

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title and GS reference number of the project activity	Title: Production and sale of efficient cookstoves in the urban areas of Maputo Province GS reference no.: GS 11209		
Scale of the project activity	Large-scale <input checked="" type="checkbox"/> Small-scale <input type="checkbox"/> Micro-scale <input type="checkbox"/>		
Version number of the verification and certification report	3		
Completion date of the verification and certification report	03/01/2024		
Monitoring period number and duration of this monitoring period	2 nd (02/08/2021 to 01/08/2022)		
Version number of the monitoring report to which this report applies	3 of 29/12/2023		
Crediting period of the project activity corresponding to this monitoring period	1st Crediting Period; Start date – 02/08/2020. (02/08/2020 to 01/08/2025)		
Project participants (PP)	Carbonsink Group S.r.l (Carbonsink)		
Host Party	Mozambique		
Applied methodologies and standardized baselines	Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 3.1		
Mandatory sectoral scopes	3 (TA 3.1) Energy Demand		
Conditional sectoral scopes, if applicable	N/A		
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	143,056 tCO _{2e} (Year 3)		
Certified amount of GHG emission reductions or GHG removals for this monitoring period	69,046 tCO _{2e}		
SDG Impacts:	<ul style="list-style-type: none"> • SDG 1: No Poverty • SDG 7: Affordable and Clean Energy • SDG 13: Climate Action • SDG 15: Life on Land 		
Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period	Sustainable Development	Amount Achieved	Units/ Products

	Goals Targeted		
	SDG 1: No Poverty	6,553	MZN/hh.y
	SDG 7: Affordable and Clean Energy	28,483	Households
	13 Climate Action (mandatory)	69,046	VERs
	SDG 15: Life on Land	10,517	tons/y
Name and UNFCCC reference number of the DOE	E-0052: Carbon Check (India) Private Ltd.		
Name, position and signature of the approver of the verification and certification report	<p><i>Priya Suman</i></p> <p>Priya Suman, Compliance Officer</p>		

SECTION A. Executive summary

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The Project Participant, “Carbonsink Group S.r.l (Carbonsink)” has appointed the Validation & verification body (VVB), Carbon Check (India) Private Ltd. (CC IPL) to perform second (2nd) verification of the GS Project Activity “Production and sale of efficient cookstoves in the urban areas of Maputo Province” (hereafter referred to as “Project Activity”)/16/. The objective of the Production and sale of efficient cookstoves in the urban areas of Maputo Province is to address these issues by distributing fuel-efficient cookstoves in the urban areas of the Province of Maputo. The project stoves are expected to replace the inefficient traditional stoves used in the baseline. As a result, the project results in reductions of CO₂ emissions that are real, and measurable and gives long-term benefits to the mitigation of climate change.

This report summarizes 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 ERs. 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 registered GS 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 “Production and sale of efficient cookstoves in the urban areas of Maputo Province” in the host country “Mozambique” for the period 02/08/2021 to 01/08/2022.

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, are sufficient, definitive and presented in a concise and transparent manner. CC IPL’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/revised 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 /2/
- To verify the implemented monitoring plan with the registered PDD /2/ 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 over the monitoring period from 02/08/2021 to 01/08/2022 and based on the registered PDD **/2/** in part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology and all related evidence provided by project participant.

Document review and remote-site interviews 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 (Version 3 dated 29/12/2023) **/1/**, meets 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 project activity was correctly implemented according to the selected monitoring methodology, monitoring plan and the registered PDD **/2/**. The monitoring system was implemented, and 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-site interviews, the verification team confirms that the project activity has resulted in the 69,046 tCO_{2e} SDG impact (as per ER) achieved in this monitoring period.

CC IPL 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	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	Remote-site inspection	Interviews	Verification findings
1.	Team Leader/ Technical Expert	IR	Sharma	Harish	CC IPL	X		X	X
2.	Local Expert	ER	Arane Mutisse	Nollege	CC IPL	NA	X	X	NA
3.	Trainee Assessor	IR	Kumar	Pankaj	CC IPL	X	X	X	X

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer	IR	C	Indumathi	CC IPL
2.	Approver	IR	Suman	Priya	CC IPL

SECTION C. Application of materiality

The threshold of materiality was evaluated based on “CDM Guideline: Application of materiality in verifications, version 02.0” **/13/**. It was concluded that the materiality threshold applicable to the project activity based on actual emission reductions achieved is 2% of 69,046 tCO₂e which is equal to 1,381 tCO₂e.

In planning the verification, verification team took cognizance of §11 and §12 of the “CDM Guideline: Application of materiality in verifications, version 02.0”**/13/** and a materiality threshold of 1,281 tCO₂e is determined for the current verification of the project activity.

