$
Unit	Tonnes of CO2 equivalent per year
Measuring frequency/Time Interval:	Aggregate leakage can be assessed for multiple project scenarios, if appropriate, every two years
Reported value	0
Verified Source of Data	Leakage assessment, VVB during the interview with the end users confirmed that no leakage is applicable during the current monitoring period.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
VVBs the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place

reductions and are necessary QA/QC processes 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
Relevant SDG Indicator	SDG 1 Indicator 1.4.1 "Proportion of population living in households with access to basic services"
Data / Parameter: **(as in monitoring plan of PDD):**	BSA/ HHS
Unit	Number
Measuring frequency/Time Interval:	Annually
Reported value	44,517 (VPA 1) ICS in use 99,785 (VPA 3) ICS in use
Verified Source of Data	1. Monitoring Database ICS distribution records 2. Ex- post Monitoring Survey Records The value provided in MR has been cross checked with the database/03/ provided by PP and is found to be consistent
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
VVBs 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
Relevant SDG Indicator	SDG 3 Indicator 3.9.1 "Mortality rate attributed to household

	and ambient air pollution”
Data / Parameter: **(as in monitoring plan of PDD):**	SPM_{HH}
Unit	%
Measuring frequency/Time Interval:	Annually
Reported value	100%
Verified Source of Data	Ex- post Monitoring Survey Records, VVB has conducted verification surveys based on random sampling following the guidelines of Sampling and surveys for CDM project activities and programmes of activities/B05/ to verify the value provided by PP. It has been found that the value provided by PP is consistent with the value observed by VVB during verification survey.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
VVBs 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**
Relevant SDG Indicator	SDG 5 Indicator 5.4.1 “Proportion of time spent on unpaid domestic and care work, by sex, age and location”
Data / Parameter: **(as in monitoring plan of PDD):**	HHTS
Unit	%
Measuring frequency/Time Interval:	Annual
Reported value	100%
Verified Source of Data	Ex- post Monitoring Survey Records VVB has conducted verification surveys based on random sampling following the guidelines of Sampling and surveys for CDM project activities and programmes of activities/B05/ to verify the value provided by PP. It has been found that the value provided by PP is

	consistent with the value observed by VVB during verification survey.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
VVBs 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**
Relevant SDG Indicator	SDG 7 Indicator 7.1.2 “Proportion of population with primary reliance on clean fuels and technology”
Data / Parameter: **(as in monitoring plan of PDD):**	$AACS_{HH}$
Unit	Number
Measuring frequency/Time Interval:	Continuous
Reported value	44,517 (VPA 1) 99,785 (VPA 3)
Verified Source of Data	ICS Monitoring Database The value provided in MR has been cross checked with the database/03/ provided by PP and is found to be consistent
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
VVBs 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
Relevant SDG Indicator	SDG 8 Indicator 8.5.1 "Average hourly earnings of female and male employees, by occupation, age and persons with disabilities"
Data / Parameter: **(as in monitoring plan of PDD):**	QE IG
Unit	Number
Measuring frequency/Time Interval:	Annually
Reported value	17 employed across VPA 1 and VPA 3
Verified Source of Data	Employment Records. The employment contract/17/ of all the 17 employees has been provided to VVB by PP. The same has been cross checked to verify the value.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
VVBs 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
Relevant SDG Indicator	SDG 12 Indicator 12.2.2 "Domestic material consumption, domestic material consumption per capita and domestic material consumption per GDP"
Data / Parameter:	$B_{y,savings}$

(as in monitoring plan of PDD):	
Unit	Tonnes/ year
Measuring frequency/Time Interval:	Annually/ biennially
Reported value	5.3880 tonnes
Verified Source of Data	Ex- post Monitoring Survey Records. The value has been obtained by subtracting parameter $B_{p,y,i}$ from $B_{old,i.}$ VVB confirmed that the value provided in ER sheet/02/ is appropriate.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
VVBs 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

Annex 3: Checklist for evaluating the compliance of project with requirement and guidelines - Usage rate requirement (2.0)

Section	Sub Section	Criteria	VVB response
1. Scope and applicability	N/A	a. VVBs the project/PoA undergoing certification involve any one or more of the following technologies: solid, gaseous fuel based improved cooking technologies for example firewood, charcoal based improved cookstove, household biogas digesters, solar cookers, etc.?	Yes, the project activity involves the distribution of improved cookstoves.
		b. If there is any conflict with the TPDDTEC methodology, are all the rules and requirements contained in this Annex given precedent	There is no conflict observed with the TPDDTEC methodology.

