

Verification and certification report form for Gold Standard programme of activities

### **BASIC INFORMATION**

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Title and UNFCCC reference number of the programme of activities (PoA)	UpEnergy – Social and Climate Impact Programme (GS 10963)				
Version number(s) of the PoA-DD(s) to which this report applies	05				
GS ID (s) of the VPAs	GS 11211 - UpEnergy – Social and Climate Impact Programme-Cooking Devices VPA-9				
Version number of the verification and certification report	03				
Completion date of the verification and certification report	30/08/2023				
Monitoring period number and duration of this monitoring period	01 05/07/2022 – 28/02/2023 (both the days included)				
Version number of the monitoring report to which this report applies	3				
Activity Requirements applied	Community Services Activities				
Product Requirements applied	GHG Emission Reduction & Sequestration				
Coordinating/managing entity (CME)	UpEnergy Group and Community Carbon				
Host Party	Mozambique				
Applied methodologies and standardized baselines	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 03.1				
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	23,368 tCO <sub>2</sub> e				
Certified amount of GHG emission reductions or GHG removals for this monitoring period	5,391 tCO <sub>2</sub> e				
SDG Impacts:	1.SDG 1: No poverty 2.SDG 3: Good health and wellbeing 3.SDG 5: Gender Equality				

	<ul> <li>4. SDG 7: Affordable and Clean Energy</li> <li>5. SDG 8: Decent work and Economic Growth</li> <li>6. SDG 12: Responsible Consumption &amp; Production</li> <li>7. SDG 13: Climate Action</li> <li>8. SDG 15: Life on Land</li> </ul>
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	Amit Anand, CEO

### **SECTION A. Executive summary**

Carbon Check (India) Private Ltd. (CCIPL) has been appointed by the CME to perform the first periodic verification of the GS Programme of Activities, "UpEnergy – Social and Climate Impact Programme", for the VPA titled, "UpEnergy – Social and Climate Impact Programme-Cooking Devices VPA-9" (GS project id: GS 11211) for the period 05/07/2022 – 28/02/2023 (both the days included). The VPA involves promotion and distribution of Community Cookstoves Model improved cookstoves manufactured by UpEnergy, with a thermal efficiency of 38%. The stoves were distributed from 01 January 2022 across Mozambique.

According to the VPA-DD /B04/, The UpEnergy Group is the coordinating/managing entity (CME) of the PoA and Community Carbon is the Implementer of the VPA (VPAI). The overall objective of the VPA is to contribute to the achievement of the Sustainable Development Goals (SDGs) through the distribution of Improved Cookstoves (ICS) in households of Mozambique.

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 "UpEnergy – Social and Climate Impact Programme-Cooking Devices VPA-9" in the host country "Mozambique" for the period 05/07/2022 – 28/02/2023 (both the days included).

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 PDD and the approved monitoring methodology.

### Scope:

The scope of the verification is:

- To verify the project implementation and operation with respect to the registered PDD
- To verify the implemented monitoring plan with the registered PDD 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 /02/ over the monitoring period from 05/07/2022 - 28/02/2023 (both the days included) and based on the registered VPA-DD as part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology, and all related evidence provided by project participants.

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 /02/, meet all relevant requirements of the Gold Standard as per the requirements of GS4GG. The verification has been conducted in-line with the GS4GG requirements.

The VPA was correctly implemented according to the selected monitoring methodology, monitoring plan and the registered VPA-DD /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	ER (tCO <sub>2</sub> e)
05/07/2022 - 31/12/2022	4,312 tCO <sub>2</sub> e
01/01/2023 - 28/02/2023	1,619 tCO <sub>2</sub> e
Total for the monitoring period	5, 931 tCO₂e

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	In	volve	ment	in
-		Type of resource			(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 / Technical Expert	IR	Mane	Dinesh	CCIPL	X	X	X	X
2.	Trainee Assessor	IR	Shirke	Rishika Sanjay	CCIPL	Х			Х

3.	Local Expert	EI	Mutisse	Nollege Arone	CCIPL		Х	Х	
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### 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	С	Indumathi	CCIPL
2.	Approver	IR	Anand	Amit	CCIPL

**Dinesh Mane:** He is an appointed Team Leader and Technical Expert for technical area 1.2, 3.1 and 13.1. He is having more than 19 years of experience, which involves experience in the environmental services industry. Certification Bodies, Chemical Industries, Project management and technical skills in areas viz., Environment, Energy, Occupational Health and Safety, GHG offset projects Validation and Verification, ISO Audits (IMS) Renewable Energy and waste management. He worked in various capacities at TUV Rhineland India Pvt. Ltd. He is involved in more than 50 GHG audits including validation/verification/post registration changes. He has also attended Several Gold Standard VVB webinar trainings including training on GS4GG.

**Rishika Shirke:** Rishika is qualified as Trainee Assessor and involved in various validations and verifications under GS, VCS and GCC projects. She has also attended Several VERRA & Gold Standard DOE webinar trainings including training on GS4GG. She holds a Master of Science degree in Environmental Studies from S.K. Somaiya Vidyavihar University, Mumbai.

**Indumathi. C:** Qualified lead assessor and internal technical reviewer for offset projects validations and verifications under CDM, VCS and Gold Standard (GS) and actively been involved in the validation and verification or internal technical review of more than 300 GHG offset projects. She is qualified as technical expert for TA 1.2, 3.1,4.1,13.1 and 13.2 under CDM SS categorisation. She has undergone extensive training in the validation and verification of carbon offset projects including the accreditation requirements for the VVBs. She has more than 14 years of work experience in climate change mitigation, renewable energy, energy efficiency and energy access. She has worked with various Designated Operational Entities like TUV NORD, TUV Rheinland and 4KES for GHG emission reduction projects under different carbon crediting mechanisms. Moreover, she was involved in implementation of UNDP energy programs at Ministry of New and Renewable Energy (MNRE) and has also gained experience in energy trade by working with British High Commission. She is a certified GHG Auditor and Energy Manager (Bureau of Energy Efficiency, Government of India). She holds a Bachelor of Technology degree in Energy and Environmental Engineering & Post Graduate Diploma in Business Administration. She has been involved in number of GS validation and verification projects (as internal technical reviewer).

She has also attended Several Gold Standard VVB webinar trainings including training on GS4GG.

**Nollege Arone Mutisse**: He is a local expert for Mozambique and speaks the local language Portuguese as well as English.

### **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 data and information presented to verify their completeness and review of the monitoring plan and monitoring methodology. Documents reviewed or referenced during the verification are listed in Appendix 3 below.

### C.2. On-site inspection

Onsite physical audit has been performed on 12/08/2023 and 14/08/2023. The Team leader has conducted the on-site inspection and in particular the end user households have been visited.

Furthermore, VVB has considered the Site Visit and Remote Audit Requirements and Procedures, version 1.0 /B06/ for conducting the onsite visit. In accordance with the requirements provided in the §3.1.1(b) of the Site Visit and Remote Audit Requirements and Procedures, version 1.0/B06/.

<b>C.</b> 3.								
No.		Interviewee		Date	Subject	Team		
	Last	First	Affiliation			member		
	name	name						
/01/	Shetty	Nikhil	Program Officer, Carbon UpEnergy Group	12/08/2023 & 14/08/2023	VPA Design, Organization Structure, Stove Distribution Mechanism, Details of survey, methodology, Survey results, QA/QC procedure etc.	Dinesh Mane, Nollege Arone Mutisse		
/02/	Chunda	Gift	Country Head, carbon UpEnergy Group	12/08/2023 & 14/08/2023	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.	Dinesh Mane, Nollege Arone Mutisse		
/04/	Sumbana	Higino	Data Manager Communit y Carbon	12/08/2023 & 14/08/2023	Project Design, ownership details, carbon credit ownership arrangements, monitoring and reporting arrangements, QA/QC procedures, baseline assessment, Project technology etc.	Dinesh Mane, Nollege Arone Mutisse		
/05/	Chidamba	Charles	Key Expert - Team Lead GM Monitoria & Avaliação, LDA	14/08/2023	Habit Surveys, Feedback from the local stakeholders, KPT Surveys process, Stove Distribution Mechanism	Dinesh Mane, Nollege Arone Mutisse		
/06/	Antonio	Moises	Key Expert -	14/08/2023	Habit Surveys, Feedback from the	Dinesh Mane,		