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the potential risk		Assessment of the records/information/interview with personnel to check controls/mitigation measures
		Risk level	Justification	
1.	Human Error: Recording and reporting of the information in the ER spreadsheet.	Medium	All the ER spreadsheet data of the stoves/water purifiers, including sales database, determination of parameters for efficiency testing including data calculation. This includes all the parameters to be monitored ex-post as per	The risk was mitigated by reviewing the training records of the personnel involved in the data capture and calculations. The monitoring responsibilities were reviewed. Also, the ER data/calculations were cross-checked to insure error-free data.

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the potential risk		Assessment of the records/information/interview with personnel to check controls/mitigation measures
		Risk level	Justification	
			the PD	
2.	Information System: Use of spreadsheets without adequate controls related to data changes/updates, version tracking, traceability, security	Medium	The data is recorded in spreadsheets based on the raw data collected during the field visits. Access to the spreadsheets for calculation of ERs, monitoring and sales database and baseline project & baseline, and other test records.	The identified risk was mitigated by reviewing the management of access to the records. It was confirmed through interviews whether the raw data is collected by the field personnel and then transmitted and stored electronically to the PP's office. The data quality control to be checked.
3	Accuracy of the measuring equipment	High	Check the calibration records for the measurement equipment used for the KPT/WBT test.	The risk due to the accuracy of the measuring equipment was ensured by planning to check the calibration certificates of the measuring equipment used for stove efficiency.
4	Sample	Medium	The sample size is not suitable, or the surveyed plants are not random (If applicable)	Cross-check the procedure to identify the sample size against the sampling guideline and standard and confirm the sample size is calculated correctly.
5	Competence of personnel involved in conducting Interviews.	Medium	Interview of the personnel involved and check the training records/accreditation certificates involved in conducting such tests.	The risk was mitigated by reviewing the training records of the personnel conducting such tests and following the monitoring responsibilities. For institutions involved in conducting such tests, their accreditation certificates were checked to establish their competence. The training records and certificates were reviewed which will also be confirmed during the onsite interview

C.2. Consideration of materiality in conducting the verification

In line with Guidelines for Application of materiality in verifications, version 2.0 /13/, a reasonable level of assurance is defined for the verification of the project by complete verification of all the monitoring records was done by the verification team and compared with the values indicated in the emission reduction spread sheet.

Some inconsistencies were identified and subsequently findings were made. These findings are detailed in Appendix 4 and they were successfully closed. Therefore, related identified mistakes as listed in findings in Appendix 4 to this report have been determined to be immaterial. And thus, it is confirmed that there are no material errors, omissions or misstatements and a reasonable level of assurance is established.

SECTION D. Means of verification

D.1. Desk/document review

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The verification was performed primarily based on the review of the Monitoring report/1/, emission reduction worksheet /3/ and 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.

D.2. Remote-site inspection

In line with GS4GG “Principal and Requirement” version 1.2/5, “GS site visit and remote audit requirement” v2.0/14/ and approved GS deviation form on 08/11/2023, VVB has conducted a remote-site inspection for verification of the project activity On 24/11/2023 and 25/11/2023. The following activities were carried out during the remote-site visit.

The deviation request form was raised by PP and on approval of deviation request form by Gold Standard on date 08-November-2023/15/, the verification team has carried out remote-site interviews with enumerators involved in monitoring to assess the information included in the project design document, and stakeholder consultation report. During the desk review, the relevant records related to project design, implementation and operation were checked, stakeholders engaged, and implementing agency and remote-site beneficiary interviews were taken on a sampling basis.

On the basis of the risk analysis, the verification has been planned in accordance with the latest applicable version of the Guideline: “Application of materiality in verifications, version 2/13”. The risk assessment has been used for the verification and evidence-gathering plans.

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the potential risk		Assessment of the records/information/interview with personnel to check controls/mitigation measures
		Risk level	Justification	
1.	Human Error: Recording and reporting of the information in the ER spreadsheet.	Medium	All the ER spreadsheet data of the stoves/water purifiers, including sales database, determination of parameters for efficiency testing including data calculation. This includes all the parameters to be monitored ex-post as per the PD	The risk was mitigated by reviewing the training records of the personnel involved in the data capture and calculations. The monitoring responsibilities were reviewed. Also, the ER data/calculations were cross-checked to insure error-free data.
2.	Information System: Use of spreadsheets without adequate controls related to data changes/updates, version tracking, traceability, security	Medium	The data is recorded in spreadsheets based on the raw data collected during the field visits. Access to the spreadsheets for calculation of ERs, monitoring and sales database and baseline project & baseline, and other test records.	The identified risk was mitigated by reviewing the management of access to the records. It was confirmed through interviews whether the raw data is collected by the field personnel and then transmitted and stored electronically to the PP's office. The data quality control to be checked.
3	Sample	Medium	The sample size is not suitable, or the surveyed plants are not random (If applicable)	Cross-check the procedure to identify the sample size against the sampling guideline and standard and confirm the sample size is calculated correctly.
4	Competence of personnel involved in conducting Interviews.	Medium	Interview of the personnel involved and check the training records/accreditation certificates involved in conducting such tests.	The risk was mitigated by reviewing the training records of the personnel conducting such tests and following the monitoring responsibilities. For institutions involved in conducting such tests, their accreditation certificates were checked to establish their competence. The training records and certificates were reviewed which will also be confirmed during the onsite interview