		and followed by the project/PoA?	
2. Requirements and guidelines	2.1 Levels of usage	a. Has the project/PoA clearly specified the usage monitoring requirement level in the PDD/VPA-DD?	Yes, please refer section B.7.1 of VPA DD/B04/
		b. Has the project/PoA correctly applied the level of usage and associated monitoring requirements in accordance with the claimable usage rates?	Yes. As per the article 2.3 of the guideline/B07/, Good practice level of usage with maximum 90% usage rate has been applied
		c. In case the project/PoA applies a different level of usage as compared to the registered PDD, have the monitoring requirements from the levels below been followed?	The MR has also followed Good practice usage level which is explained in section D.4 of MR/01/
	2.2 Mandatory monitoring requirements	a. Has the project/PoA defined project technology “use” and “non-use” (Step 1) and documented the criteria applied for defining them in the PDD(s)?	Use and Non-use has not been defined in the VPA DD/B04/. The use and non use is defined in section D.4 of MR/01/.
		b. Is the project’s definition of “use” and “nonuse” correct and their documentation of the criteria applied for defining this done correctly?	The definition for use and non use has been added in the section D.4 of the MR/01/.
		c. Has the project/PoA correctly identified criteria to define use and non use considering the representative cooking practices and likely project technology use?	Yes, the use and non use project technology has been identified during the monitoring survey and can be assessed from the habitat survey sheet/05/.
		d. Has the project developer carried out in-person household usage surveys (Step 2) by: i. Determining the minimum sample size for the survey as per the methodology requirements? ii. Performing the following monitoring activities, at minimum, as per the requirements of this Annex: Kitchen observation, interview of the primary cook, taken photos of the cooking areas and recorded the GPS coordinates of the household?	d. i. yes, the detailed sampling procedure is given in section D.4 of MR/01/ ii. yes, the questionaries conducted and the photographs taken during monitoring survey has been verified by VVB
		e. Has the project developer performed the verification checks (Step 3) prior to the verification by the VVB?	Yes, the same has been verified on the basis of the review of call records and verification checks spreadsheet/14/ provided by PP.

		f. Has the project developer kept a record of the verification checks containing the details. of households and their responses?	Yes, the records are also provided to the VVB in the file "Zam_Stove_MRV_HabitSurvey_VPA 1 & 3_Verification_Checks_V1.0/14/"
		g. VVBs the evidence establish a clear relationship between the usage claimed by the project and observations made during the in-person household surveys?	Yes, the observation provided in the evidence /14/ has been cross checked with the ER sheet/02/ and VVB confirms that the evidence establishes a clear relationship between the usage rate claimed by project and observations made in in-person surveys.
	2.3 Good practice monitoring requirements for improved cooking devices.	a. Has the project/PoA successfully met all the mandatory usage rate requirements?	VVB confirms that the project met all the mandatory usage rate requirement defined in the section 2,2 of REQUIREMENTS AND GUIDELINES: USAGE RATE MONITORING version 2.0./B07/
		b. Is the project/PoA eligible to apply the good practice monitoring requirements?	Yes, PP has followed all procedure required for the mandatory as well as good practice usage requirements as provided in section D.4 of MR/01/
		c. Has the project developer carried out the following monitoring activities as per the relevant requirements: i. Field team training and supervision ii. End-user training and follow-up visits? Awareness campaign?	Based on the review of the section D.4 of MR/01/ and its supporting documents/09/12/13/14/. VVB confirms that the monitoring activities have been carried out as per the requirement.
		d. Has the project developer provided evidence for trainings, follow up site visits, awareness campaign?	Yes, the evidence/09/12/13/14/have been provide to VVB and verified.
		e. In VVB's opinion, i. Can the effectiveness of the trainings, follow up site visits and awareness campaigns be confirmed? ii. Should project developer make changes in registered trainings, site visits and awareness campaigns to enhance the effectiveness?	i. Based on the review of the MR/01/, and supporting documents, VVB confirms that the trainings, follow up visits and awareness campaigns are deemed to be effective, and ii. No further changes are required.
	2.4 Best practice monitoring requirements	a. Has the project/VPA successfully met all the mandatory & good practice usage rate requirements?	PoA has not opted for this level of usage, and therefore not applicable for this PoA
		b. Is the project/PoA eligible to apply the best practice monitoring requirements?	
		c. Has the project developer carried out stove use monitoring activities as per the relevant requirements?	
		d. Has the project developer correctly calculated the stove	

		use based on the stove use monitoring?	
3. Determination of usage rate ($U_{p,y}$)		a. Has the project developer applied the applicable cap at individual age-group?	Yes, verified based on review of ER sheet /02/, tab “uy”.
		b. Has the project developer appropriately applied the weighted-average usage rate quantification approach to each monitored project technology age group?	Yes,