### C.3. Interviews

			Baseline Survey & KPT Trainer GM		local stakeholders, Stove Distribution Mechanism	Nollege Arone Mutisse
			Monitoria & Avaliação, LDA			
/07/	Mata	Francisco	Key Expert - KPT Supervisor GM Monitoria & Avaliação, LDA	14/08/2023	Habit Surveys, Feedback from the local stakeholders, Stove Distribution Mechanism	Dinesh Mane, Nollege Arone Mutisse
/08/	Simião	Gilda Ana	Enumerat or Communit y Carbon	14/08/2023	Baseline and Monitoring survey and KPT survey	Dinesh Mane, Nollege Arone Mutisse
/09/	Carlos	Elias Euclesio	Enumerat or Communit y Carbon	14/08/2023	Baseline and Monitoring survey and KPT survey	Dinesh Mane, Nollege Arone Mutisse
/10/	Dausse	Rui Jose	Enumerat or Communit y Carbon	14/08/2023	Baseline and Monitoring survey and KPT survey	Dinesh Mane, Nollege Arone Mutisse
/11/	Macuacua	Vasco Justino	Enumerat or Communit y Carbon	14/08/2023	Baseline and Monitoring survey and KPT survey	Dinesh Mane, Nollege Arone Mutisse
/12/	Joaquim	Martins	Enumerat or Communit y Carbon	14/08/2023	Baseline and Monitoring survey and KPT survey	Dinesh Mane, Nollege Arone Mutisse
/13/	Pedro	Angelina	Baseline KPT Survey Participant	12/08/2023	Baseline Survey Questionnaire	Dinesh Mane, Nollege Arone Mutisse
/14/	Теа	Maria	Baseline KPT Survey Participant	14/08/2023	Baseline Survey Questionnaire	Dinesh Mane, Nollege Arone Mutisse
/15/	Rosário	Regina	Baseline KPT	14/08/2023	Baseline Survey Questionnaire	Dinesh Mane,

/16/     Manuel     Maria     Baseline KPT     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /17/     António     Ana     Baseline KPT     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /21/     Lorenço     Vitória     Baseline KPT     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /21/     Lorenço     Vitória     Baseline KPT     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /22/     Pedro     Linda     Baseline KPT Survey Participant     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /23/     Gero     Ana     Baseline KPT Survey Participant     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /23/     Gero     Ana     Baseline KPT Survey Participant     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /24/     Joaquim     -     Monitoring Survey and KPT Participant     12/08/2023     Monitoring Survey Questionnaire     Dir Ma       /26/     Zefenias     Helena     Monitoring Survey and KPT Participant     12/08/2023     Monitoring Survey Questionnaire     Dir Ma       /26/     Senora     Maria     Monitoring Survey and KPT Participant     12/08/2023     Monitoring Survey Questionnaire     Dir Ma       /26/     Senora     Maria </th <th></th> <th></th> <th></th> <th>Survey Participant</th> <th></th> <th></th> <th>Nollege Arone Mutisse</th>				Survey Participant			Nollege Arone Mutisse
/17/     António     Ana     Baseline KPT     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /21/     Lorenço     Vitória     Baseline KPT     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /21/     Lorenço     Vitória     Baseline KPT     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /22/     Pedro     Linda     Baseline KPT     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /23/     Gero     Ana     Baseline Baseline KPT     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /23/     Gero     Ana     Baseline Baseline Survey     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /24/     Joaquim     _     _     Monitoring Survey     12/08/2023     Monitoring Survey Questionnaire     No       /25/     Zefenias     Helena     Monitoring Survey and KPT     12/08/2023     Monitoring Survey Questionnaire     Dir Ma       /25/     Zefenias     Helena     Monitoring Survey and KPT     12/08/2023     Monitoring Survey Questionnaire     No       /26/     Senora     Maria     Monitoring Survey and KPT     12/08/2023     Monitoring Survey Questionnaire     No       /26/     Senora     Maria     Monitoring Survey and KPT     12/08/20	6/ Man	uel	Maria	KPT Survey	14/08/2023		Dinesh Mane, Nollege Arone Mutisse
/21/     Lorenço     Vitória     Baseline KPT Survey Participant     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /22/     Pedro     Linda     Baseline KPT Survey Participant     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /23/     Gero     Ana     Baseline KPT Survey Participant     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /23/     Gero     Ana     Baseline KPT Survey Participant     14/08/2023     Baseline Survey Questionnaire     Dir Ma       /24/     Joaquim     -     Monitoring Survey and KPT Participant (stove ID MZCS042 43)     12/08/2023     Monitoring Survey Questionnaire     Dir Ma       /25/     Zefenias     Helena     Monitoring Survey and KPT Participant (stove id MZCS060 65)     12/08/2023     Monitoring Survey Questionnaire     Dir Ma       /26/     Senora     Maria     Monitoring Survey and KPT Participant (stove id     12/08/2023     Monitoring Survey Questionnaire     Dir Ma       /26/     Senora     Maria     Monitoring Survey and KPT Participant (stove id     12/08/2023     Monitoring Survey Questionnaire     Dir Ma       /27/     Anasctaci a     _     _     Monitoring Survey and KPT Participant (stove id     12/08/2023     Monitoring Survey Questionnaire     Dir Ma	7/ Antó	ónio ,	Ana	KPT Survey	14/08/2023		Dinesh Mane, Nollege Arone Mutisse
/22/     Pedro     Linda     Baseline KPT Survey Participant     14/08/2023     Baseline Survey Questionnaire     Dir Ma No       /23/     Gero     Ana     Baseline KPT Survey Participant     14/08/2023     Baseline Survey Questionnaire     Dir Ma No       /24/     Joaquim     -     Monitoring Survey and KPT Participant (stove Id MZCS042     12/08/2023     Monitoring Survey Questionnaire     Monitoring Survey Ma No       /25/     Zefenias     Helena     Monitoring Survey and KPT Participant (stove Id MZCS060     12/08/2023     Monitoring Survey Questionnaire     Dir Ma No       /26/     Senora     Maria     Monitoring Survey and KPT Participant (stove Id MZCS105     12/08/2023     Monitoring Survey Questionnaire     Dir Ma No       /26/     Senora     Maria     Monitoring Survey and KPT Participant (stove Id MZCS105     12/08/2023     Monitoring Survey Questionnaire     Dir Ma No       /27/     Anasctaci a     -     Monitoring Survey and KPT Participant (stove Id     12/08/2023     Monitoring Survey Questionnaire     Dir Ma No	/ Lore	enço	Vitória	KPT Survey	14/08/2023		Dinesh Mane, Nollege Arone Mutisse
/23/       Gero       Ana       Baseline KPT Survey Participant       14/08/2023       Baseline Survey Questionnaire       Dir Ma No Arc Mu         /24/       Joaquim       _       Monitoring Survey and KPT Participant       12/08/2023       Monitoring Survey Questionnaire       Dir Ma No         /25/       Zefenias       Helena       Monitoring Survey and KPT Participant (stove ID MZCS042 43)       12/08/2023       Monitoring Survey Questionnaire       Dir Ma No         /25/       Zefenias       Helena       Monitoring Survey and KPT Participant (stove id MZCS060       12/08/2023       Monitoring Survey Questionnaire       Dir Ma No         /26/       Senora       Maria       Monitoring Survey and KPT Participant (stove id MZCS060       12/08/2023       Monitoring Survey Questionnaire       Dir Ma No         /26/       Senora       Maria       Monitoring Survey and KPT Participant (stove id MZCS105 32)       12/08/2023       Monitoring Survey Questionnaire       Dir Ma No         /27/       Anasctaci a       _       _       Monitoring Survey and KPT Participant (stove id       12/08/2023       Monitoring Survey Questionnaire       Dir Ma No	2/ Pedr	ro	Linda	KPT Survey	14/08/2023		Dinesh Mane, Nollege Arone Mutisse
/24/     Joaquim     _     Monitoring     12/08/2023     Monitoring Survey     Dir       Survey     and KPT     Participant     (stove ID     Monitoring     12/08/2023     Monitoring Survey     No       /25/     Zefenias     Helena     Monitoring     12/08/2023     Monitoring Survey     Monitoring Survey     Dir       /25/     Zefenias     Helena     Monitoring     12/08/2023     Monitoring Survey     Dir       /25/     Zefenias     Helena     Monitoring     12/08/2023     Monitoring Survey     Dir       /26/     Senora     Maria     Monitoring     12/08/2023     Monitoring Survey     Dir       /27/     Anasctaci     _     _     Monitoring     12/08/2023     Monitoring Survey     Dir       a     _     _     _     _     Monitoring     12/08/2023     Monitoring Survey     Monitoring       /27/     Anasctaci     _     _     _ </td <td>3/ Gerc</td> <td>C ,</td> <td>Ana</td> <td>KPT Survey</td> <td>14/08/2023</td> <td></td> <td>Dinesh Mane, Nollege Arone Mutisse</td>	3/ Gerc	C ,	Ana	KPT Survey	14/08/2023		Dinesh Mane, Nollege Arone Mutisse
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/27/       Anasctaci a       _       Monitoring Survey and KPT Participant (stove id       12/08/2023       Monitoring Survey Questionnaire       Dir Ma No	6/ Send	ora	Maria	Monitoring Survey and KPT Participant (stove id MZCS105	12/08/2023		Dinesh Mane, Nollege Arone Mutisse
18)	a			Monitoring Survey and KPT Participant (stove id MZCS001 18)		Questionnaire	Dinesh Mane, Nollege Arone Mutisse Dinesh

			Survey and KPT Participant (stove id SHP0077 4)		Questionnaire	Mane, Nollege Arone Mutisse
/29/	Catija	_	Monitoring Survey and KPT Participant (stove id SHP0074 0)	12/08/2023	Monitoring Survey Questionnaire	Dinesh Mane, Nollege Arone Mutisse
/30/	Isabel	_	Monitoring Survey and KPT Participant (stove id MZCS052 78)	14/08/2023	Monitoring Survey Questionnaire	Dinesh Mane, Nollege Arone Mutisse
/31/	Ricardina	_	Monitoring Survey and KPT Participant (stove id MZCS015 40)	14/08/2023	Monitoring Survey Questionnaire	Dinesh Mane, Nollege Arone Mutisse

### C.4. Sampling approach

As the target population is homogeneous, CME has employed representative sampling plan using 90/10 as confidence/precision. This is in line with the applied methodology /B02/. The sample size for monitoring/usage survey is determined using random sampling which is inline with the PoA-DD / VPA-DD.