The verification team applied a sampling approach for remote-site interviews as part of verification in accordance with paragraph 26 of the Standard: Sampling and surveys for CDM project activities and programs of activities, Version 09.0. In accordance with paragraph 28 of the sampling standard, acceptance sampling has been chosen by the verification team, and accordingly, the steps listed in paragraph 29 of the sampling standard were followed. So, in accordance with paragraph 39 (c) of the sampling standard the Verification team opted for AQL of 0.5% and UQL of 20%; producer risk of 5 %, and consumer risk of 15 % in determining the VVB's sample size for which the sample size (n) is 9 with acceptance number (c) 0.

The verification team assessed the survey database of 139 samples of survey conducted by PP for this monitoring period. As per the MR/01/, the KPT was not performed for this monitoring period. For the representative sample selection for the VVB's acceptance sampling, end users were randomly selected from the list of 9 samples using a random function (=rand between (1, 139)) in MS excel. Total 9 numbers of end user were selected for acceptance sampling for project/user survey. No sampling done for KPT survey.

The remote-site interview was performed by a verification team as given in the table below.

D.3. Interviews

Interviews of cookstove users were taken by a verification team. All surveys were conducted through electronic media and photos of end users was taken as records. Submitted photos, snapshots, and ER sheets maintained of the site survey were checked by the verification team to confirm. ~~The VV plan was shared with the PP on dated 16/11/2023.~~ In line with the VV plan, the VVB team has interviewed the PP team members involved in the survey and the 9 end users.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1	Persia	Gianluca	Carbon Sink	24-11-2023	Project Design, ownership, details, carbon credit sharing agreement, monitoring, and reporting arrangement, QA/QC procedure, baseline assessment, project technology, MR preparation, GS requirement, emission reduction calculations, methodology applicability, start date justification etc., survey report methodology, assessment sample selection, result etc.	Harish Sharma, Nollege & Pankaj Kumar
2	Mason	Brooke	Carbon Sink	24-11-2023		
3	End users Stove Id: 300479	Macamo	Orlando Asuza	24-11-2023		
4	End users Stove Id: CS304441	Mudlovo	Alfredo Inês	25-11-2023		
5	End users Stove Id: SG29973	Chirinza	Fatima Joao	24-11-2023		
6	End users Stove Id: 29226	Machivene	Ernesto Mugunto	24-11-2023		
7	End users Stove Id: 0025625	Bila	Tamara Paulo	24-11-2023		
8	End users Stove Id: P7114	Manhiçe	Isabel Virgílio	24-11-2023		
9	End users Stove Id: P6273	Carlos	Ivone Amelia	24-11-2023		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
10	End users Stove Id: P2143	Matola	Luísa Carlos	24-11-2023		
11	End users Stove Id: P3978	Mucavel	Celeste Pedro	24-11-2023		

Outcome of interview with end users:

CC IPL team has interviewed various project cookstove owners. The stove owners were questioned about the experience of owning the improved cookstove, the difference they find between the traditional cookstove and ICS and about their fuel savings. The list of the stove owners visited are as follows:

Sr. No.	Name of the user	Seller	Installation/ Sale date	Stove ID	Information verified/Questions asked	Interview Date	Feedback
1	Orlando Asuza Macamo	Rosa Mucavel	11/01/2022	300479	- Ownership proof/end user agreement -Functional status of the ICS - Users were asked to fire the ICS -Users were asked about fuel consumption quantity difference from baseline. -Users were asked about fuel collection time difference from baseline. - Asked whether any other cooking devise was used during the MP. - Any improvement related to air quality compared to baseline. -Whether user is aware of grievance mechanism and whom to contact	24-11-2023	ICS operational & Positive feedback on SD parameters
2	Alfredo Inês Mudlovo	Lina Massango	25/04/2022	CS304441		25-11-2023	
3	Fatima Joao Chirinza	Oswaldo Mulhovo	22/02/2022	SG29973		24-11-2023	
4	Ernesto Mugunto Machivene	Rosa Mucavel	15/11/2021	29226		24-11-2023	
5	Tamara Paulo Bila	Rosa Mucavel	11/11/2021	0025625			
6	Isabel Virgílio Manhiça	Sencesar Zavale	16/07/2022	P7114		24-11-2023	
7	Ivone Amelia Carlos	Maria Novela	22/06/2022	P6273		24-11-2023	
8	Luísa Carlos Matola	Veronica Manjate	15/03/2022	P2143		24-11-2023	
9	Celeste Pedro Mucavel	Bialdo Quengue	25/05/2022	P3978		24-11-2023	