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

(a) Whether the required confidence/precision has been met;

(b) Whether the selected sample was representative of the population.

In line with paragraph 26 of the Sampling Standard /B05/, the verification team has applied a sampling approach for on-site visits surveys as part of verification. Now as the CME had applied sampling approach, the verification team has chosen acceptance sampling in accordance with paragraph 28 of the sampling standard and accordingly steps listed in paragraph 29 of the sampling standard were followed.

The verification team of the VVB has applied a sampling approach for on-site visits as part of verification in accordance with the paragraph 26 of the Standard: Sampling and surveys for CDM project activities and programmes of activities, Version 09.0. In accordance with the paragraph 28 of the sampling standard, acceptance sampling has been chosen by the verification team and accordingly steps listed in paragraph 29 of the sampling standard shall be followed. Verification team has opted for AQL of 1 % and UQL of 20 %; producer risk of 10 % and consumer risk of 20% in determining the VVB's sample size. Accordingly, site visits for 8 households / samples from the CME's sample size for the monitoring survey and project KPT for the monitoring period with acceptance number (c) as 0 was conducted. Also in accordance with the baseline survey and KPT

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conducted by CME, VVB performed site visits for 8 households / samples from the CME's sample size for the baseline survey and baseline KPT conducted by the CME with an acceptance number (c) of 0. As a result, a total of 16 households (8 for project survey and 8 for baseline survey) were interviewed.

The baseline survey and baseline KPT were carried out by CME during the April 2023. The monitoring/usage survey and project KPT were carried out during the period July 2023 were interviewed. The survey participants were interviewed by the verification team.

The Information provided in the monitoring survey /12/, has been cross checked during the Onsite visit. As a part of simple random sampling, the Verification team could confirm the monitoring survey data /12/ with no discrepant records. Thus, PP's set of records has been accepted in line with § 33 of the sampling standard, version 09 /B05/.

Parameter	Verification	Population (for	VVB's Sample
	approach	VVB's sample)	Size
Monitoring Usage surveys and project KPT /12/ /11/15/	Sampling Survey	160 ( including 108 KPTs)	8

Parameter	Verification	Population (for	VVB's Sample
	approach	VVB's sample)	Size
Baseline survey and KPT/13/	Sampling Survey	187 (including 90 KPTs)	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 16 samples each baseline and monitoring) surveys 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/19/, who conducted such test were checked. They were also interviewed to ensure that the process, method used, and their competency to confirm such standardised test were appropriately applied. The sampling technique to draw such samples were 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 had raised 06 clarifications (CLs) and 03 corrective action requests (CARs) and are successfully closed. Design Certification VVB raised FAR#01, which is successfully closed during this verification. Refer table 4 of Appendix 4 of this report. No FAR were raised during this verification.

### **SECTION D. Verification findings**

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

Design Certification VVB raised FAR#01, which is successfully closed during this verification. Refer table 4 of Appendix 4 of this report. This is the first monitoring period for the VPA and thus previous verification is not applicable.

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

Means of	Document Review, Interview
verification	

Findings	CAR 01, CAR 03, CL 01 and CL 02 has been raised and successfully closed. Refer appendix 4 for further details.
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, the audit team confirm the project implementation and operation complies with the VPA-DD/B04/. The starting date of stove distribution/04/ is 01/01/2022 which is confirmed from the registered VPA-DD /B04/ and validation report /B02/. The project boundary in the registered VPA-DD /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 username, 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 CME; 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 started from 01/01/2022. A total of 10,395 (VPA 9) cookstoves were distributed in the monitoring period.
	Verification team based on the review of the MR /02/ and provided evidence confirms that the households/end users relinquish their right of carbon credits. Furthermore, the ICS implemented under the project is 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-DD /B04/.
	Verification team has checked the information in the monitoring report /02/ and compared it against the registered VPA-DD /B04/ and found to be consistent.
	Verification team confirms that:
	<ul> <li>a) The project activity is implemented as per registered PDD/B04/.</li> <li>b) The actual operation of the proposed project activity is in line with the registered/revised PDD /B04/.</li> <li>c) It has reviewed the registered PDD /B04/ including the monitoring plan, the applied monitoring methodology and found that the final MR/02/ for this monitoring period is in line with all the above-mentioned documents.</li> </ul>
	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/14/.
In summary, the monitoring period is reasonable, and the operation of the project activity is in accordance with the registered/revised PDD /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<sup>1</sup>

Not applicable

### D.3.2. Corrections

Not applicable

### 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

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	CAR 01 has been raised and successfully closed. Refer appendix 4 for further details.
Conclusion	The verification team is able to confirm that the monitoring plan contained in the included VPA-DD /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-DD /B04/. The monitoring of same plan has been followed in monitoring report /01/.

<sup>&</sup>lt;sup>1</sup> 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).

The verification took cognizance of § 17.4.9 of GS VVS for PoAs, version
01.0 /B03-5/.

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

Means of verification	Document Re	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	Assessm ent by VT		
	EF <sub>b,CO2</sub>	CO <sub>2</sub> emission factor arising from use of fuels in baseline Scenario	Fuelwood (Residenti al): 112 tCO <sub>2</sub> /TJ	IPCC default value as per 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table2.5)	is consistent with included VPA -DD /B04/ and fixed ex -		
	EF <sub>b,non</sub> CO2	Non-CO <sub>2</sub> emission factor arising from use of fuel type in baseline scenario	Fuelwood (Residenti al): 9.46 tCO <sub>2</sub> /TJ	IPCC default value considering AR5 GWP.	The value is consistent with included VPA -DD /B04/ and fixed ex - ante for the duration of the crediting period.		
	EF <sub>p,CO2</sub>	CO <sub>2</sub> emission factor arising from use of fuels in project Scenario	Fuelwood (Residenti al): 112 tCO <sub>2</sub> /TJ	IPCC default value as per 2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.5)	The value is consistent		

EF <sub>p,nonCO2</sub>	Non-CO <sub>2</sub>	Fuelwood	IPCC default	The value
p,101002	emission factor for methane arising from use of fuels in project Scenario	(Residenti al): 9.46 tCO <sub>2</sub> /TJ	value considering AR5 GWP.	is consistent with included VPA -DD /B04/ and fixed ex - ante for the duration of the crediting period.
NCV	Net calorific value of the fuels used in the baseline	Fuelwood: 0.0156 TJ/ton	IPCC default 2006, volume 2, chapter 1 (Table 1.2)	The value is consistent with included VPA-DD /B04/ and fixed ex- ante for the duration of the crediting period.
NCVp	Net calorific value of the fuels used in the project	Fuelwood: 0.0156 TJ/ton	IPCC default 2006, volume 2, chapter 1 (Table 1.2)	The value is consistent with included VPA-DD /B04/ and fixed ex- ante for the duration of the crediting period.
f <sub>NRB,b,i,y</sub>	Non- renewability status of woody biomass fuel in scenario i during year y	0.78	Assessment based on CDM Methodological tool 30: Calculation of the fraction of non-renewable biomass, Version 03.0	The value is consistent with included VPA-DD /B04/ and fixed ex- ante for the duration of the crediting period.

	0 10 1	0.0403		<b>-</b>
P <sub>b,y</sub>	Specific fuel		Baseline	The value
	consumption	tonnes/da	survey and	is
	for an	У	KPT is	determine
	individual		conducted,	d based on
	technology in		and value is	the
	baseline		fixed ex-ante	baseline
	scenario b		for subsequent	survey
	during year y		issuance.	and KPTs
	converted to			conducted
	tons/day			by the
	,			CME. The
				value was
				checked
				during the
				verification
				and the
				baseline
				survey
				report was
				cross
				checked.
				The
				assessme
				nt of
				baseline
				survey is
				provided
				Annex 1.
Varification	ana aanfinaac the	t the Date an	d normatare fire	d av anta cra
			nd parameters fixe	
	•		and registered/ i	nciuaea VPA-
טט /BU4/ and	the monitoring	bian.		
The constitute of the				
	on took cognizan	ice of § 17.4.	12 of GS VVS for	POAS, VErsion
01.0 /B03-5/.				

### D.5.2. Data and parameters monitored

Means of verification	Document Review, Interview
Findings	CL03 has been raised and successfully closed. Refer appendix 4 for further details.
Conclusion	The verification team confirms that the data and parameters monitored are in compliance with the registered PDD /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	CL 05 has been raised and successfully closed. Refer appendix 4 for further details.

Conclusion	Monitoring our over was conducted during the surrent monitoring as is a
Conclusion	Monitoring survey was conducted during the current monitoring period. The total population of the stoves under the VPA considered for the monitoring period is 10,395. The monitoring parameters required to be monitored through the sampling plan are: 1. Usage rate in project scenario p during year y $(U_{p,y})$ 2. Adjustment to account for any continued use of pre-project devices (baseline stove) in the project scenario during the year y $(\mu_y)$ 3. Specific fuel consumption for an individual technology in project scenario $(P_{p,y})$
	The CME's sampling plan for determining various monitoring parameters is based on the requirements in the applied methodology TPDDTEC version 3.1, which prescribes the desired level of confidence / precision (90/10 for single sample tests) for ex-post monitoring. The target population is the 10,395 ICS during the monitoring period. 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 Monitoring/Usage Surveys and Biennial surveys for KPTs.
	The sample size calculated for monitoring/usage surveys is 100 based on the methodology TPDDTEC Version 3.1/B02/, for a group size > 1000 a minimum sample size of 100 is needed. PP has conducted surveys for 160 samples (including 108 project KPTs) taking into consideration oversampling. The precision level achieved for the sample size for the parameters Up,y and Pp,y is 3.67% and 7.31% respectively. The sample size for baseline surveys 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 baseline survey was carried out for 187 (including 90 baseline KPTs) households to account for the non-responses and is acceptable to the verification team.
	The sample size calculated for project KPT surveys based on a confidence interval/ precision level of 90/10 based on Annex 4, Table 3 of the methodology, TPDDTEC, version 3.1/B02/. The COV selected is 1.2 and thus sample size is 90. Oversampling of the surveys was done by the PP to use an actual sample size of 108.
	PP has also carried out the baseline KPTs during the monitoring period for 90 households selected randomly in the project boundary. The sample size is appropriate and complies with the Annex 4, Table 3 of the methodology, TPDDTEC, version 3.1/B02/. The COV selected is 0.4 and thus sample size is 90.
	The verification team of the VVB has applied a sampling approach for on- site visits as part of verification in accordance with the paragraph 26 of the Standard: Sampling and surveys for CDM project activities and programmes of activities, Version 09.0. In accordance with the paragraph 28 of the sampling standard, acceptance sampling has been chosen by the verification team and accordingly steps listed in paragraph 29 of the sampling standard shall be followed. Verification team has opted for AQL of 1 % and UQL of 20 %; producer risk of 10 % and consumer risk of 20% in determining the VVB's sample size. Accordingly, site visits for 8 households / samples from the CME's sample size for the monitoring survey and project KPT for the monitoring period with acceptance number (c) as 0 was conducted. Also in accordance with the baseline survey and

KPTs conducted by CME, VVB performed site visits for 8 households / samples from the CME's sample size with an acceptance number (c) of 0. As a result, a total of 16 households (8 for project survey and 8 for baseline survey) were interviewed.
The Usage Rate used by the CME for the VPA is 90% based on the Good Practice.

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

Means of verification	Document Re	Document Review, Interview				
Findings	-	-				
Conclusion	before the sta by certified la year from the calibration cel	rt of the mo boratories. date of cal rtificates /08	nitoring survey All the calibrat ibration which	vs and the cali ions conducte has also bee details of the	PTs were calibr brations condu d are valid for n confirmed by equipment use	or or
	Name of the equipment	Model/T ype	Serial number	Calibration date	Validity of calibration	
	Portable Weighing Scale	VC00315	202351901	19-05-2023	18-05-2024	
	Moisture Meter	Ryobi Moisture Meter 2- In-1	HTMM210	14-03-2023	13-03-2024	
	Counter Scale	AM SUB252 94	UPE230317 03	17-03-2023	16-03-2024	
	Calibration de consumption a Name of the equipment		1	used to ass Calibrat n date	io Validity of calibration	f

Counter Scale	Dahongying	UPE2303170 1	17- 03- 2023	16-03-2024
Hanging Scale	N/A	2023031702	17-03- 2023	16-03-2024
Moisture Meter	Ryobi	V321050162 0	24-02- 2023	23-02-2024
The verificatio 01.0 /B03-5/.	n took cogniza	nce of § 17.4.11	of GS VVS fo	or PoAs, version

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

D.7.1.	Calculation of	of baseline	<b>GHG</b> emissions	or baseline net	GHG removals by	/ sinks

Means of verification	Document Revi	ew, Interview		
Findings				
Conclusion	The emission rec	The emission reductions are calculated as follows:		
	$ER_y = \sum BE_{b,y} - \sum$	$PE_{p,y} \ge LE_{p,y}$		
	Where:	$\overline{\mathbf{r}}$		
		Emission reduction for total project activity in year y (tCO <sub>2</sub> e/yr) Baseline emissions for baseline scenario b in year y (tCO <sub>2</sub> e/yr)		
		Project emissions for project scenario p in year y (tCO <sub>2</sub> e/yr)		
		Leakage for project scenario p in year y ( $tCO_2e/yr$ )		
	F')	5 1 5 7 - 57		
	As per the metho	odology the equation for the emisión reduction calculations is as		
	follows:	ollows:		
	The Baseline Fm	The Baseline Emission reduction is calculated as:		
	$BE_{b,y} = B_{b,y} * ((f_{NF}))$	B,b,y * EF <sub>b,fuel,CO2</sub> ) + EF <sub>b,fuel,non-CO2</sub> ) * NCV <sub>b,fuel</sub>		
	Where:	Where:		
	BE <sub>b,y</sub>	Emissions for baseline scenario b during the year y in tCO2e		
	B <sub>b,y</sub>	Quantity of fuel consumed in baseline scenario b during year		
	<b>—</b> 5,y	y, in tons		
	f <sub>NRB,b,y</sub>	Fraction of biomass used in year y for baseline scenario b that		
		can be established as non-renewable biomass, 0.78		

NCV <sub>b,fuel</sub>	Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/ton)
EF <sub>b,fuel,CO2</sub>	CO <sub>2</sub> emission factor of the fuel that is substituted or reduced. 112 tCO <sub>2</sub> /TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
EF <sub>b,fuel,non</sub> CO2	Non-CO <sub>2</sub> emission factor of the fuel that is reduced, 9.46 tCO <sub>2</sub> /TJ
$B_{\mathrm{b},\mathrm{y}} = N_{\mathrm{p},\mathrm{y}} \star P$	b,y
Where:	
B <sub>b,y</sub>	Quantity of fuel consumed in baseline scenario b during year y, in tons
P <sub>b,y</sub>	Specific fuel consumption for an individual technology in baseline scenario b during year y converted to tons/day, 0.0131
N <sub>p,y</sub>	Project technology-days in the project database for project scenario p through year y (775,100 technology days)
The overall bas tCO <sub>2</sub> e.	seline emissions for the reported monitoring period are 15,336
The verificatio 01.0 /B03-5/.	n took cognizance of § 17.4.12 of GS VVS for PoAs, version

# D.7.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of	Document Revi	Document Review, Interview			
verification					
Findings					
Conclusion		Project emissions due to biomass consumption is applicable for this project. For the current monitoring period, ICS project emissions are calculated as follows.			
	$PE_{p,y} = B_{p,y} * ((f_NR$	RB,p,y * EFp,fuel,CO2) + EFp,fuel,non-CO2) * NCVp,fuel			
	$B_{p,y} = N_{p,y} * ((P_{p,y}$	$B_{p,y} = N_{p,y} * ((P_{p,y} * U_{p,y}) + (P_{b,y} * (1 - U_{p,y})))$			
	Where: PE <sub>p,y</sub> B <sub>p,y</sub>	Emissions for project scenario p during the year y in tCO <sub>2</sub> e Quantity of fuel consumed in project scenario p during year y, in tons			
	f <sub>NRB,y</sub>	Fraction of biomass used in year y that can be established as non-renewable biomass, 0.78			
	NCV <sub>p,fuel</sub>	Net calorific value of the project fuel that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/ton)			
	EF <sub>p,fuel,CO2</sub>	CO <sub>2</sub> emission factor of the fuel that is substituted or reduced. 112 tCO <sub>2</sub> /TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel			
	EF <sub>p,fuel,non</sub> CO2	Non-CO <sub>2</sub> emission factor of the fuel that is reduced, 9.46 tCO <sub>2</sub> /TJ			

N <sub>p,y</sub>	Project technology-days in the project database for project scenario p through year y, 3,928,719
P <sub>p,y</sub>	Specific fuel consumption for an individual technology in project scenario p during year y converted to tons/day, 0.00747
U <sub>p,y</sub>	Cumulative usage rate for technologies in project scenario j during year y, based on cumulative installation rate and drop- off rate, 90%
P <sub>b,y</sub>	Specific fuel consumption for an individual technology in baseline scenario b during year y converted to tons/day, 0.0131
The reporte monitoring	ed value for the project emissions is $9,404 \text{ tCO}_2e$ for the reported period.

### 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 GHG emission reductions or net anthropogenic GHG removals by sinks

Means of	Document Review, Interview
verification	
Findings	
Conclusion	Emission Reductions: The emission reductions in this monitoring period are:
	$ER_y = \sum BE_{b,y} - \sum PE_{p,y} - \sum LE_{p,y}$ Where:
	ERy Emission reduction for total project activity in year y (tCO <sub>2</sub> e/yr)
	BE <sub>b,y</sub> Baseline emissions for baseline scenario b in year y (tCO <sub>2</sub> e/yr)
	$ \begin{array}{c} PE_{p,y} \\ LE_{p,y} \end{array}  \begin{array}{c} Project\ emissions\ for\ project\ scenario\ p\ in\ year\ y\ (tCO_2e/yr) \\ Leakage\ for\ project\ scenario\ p\ in\ year\ y\ (tCO_2e/yr) \end{array} $
	$ER_y = BE_y - PE_y - LE_y$
	As explained in section D.7.1 above, the resulted Baseline emissions (BEy) for the monitoring period is $15,336$ tCO <sub>2</sub> e and as explained in section D.7.2 project emission is 9,404 tCO <sub>2</sub> e for the monitoring period. Hence, resulted emission reduction for the monitoring period is 5,931 tCO <sub>2</sub> e.
	The verification took cognizance of § 17.4.12 of GS VVS for PoAs, version 01.0 /B03-5/.

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

Means of	Document Review, Interview
verification	

Findings		CAR 02 and CL 04 has been raised and successfully closed. Refer appendix 4 for further details.			
Conclusion	period as p	The ex-ante estimate value of the emission reductions for the monitoring period as per the registered PDD /B04/ is $398,842 \text{ tCO}_2\text{e}$ and the actual emission reductions achieved for the monitoring period is $157,345 \text{ tCO}_2\text{e}$ .			
	SDG	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period		
	13	23,368 tCO <sub>2</sub> e	5,931 tCO <sub>2</sub> e		
	1	100%	90%		
	3	100%	90%		
	5	95%	90%		
	7	9,961 (Number of ICS distributed)	9,356 (Number of ICS distributed)		
	8	40 (Number of persons hired)	54 (Number of persons hired)		
	12	55%	42.98%		
	15	113.81	52.67		
	have been /B04/.	verified to be correct and in ation took cognizance of §	provided in the spreadsheet /03/ line with the registered VPA-DD 17.4.12 of GS VVS for PoAs,		

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

Means of verification	Document Review, Interview
Findings	
ConclusionThe ex-ante estimate value of the emission reductions for period as per the registered VPA-DD /B04/ is 23,368 tCO2e emission reductions achieved for the monitoring period is 5, SDG 13, since actual emission reduction is lower than the e and hence it is acceptable to the verification team. The mo /02/ provides reason for decrease in the actual emission red same was confirmed by the verification team by im representatives of PP and by reviewing the actual implement the project.	
	For SDG 1, 3, 5, 7, 12 and 15 parameters, the actual values are lower than the estimated value, which is deemed appropriate and thus acceptable to the VVB, while for SDG 8 PP has provided justification in the Monitoring report and assessment of the same is provided below:

	• SDG 8: The actual value is higher than the estimated value, due to higher number of personnel hired for distribution and monitoring compared to the ex-ante estimates.
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### **SECTION E. Internal quality control**

>>

The verification report shall pass 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 1<sup>st</sup> periodic verification of the registered GS Programme of Activities, "UpEnergy – Social and Climate Impact Programme", for the VPA titled, "UpEnergy – Social and Climate Impact Programme-Cooking Devices VPA-9" (GS project id: GS 11211) for the period 05/07/2022 – 28/02/2023 (both the days included).

The verification team assigned by the VVB concludes that the project activity as described in the VPA-DD /B03/ and the Monitoring report /02/, meets all relevant requirements of the Gold Standard. The verification has been conducted in-line with the GS4GG requirements project activities.

### Verification methodology and process

The Verification team confirms the contractual relationship signed on 26/07/2023 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 and VPA-DD /B04/, including the monitoring plan and the corresponding validation report /B03/;
- Desk review of the MR /02/ 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 (12/08/2023 and 14/08/2023)
- 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 PDD. 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 5,931 tCO<sub>2</sub>e emission reductions during the reported monitoring period.

This statement covers verification period from 05/07/2022 - 28/02/2023 (both the days included).

The VVB has raised 06 clarifications and 03 corrective action requests, all of which are successfully closed.

### Version 03.0

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 5,931 tCO<sub>2</sub>e equivalent and all monitoring requirements have been fulfilled and is substantiated by an audit trail that contains evidence and records.

Vintage	ER (tCO <sub>2</sub> e)
05/07/2022-31/12/2022	4,312tCO <sub>2</sub> e
01/01/2023 - 28/02/2023	1,619 tCO₂e
Total for the monitoring period	5,931 tCO₂e

### Appendix 1. Abbreviations

Abbreviations	Full texts	
BE	Baseline Emissions	
СА	Corrective Action/ Clarification Action	
CER	Certified Emission Reduction	
CAR	Corrective Action Request	
CCIPL	Carbon Check (India) Private Ltd.	
CL	Clarification Request	
CME	Co-ordinating Managing Entity	
CO <sub>2</sub>	Carbon Dioxide	
CO <sub>2e</sub>	Carbon Dioxide Equivalent	
DVR	Draft Verification Report	
EB	CDM Executive Board	
EF	Emission Factor	
FA	Final Approval	
FAR	Forward Action Request	
FVR	Final Validation Report	
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)	
PRC	Post registration change	
QC/QA	Quality Control/ Quality Assurance	
ТА	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 (India) Private Limited**

# Certificate of Competency

### Mr. Nollege Arone Mutisse

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 Lead	er	Technical Expert	
Technical Reviewer	🗆 Health Expert	🗆 Gender Exp	pert	🗌 Plastic Waste Expert	
□ SDG+	Social no-harm(S+)	) 🗆 Environme	nt no-harm(E+)	CCB Expert	
🗆 Financial Expert	🛛 Local Expert for Me	ozambique			
	in the follo	owing Technical Ar	eas:		
🗆 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				
Issue	e Date		Expiry	/ Date	
03 <sup>rd</sup> M	ay 2023		02 <sup>nd</sup> May 2024		
Vixash &	. S.S.		1.	مرملشه	
Mr. Vikash Kumar Singh Compliance Officer			Mr. Amit Anand CEO		
			e.		
CCIPL_FM 7.9 Certificate of Competency_V2.1_012023					



### **Carbon Check (India) Private Limited**

# Certificate of Competency

### Ms. Indumathi C

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 Leade	er	🛛 Technical Expert	
🛛 Technical Reviewer	🗆 Health Expert	🗆 Gender Exp	ert	🗌 Plastic Waste Expert	
⊠ SDG+	⊠ Social no-harm(S+)	🛛 Environmei	nt no-harm(E+)	CCB Expert	
🛛 Financial Expert	☑ Local Expert for Inc	lia and Sri Lanka			
	in the follo	owing Technical Are	eas:		
🛛 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				
lssue	Date		Expiry	/ Date	
1 <sup>st</sup> Janu	ary 2023	31 <sup>st</sup> December 2023			
Viensen L. Sil			1-	alin	
Mr. Vikash Kumar Singh		Mr. Amit Anand			
Complia	ance Officer		CI	60	
CCIPL_FM 7.9 Certificate of Competen	cy_V2.1_012023				

### Appendix 3. Documents reviewed or referenced

S. No.	Document
	Monitoring Report (Version 1, dated 26/03/2023)
/01/	
	MR Final Version (Version 3, dated 28/08/2023)
/02/	
	Emission reductions sheet (Corresponding to /01/ & /02/)
/03/	
	Total sales record containing:
	Model of project technology sold.
/04/	• Quantity of units sold,
	Stove serial number (unique ID).
	Date of installation/distribution.
/05/	KPT conducting methodology for cookstoves
/03/	
	Specific training records of third-party lab / surveying personnel on the following
	aspect:
	• Conducting of the monitoring survey using the questionnaire.
/06/	<ul> <li>Checking of the quantity of fuel usage in each of the sampled households for the use</li> </ul>
/00/	of traditional stove.
	Handling and use of measuring instruments.
	Conducting KPTs
	Data recording.
(	Stove specification of the ICS models used under the monitoring period
/07/	
	Calibration records for each of the monitoring equipment
/08/	Calibration records for cach of the monitoring equipment
/00/	
	Proof of Carbon Credits waiver by end user
/09/	
/10/	Sample stoves sales receipt / user agreement
/10/	
	KPT records:
	Equipment:
	<ul> <li>Purchase receipts of instruments used</li> </ul>
/11/	<ul> <li>Specifications of the equipment used (Weighing Scale, Moisture</li> </ul>
	Analyzer, Thermometer)
	KPT Reports (Project)     KPT autous results (Project)
	KPT survey results (Project)
14.01	Usage Monitoring Survey, July 2023
/12/	
	Baseline KPT survey records conducted in April 2023
/13/	
	Grievance Book
/14/	
	Competence of the persons who conducted survey and KPT
/15/	
L	

/16/	Employment List
/17/	Copy of agreement between the UpEnergy Group (CME) and Community Carbon (VPA implementer)
/18/	CME Manual for the PoA along with Organization Structure
/19/	Training Records
/20/	Project survey, Monitoring survey and usage survey Questionnaire template
/21/	Stakeholder Consultation Report, list of participants and the Presentation of the meeting
/22/	GS Feedback review form for the Validation/ VPA inclusion
/23/	Sampling Calculator for sample size, and precision level
/24/	Evidence for random number generator for sampling
/25/	fNRB calculation sheet
/26/	Copy of contract in between CME and third-party lab for conducting KPTs

### **Background Documents**

Ref no.	Reference Document			
/B01/	<ol> <li>CDM Validation and Verification Standard for PoAs, version 03.0</li> <li>CDM Project Standard for PoAs, version 03.0</li> <li>CDM Project Cycle Procedure for PoAs, version 03.0</li> </ol>			
/B02/	Technologies and Practices to Displace Decentralized Energy Consumption (version 3.1)			
/B03/	<ol> <li>Gold Standard Principles and Requirements version 1.2, dated 24/10/2019</li> <li>Gold Standard Programme of Activity Requirements version 1.2, dated 24/10/2019</li> <li>GS Validation &amp; Verification Body Requirements version 2.0, dated 14/01/2021</li> <li>Community Services Activity Requirements (version 1.1) under GS4GG https://globalgoals.goldstandard.org/200-gs4gg-community-services-activity-requirements/</li> <li>GS Validation-and-Verification-Standard version 1.0</li> </ol>			
/B04/	Registered PoA-DD, Version 05, dated 12/01/2022 and Corresponding Validation Report Registered VPA-DD, Version 7.0, dated 18/08/2023 and Corresponding validation report			
/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.			

	Site Visit and Remote Audit Requirements and Procedures, version 1.0 dated 17/11/2021
/B07/	Cookstove Usage Rate Guidelines, version 2.0 dated 27/10/2020

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

Table 1. FARs from this verification						
FAR ID	ID xx Section no. Date:					
Description	on of FAR					
NA						
CME resp	CME response Date:					
Documentation provided by the CME						
VVB assessment Date:						

### Table 2.CAR from this verification

CA	R ID	01		Se	ction no.	MR			Date:	14/08/2023	
De	scriptio	n of CAR									
	lowing os://globa				reference andards/TG			template .1-Monitorin	filling ig-Repor	guideline r <u>t.pdf</u> )	(Refer
1.	1. Under table 'Programme of Activity Information', row 'Name and GS ID (s) of fully Validated CPA/VPAs lacks information on VPA nos. included and validated under the PoA.										
2.	•				be formatte ample 1.35)		comma	(for examp	le 1,000	,000), and d	lecimals
3.											
4. 5.	In Sect calculat	ion E, ur te/estimat	nder a he te baselir	eading fo	r each SDC , applying	G, provide actual valu	sampl ues. Cl	early refere	ns for a nce the	II formulae spreadshee ne monitoring	ts used
6.	Section samplin	D.4. Im ng desigr	plementat	tion of s rget pop	ampling pla ulation; (b)	n lacks in Collected	formati data;	on on: (a) (c) Analysis	Descript s of the	ion of imple collected d monstration	emented lata; (d)

samples were randomly selected and are representative of the population.

7.	During certification stage FAR was raised by design certification VVB related to baseline survey to be
	carried out before 1st issuance of project activity, however the details of the same is not mentioned in MR
	and ER spread sheet.

### CME response

#### Date: 17/08/2023

- The CME has now included information on 'Name and GS ID (s) of fully Validated CPA/VPAs nos. under table 'Programme of Activity Information'. The updated MR has been shared with the auditor with this response.
- 2. The CME has now formatted the figures above one thousand with a comma and decimals have been separated by a point in the MR.
- 3. In table 2 of Product Vintages the monitoring period has been split year wise and product generated in each calendar year have now been reported in the table. The links and the information on methodological and standardized baselines have also been added in the section A.3 of the MR. The updated MR has been shared with the VVB with this response.
- 4. The links and the information on methodological and standardized baselines have been added in the section A.3 of the MR. The updated MR has been shared with the VVB with this response.
- 5. The CME would like to confirm now in the section E of the MR under the heading for each SDG, a sample calculation for all formulae used to calculate/estimate baseline values, applying actual values has been added. Further, in the footnotes a clear reference to the spreadsheets used has also been added to the monitoring report.
- 6. The Section D.4. Implementation of sampling plan has now been added with the following information: (a) Description of implemented sampling design and Target population; (b) Collected data; (c) Analysis of the collected data; (d) Demonstration that the required confidence/precision level has been met; (e) Demonstration that the samples were randomly selected and are representative of the population. The updated MR has been shared with the VVB with this response.
- 7. PP has carried out baseline survey and baseline KPT survey on April 2023 and the details of the same is now provided in revised MR.

### **Documentation provided by CME**

### Monitoring Report v.2

### VVB assessment

### Date: 21-08-2023

- The 'Name and GS ID (s) of fully Validated CPA/VPAs' are now included by the CME in the KPI section of the monitoring report.
- 2. The MR has been revised to reflect the required corrections.
- 3. The table 2 vintage wise ERs are now updated by the CME.
- 4. The Section VVB confirms that section A.3 of MR is updated with methodological tools.
- 5. Sample calculations for each SDG are now added in section E of the revised MR Version. Reference to the spreadsheets has also been added in the revised MR.
- 6. The required details are addressed and are now included under section D.4 of the revised monitoring report by the CME.
- CAR 01 is closed.

CAR ID02Description of CAR

Section no.

Date: 14/08/2023

Following inconsistencies has been observed between submitted MR, ER worksheet and the supporting documents:

MR

- Under Table 1 of the MR, amount achieved for SDG 7 is inconsistent under section D.2 as well as with the value in the ER sheet. Same applies to Section E.4 and E.5. Further, total jobs created (47) under SDG 8 is inconsistent.
- 2. Under section B.1 of the MR, the ICS product model is stated as 'Community Cookstoves', however the technical specifications document provided state the ICS model name as 'CCS Pro'. Furthermore, the average unit weight (in kg) and the thermal efficiency (in %) stated in the MR are inconsistent with the ICS technical specifications provided as the supporting evidence.

**CME** response

Date: 17/08/2023

- 1. The value for SDG 7 and SDG 8 has been made consistent all over the MR and now is inline with the ER sheet as well. This updated version of the MR has been shared with the VVB with this response.
- 2. The CME would like to clarify that the names "Community Stoves" and "CCS" stand for the same product, thus now the section B.1 of the MR, the name of the cookstove has been changed to match the technical specification of the stove. Similarly, the stove efficiency mentioned in the section B.1 has also been changed to match the technical specification document.

**Documentation provided by CME** Monitoring Report v.2

VVB assessment

Date: 21-08-2023

- 1. CME has now made the values consistent throughout the MR and the ER sheet.
- 2. The technical specification details of the stove model included under the VPA for the current monitoring period is now consistent with the supporting evidence provided by the CME.

CAR 02 is closed.

CAR ID	03	Section no.	MR	Date: 14/08/2023
Description	of CAR		•	
				22, whereas the monitoring report for the 22 to 28/02/2023. CME to clarify and correct
CME respon	nse			Date: 17/08/2023
the monitor 28/02/2023) the monitorin the VVB with <b>Documenta</b> <i>Monitoring F</i>	ing period da . Moreover, the ng period start on this response. <b>tion provided</b>	te has now been ch CME would also like to late. The updated MR a by CME	anged from add that this	r the project activity was on 01/01/2022 and (28/06/2022-28/02/2023) to (05/07/2022- was done to align the crediting period with e mentioned changes has been shared with
VVB assess				Date: 21-08-2023
	entation under s		ME has now r	evised MR to include the correct date of

#### Table 3. CLs from this verification

CL ID	01	Section no.	MR	Date: 14/08/2023			
Descriptio	Description of CL						
CME is req	CME is requested to check and confirm the completion date of the monitoring report in the KPI section of the						
MR and the	Monitoring repo	ort date mentioned in the	e ER sheet.				
CME resp	onse			Date: 17/08/2023			
	The completion date mentioned in the KPI section of the MR and the monitoring report date in the ER sheet have been made consistent. The updated MR and ER have been shared with VVB with this response.						
Documen	ation provided	by CME					
Monitoring	Report v.2						
Emission I	Reduction sheet	v.2					
VVB asse	ssment			Date: 21-08-2023			
The completion date of the monitoring report in the KPI section of the MR and the Monitoring report date mentioned in the ER sheet are now consistent. CL 01 is closed.							

CL ID	02	Section no.	MR	Date: 14/08/2023				
Description	Description of CL							
CME is reque	CME is requested to clarify the following:							
1. The VPA-D	D applicable to the cu	urrent monitoring	report mentions 'Electric coo	ktop/cooker' throughout the				
general descr	iption and several sec	tions of the VPA	-DD. The monitoring report, I	nowever, makes no				
mention of this	mention of this.							
2. Point 1 under section B.1 'Description of implemented project' of the MR is found to be missing, which is								
also found to l	be inconsistent with s	ection A.3 of the	VPA-DD.					

3. In line with the VPA-DD applicable to the monitoring period, Section C of the monitoring report, under point 2 'Project Database,' the information is found to be incomplete.

CN	IE response	Date: 17/08/2023
1.	The CME would like to clarify that, though the technology 'Electric Cooktop	/cooker' is part of the VPA-
	DD, during the current monitoring period the distribution of the electric cod	oktop/cooker has been NIL.
	Once the distribution starts, the CME start reporting it in the MR.	

2. The CME would like to clarify that as the current monitoring period didn't involve the distribution of any other technology other than improved cookstove, no reporting of any other technology other than ICS has been done in the section B.1. A statement on 'No distribution of electric cooktop/cooker' has also been included in the section B.1 of the MR. Thus, the section B.1 of the monitoring period is completely reported now as per the GS MR template filling guidelines.

Date: 21-08-2023

Date: 21-08-2023

3. The CME would like to confirm that in the section C of the MR, the necessary section under point 2 'Project Database' has been added inline with the VPA-DD.

### **Documentation provided by CME** *Monitoring Report v.2*

### VVB assessment

1. The clarification provided by the CME is deemed acceptable by the verification team.

- 2. In accordance with the revised monitoring report, the justification provided by the CME is found to be acceptable.
- 3. Section C of the MR has been revised to include the required correction.
- CL 02 is closed.

CL ID	03	Sectio	on no.	MR			Date:	14/08/2023		
Description of CL										
Lindor costi	on D2 of the	monitoring ro	nort the	valua	montioned		ac the	docorintion	for	tho

 Under section D.2 of the monitoring report, the value mentioned as well as the description for the data/parameter N<sub>p,y</sub> is inconsistent with the emission reduction sheet. CME is requested to clarify on this.

 CME response
 Date: 17/08/2023

The CME would like to clarify that under the D.2 of the MR, the value mentioned in the description parameter  $N_{py}$ , stands for number of project technology distributed as inline with the VPA DD and also the applied methodology. Similarly, while applying the parameter in the ER calculation equation, the value used is 'total number of technology days in the monitoring period', this is inline with the registered VPA DD and also the applied methodology TPDDTEC version 3.1 equation 4.

### **Documentation provided by CME**

Monitoring Report v.2

### VVB assessment

The justification provided by the CME is deemed acceptable in accordance with the methodology applied by the project.

CL 03 is closed.

CL ID	04	Section no.	MR	D	Date: 14/08/2023
Description	of CL				
employees	with a total of 163. I of distribution agents	f distribution age	nts and perma mployees is 10	nent employees 9 and 54, respec	Il as a list of permanent are counted separately, ctively, which is still not in ne monitoring period.
Furthermore, in section D.2 of the MR in 'Additional comment' for SDG 8, it is stated that ' <i>Total number of jobs created during the monitoring period includes for both VPA1 and 2, as the sales agents or sales persons sell both WPS and ICS.</i> ' CME to explain the statement's appropriateness for this monitoring period.					
CME respo	nse			D	Date: 17/08/2023
The CME would like to clarify that as the evidence provided includes both the permanent and the temporary employees but going ahead would only like to claim only the permanent employees for SDG 8. Thus, the same number has also been made consistent in the MR and the ER as well. Moreover, the statement mentioned in section D.2 of the MR was a clerical error and has now been removed from the MR. The updated MR has been shared with the VVB with this response.					
Documenta	tion provided by CN	IE			
Monitoring I	Report v.2				
VVB asses	sment			D	Date: 21-08-2023
	e same has been now				ptable by the verification eport.

# CL ID 05 Section no. MR Date: 14/08/2023 Description of CL Image: Close of Close o

### Section D.4 of the monitoring report:

1. The 'Project and baseline KPT' lacks the duration and dates when the baseline and project KPT was conducted for the monitoring period.

2. The number of samples provided under project and baseline KPT (45 samples) is inconsistent with the number of samples mentioned in the ER sheet in KPT results tab. Furthermore, it is unclear if the sample size stated includes both baseline and project KPT.

### **CME** response

#### Date: 17/08/2023

Date: 21-08-2023

- 1. In the section D.4 of the monitoring report the CME has now added the duration and the dates when the baseline and project KPT were conducted during the monitoring period. The updated MR has been shared with the VVB with this response.
- 2. In the section D.4 of the monitoring report the CME has now mentioned the number of samples taken for both baseline and project monitoring. The updated MR has been shared with the VVB with this response.

### Documentation provided by CME

### Monitoring Report v.2

### **VVB** assessment

- 1. The MR has been revised to include the required corrections.
- 2. The CME has now indicated the number of samples taken for both baseline and project KPT in section D.4 of the monitoring report.
- CL 05 is closed.

CL ID	06	Section no.	MR	Date: 14/08/2023			
Description	Description of CL						
used during	The monitoring report for the monitoring period lacks information on the calibration details of the equipment used during the Kitchen Performance Tests. CME to clarify on this and incorporate the details in the monitoring report.						
CME respon	ise			Date: 18/08/2023			
the section D	The CME would like to confirm that the calibration details of the equipment's used has now been added in the section D.2 table of SDG 13. <b>Documentation provided by CME</b>						
Monitoring F	eport v.2						
VVB assess	ment			Date: 21-08-2023			
Section D.2 of the revised MR now includes the calibration details of the equipments used for conducting Kitchen Performance Tests. CL 06 is closed.							

#### Table 4. FARs from this validation/design certification

FAR ID 01	Section no.	VPA DD section D.4	Date: 14/08/2023		
Description of FAR					
The baseline survey of Uganda and Nigeria has been done. However, the baseline survey for rest of the countries (DRC, Tanzania, Mozambique, Zambia & Malawi) is yet to be conducted and the baseline survey values has to be checked prior to first verification.					
CME response Date: 18/08/2023					
Baseline survey with KPT was	carried out by CN	IE on April 2023 for VPA 9			
Documentation provided by t	he CME				
Baseline survey with KPT shee	Baseline survey with KPT sheet				
CME assessment Date: 21-08-2023					
VVB verified the baseline survey & KPT sheet provided by CME for VPA 9 and also carried our baseline survey audit on 12 & 14 August 2023 for the 8 baseline survey HHs, which s found to be satisfactory. Hence this FAR is closed.					

### Annex 1: Assessment of data and parameters fixed ex-ante at the time of validation

Relevant SDG Indicator	SDG 13, Climate action
Parameter	EF <sub>b,CO2</sub>
Data unit	tCO <sub>2</sub> /TJ
Default values used	Fuelwood (Residential): 112
Purpose of data	Calculation of baseline scenario
Source of verification of the	IPCC default value as per 2006 IPCC Guidelines for National
source	Greenhouse Gas Inventories, volume 2, chapter 2 (Table2.5)

Relevant SDG Indicator	SDG 13, Climate action
Parameter	EF <sub>b,nonCO2</sub>
Data unit	tCO <sub>2</sub> /TJ
Default values used	Fuelwood (Residential): 9.46
Purpose of data	Calculation of baseline scenario
Source of verification of the	IPCC default value considering AR5 GWP.
source	

Relevant SDG Indicator	SDG 13, Climate action
Parameter	EF <sub>p,CO2</sub>
Data unit	tCO <sub>2</sub> /TJ
Default values used	Fuelwood (Residential): 112
Purpose of data	Calculation of the project scenario
Source of verification of the	IPCC default value as per 2006 IPCC Guidelines for
source	National Greenhouse Gas Inventories, volume 2, chapter 2
	(Table 2.5)

Relevant SDG Indicator	SDG 13, Climate action
Parameter	EF <sub>p,nonCO2</sub>
Data unit	tCO2/TJ
Default values used	Fuelwood (Residential): 9.46
Purpose of data	Calculation of the project scenario
Source of verification of the	IPCC default value considering AR5 GWP
source	

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	NCV <sub>b</sub>
Data unit	TJ/ton
Default values used	Fuelwood: 0.0156 TJ/ ton
Purpose of data	Calculation of the baseline scenario
Source of verification of the	IPCC default 2006, volume 2, chapter 1 (Table 1.2)
source	

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	NCV <sub>p</sub> ,
Data unit	TJ/ton
Default values used	Fuelwood: 0.0156 TJ/ ton
Purpose of data	Calculation of the project scenario

Source of verification of the	IPCC default 2006, volume 2, chapter 1 (Table 1.2)
source	

Relevant SDG Indicator	SDG 13, Climate Action
Parameter	f <sub>NRB,i,y</sub>
Data unit	Fraction of non- renewable biomass
Value used	0.78
Purpose of data	Calculation of the project scenario
Source of verification of the	C4 EcoSolutions study
source	

Relevant SDG Indicator	SDG 13, Climate action
Parameter	P <sub>b, y</sub>
Data unit	Tonnes/day
Default values used	0.0131
Purpose of data	Calculation of the baseline scenario
Source of verification of the	The values have been estimated based on the baseline
source	surveys conducted during the monitoring period. The baseline survey reports have been provided to the verification team/13/. The baseline survey records were checked during the onsite visit and the responses cross-checked with the household respondents. PP has calculated this parameter based on the baseline KPTs carried out for 57 households. The sample size is appropriate and complies with the Annex 4, Table 3 of the methodology, TPDDTEC, version 3.1/B02/. The COV selected is 0.4 and thus sample size is 45. The achieved precision based on the survey results is 4% and thus less than the required 10% precision level.

Relevant SDG Indicator	SDG 1, No Poverty
Parameter	HHS <sub>baseline</sub>
Data unit	Percentage (%)
Value used	0
Purpose of data	SDG 1 impact calculation
Source of verification of the	_
source	

Relevant SDG Indicator	SDG 3, Good Health and Well Being
Parameter	HHsmokebaseline
Data unit	Percentage (%)
Value used	0

Purpose of data	SDG 3 impact calculation
Source of verification of the	_
source	

Relevant SDG Indicator	SDG 5, Gender Equality
Parameter	HHtime <sub>baseline</sub>
Data unit	Percentage (%)
Value used	0
Purpose of data	SDG 5 impact calculation
Source of verification of the	_
source	

Relevant SDG Indicator	SDG 7, Affordable and clean energy
Parameter	HHcleanbaseline
Data unit	Percentage (%)
Value used	0
Purpose of data	SDG 7 impact calculation
Source of verification of the	_
source	

Relevant SDG Indicator	SDG 8, Decent Work and Economic Growth
Parameter	EG <sub>baseline</sub>
Data unit	Percentage (%)
Value used	0
Purpose of data	SDG 8 impact calculation
Source of verification of the	_
source	

Relevant SDG Indicator	SDG 12, Responsible Consumption and Production
Parameter	FCbaseline
Data unit	tonnes/year
Value used	4.78
Purpose of data	SDG 12 impact calculation
Source of verification of the	This is calculated from the average fuel consumption per
source	HH in baseline (tonnes eq. fuelwood/HH/day) ie
	0.0131(MT/HH/day) * 365 day = 4.78 tonnes/year

Relevant SDG Indicator	SDG 15, Life on Land
Parameter	FCbaseline
Data unit	tonne-eq.fuelwood/HH/day
Value used	0.0131
Purpose of data	SDG 15 impact calculation
Source of verification of the	Baseline survey
source	

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
Data / Parameter:	the project per year"
(as in monitoring plan of PDD):	P <sub>p,y</sub>
Unit	Tonnes/day
Measuring frequency/Time Interval:	Every 2 years
Reported value	0.00747
Verified Source of Data	Project Kitchen Performance Test
	Yes
Is measuring and reporting frequency	res
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring equipment, its specification and	NA
equipment, its specification and calibration as per the requirements of	
registered PDD:	
Does the data management (from data	Yes, the data management ensures correct transfer of
generation to emission reduction	data and reporting of emission reductions and all
calculation) ensure correct transfer of	necessary QA/QC processes are in place
data and reporting of emission reductions	
and are necessary QA/QC processes in place?	
In case only partial data are available	NA
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?	

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:	U <sub>p,y</sub>
(as in monitoring plan of PDD):	- p,y
Unit	Percentage
Measuring frequency/Time Interval:	Annual
Reported value	90%
Verified Source of Data	Annual usage survey
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring	NA
equipment, its specification and	
calibration as per the requirements of	
registered PDD:	
Does the data management (from data	Yes, the data management ensures correct transfer of
generation to emission reduction calculation) ensure correct transfer of	data and reporting of emission reductions and all necessary QA/QC processes are in place.
data and reporting of emission reductions	necessary and processes are in place.
and are necessary QA/QC processes in	
place?	
In case only partial data are available	NA
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?	

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:	N <sub>p,y</sub>
(as in monitoring plan of PDD):	
Unit	Number
Measuring frequency/Time Interval:	Continuous
Reported value	10,395
Verified Source of Data	Total sales record
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring	NA
equipment, its specification and	
calibration as per the requirements of registered PDD:	
Does the data management (from data	Yes, the data management ensures correct transfer of
generation to emission reduction	data and reporting of emission reductions and all
calculation) ensure correct transfer of	necessary QA/QC processes are in place
data and reporting of emission 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	NA
accordance with the registered monitoring plan, has the most	
conservative assumption theoretically possible been applied or has a request for deviation been approved?	

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):	
Unit	Tonnes of CO2 equivalent per year
Measuring frequency/Time Interval:	Every two years
Reported value	0
Varified Courses of Data	
Verified Source of Data	Leakage assessment
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring	NA
equipment, its specification and calibration as per the requirements of	
registered PDD:	
Does the data management (from data	Yes, the data management ensures correct transfer of
generation to emission reduction	data and reporting of emission reductions and all
calculation) ensure correct transfer of	necessary QA/QC processes are in place
data and reporting of emission reductions	
and are necessary QA/QC processes in place?	
In case only partial data are available	NA
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?	

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):	
Unit	Fraction
Measuring frequency/Time Interval:	Annual

Reported value	Value captured in the $P_{p,y}$ 0.00747
Verified Source of Data	Annual usage survey
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring equipment, its specification and	NA
calibration as per the requirements of registered PDD:	
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Relevant SDG Indicator	SDG 13 Indicator 13.2.1 "Amount of CO2e emissions reduced by the project per year"
Data / Parameter:	P <sub>ep,y</sub>
(as in monitoring plan of PDD):	
Unit	Tonnes/day
Measuring frequency/Time Interval:	Annual
Reported value	0.00
Verified Source of Data	Monitored
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered	NA

monitoring	plan,	has	the	most
conservative				
possible beer	n applied	d or has	s a requ	lest for
deviation bee	n appro	ved?		

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:	η <sub>new,l</sub>
(as in monitoring plan of PDD):	
Unit	Percentage
Measuring frequency/Time Interval:	Annual
Reported value	NA
Verified Source of Data	-Performance report -WBT Test
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Relevant SDG Indicator	SDG 1
	Indicator 1.4.1 "Proportion of population living in
	households with access to basic services"
Data / Parameter:	HHS <sub>project</sub>
(as in monitoring plan of PDD):	
Unit	Percentage
Measuring frequency/Time Interval:	Continuous
Reported value	90%
Verified Source of Data	1. Monitoring Database ICS distribution records
	2. Ex- post Monitoring Survey Records

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
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Relevant SDG Indicator	SDG 3
	Indicator 3.9.1 "Mortality rate attributed to household and
	ambient air pollution"
Data / Parameter:	HHsmokeproject
(as in monitoring plan of PDD):	
Unit	%
Measuring frequency/Time Interval:	Annually
Reported value	90%
Verified Source of Data	Ex- post Monitoring Survey Records
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring equipment, its specification and	NA
calibration as per the requirements of registered PDD:	
Does the data management (from data	Yes, the data management ensures correct transfer of
generation to emission reduction calculation) ensure correct transfer of	data and reporting of emission reductions and all necessary QA/QC processes are in place
data and reporting of emission reductions	necessary and ac processes are in place
and are necessary QA/QC processes in	
place?	
In case only partial data are available	NA
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?	

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:	HHtime <sub>project</sub>
(as in monitoring plan of PDD):	
Unit	%
Measuring frequency/Time Interval:	Annual
Reported value	90%
Verified Source of Data	Ex- post Monitoring Survey Records
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Relevant SDG Indicator	SDG 7
	Indicator 7.1.2 "Proportion of population with primary
	reliance on clean fuels and technology"
Data / Parameter:	HHclean <sub>project</sub>
(as in monitoring plan of PDD):	
Unit	Number
Measuring frequency/Time Interval:	Continuous
Reported value	9,356 ICS
Verified Source of Data	ICS Monitoring Database
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	

Assessment of details of monitoring equipment, its specification and calibration as per the requirements of registered PDD:	NA
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
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:	EGproject
(as in monitoring plan of PDD):	
Unit	Number
Measuring frequency/Time Interval:	Continuous
Reported value	54
Verified Source of Data	Employment Records, CME Database
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring	NA
equipment, its specification and calibration as per the requirements of	
registered PDD:	
Does the data management (from data	Yes, the data management ensures correct transfer of
generation to emission reduction	data and reporting of emission reductions and all
calculation) ensure correct transfer of	necessary QA/QC processes are in place
data and reporting of emission reductions and are necessary QA/QC processes in	
place?	
In case only partial data are available	NA
because activity levels or non-activity	
parameters have not been monitored in	
accordance with the registered monitoring plan, has the most	
monitoring plan, has the most conservative assumption theoretically	
possible been applied or has a request for	
deviation been approved?	

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:	FCproject
(as in monitoring plan of PDD):	
Unit	Tonnes/HH/annum
Measuring frequency/Time Interval:	Annually
Reported value	2.73
Verified Source of Data	Ex- post Monitoring Survey Records
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring equipment, its specification and	NA
calibration as per the requirements of	
registered PDD:	
Does the data management (from data	Yes, the data management ensures correct transfer of
generation to emission reduction	data and reporting of emission reductions and all
calculation) ensure correct transfer of data and reporting of emission reductions	necessary QA/QC processes are in place
and are necessary QA/QC processes in	
place?	
In case only partial data are available	NA
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?	

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Relevant SDG Indicator	SDG 15
Data / Parameter:	FCHH <sub>project</sub>
(as in monitoring plan of PDD):	
Unit	Tonnes eq.fuelwood/day
Measuring frequency/Time Interval:	Annually
Reported value	0.00747
Verified Source of Data	Ex- post Monitoring Survey Records
Is measuring and reporting frequency	Yes
in accordance with the monitoring	
plan and monitoring methodology?	
(Yes / No)	
Assessment of details of monitoring	NA
equipment, its specification and	
calibration as per the requirements of	
registered PDD:	
Does the data management (from data	
generation to emission reduction	
calculation) ensure correct transfer of	necessary QA/QC processes are in place

data and reporting of emission 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