D.4. Sampling approach

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PP's sampling approach:

PP has proposed a simple random sampling plan using 90/10 as confidence / precision. This is in line with the applied methodology *14/*. For this monitoring period the Project/Usage Survey was made with 139 randomly selected project families by direct in-person interviews visiting the end-user's

during period 22nd - 26th of August 2022. The random selection of the families was made by using the function “Random” of Microsoft Excel for extracting the random end-users from the selling database. The sample size for each parameter is determined following guidelines for Sampling and Surveys for CDM Project activities and Program of Activities Ver. 9.0 (EB86, Annex 4) /7/.

CC IPL’s verification sampling approach:

CC IPL has considered para 39 (a) of “Standard for Sampling and surveys for CDM project activities and programs of activities, Version 09.0” for determining the sampling size to be visited by verification team /7/. In case of the current verification, the estimated emission reduction is 69,046 tCO₂e per year, the verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgment and guidance in the Standard ‘Sampling and surveys for CDM project activities and program of activities’ version 09.0 /7/: Considering Acceptable Quality Level (AQL): 0.5% Unacceptable Quality Level (UQL): 20% and producer risk of 5% and consumer risk of 15% a sample size of 9 was required as per Table 2 in the referred Standard /7/. Acceptance number (c) thus determined for the sample size is 09, CC IPL verified 09 samples to verify the project activity. The verification team selected random samples from PP’s sample list. The verification team has assessed (by remote-site interview) a total of 9 samples. The stoves details (unique serial number, date of installation, type of ICS, name of user and address) were also checked and found to be consistent with that reported in the installation database. No inconsistency was observed for any of the 9 samples with respect to remote-site interviews that were reported in the stove installation database. This assessment of the selected samples was done to ascertain the implementation status of the project activity w.r.t. the stove types, serial number, location etc. of ICS.

SECTION E. Verification findings

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

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Not Applicable

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

Means of verification	<p>CC IPL by means of document review and remote-site interview, assessed that all the features (technology, project equipment, and monitoring) of the registered PDD /2/ are in place and that the project participants have operated the project as per the registered/ PDD /2/.</p> <p>The location of the project activity is clearly defined in the registered PDD /2/. PP has implemented a project in Mozambique that seeks to Production and sale of efficient cookstoves in the urban areas of Maputo Province by reducing the time and money spent acquiring fuel for household and institutional cooking.</p> <p>The Mbaula Poupa+” stove is composed of ceramic internal part and metallic (aluminium) outer skirt and base. The stoves will be manufactured by experienced local producers and using local and easily accessible materials. This stove model is also known as Mbaula A o as Mbaula Alu. /10/ specification of the Mbaula Poupa+” stove is as below:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Parameters</th> <th>Mbaula Poupa+ stove</th> </tr> </thead> <tbody> <tr> <td>Average Thermal Efficiency</td> <td>30.5 %</td> </tr> <tr> <td>Fuel</td> <td>Charcoal</td> </tr> <tr> <td>Stove technology</td> <td>Combustion</td> </tr> <tr> <td>Single pot / multi pot</td> <td>Single pot</td> </tr> <tr> <td>Portable / fixed model</td> <td>Portable</td> </tr> <tr> <td>Unit Size (height x width x depth)</td> <td>23 x 28.0 x 28.0 cm</td> </tr> </tbody> </table>	Parameters	Mbaula Poupa+ stove	Average Thermal Efficiency	30.5 %	Fuel	Charcoal	Stove technology	Combustion	Single pot / multi pot	Single pot	Portable / fixed model	Portable	Unit Size (height x width x depth)	23 x 28.0 x 28.0 cm
Parameters	Mbaula Poupa+ stove														
Average Thermal Efficiency	30.5 %														
Fuel	Charcoal														
Stove technology	Combustion														
Single pot / multi pot	Single pot														
Portable / fixed model	Portable														
Unit Size (height x width x depth)	23 x 28.0 x 28.0 cm														

	<p>Based on a review of the documents and Remote-site interview, the verification team confirms that up to the reported monitoring period, the PD has distributed /2/ total of improved cookstoves as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Project Year</th> <th>NP,y</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>12,020</td> </tr> <tr> <td>2</td> <td>33,613</td> </tr> <tr> <td>3</td> <td>41,596</td> </tr> <tr> <td>4</td> <td>47,296</td> </tr> <tr> <td>5</td> <td>47,771</td> </tr> </tbody> </table> <p>As verified during the Remote-site interviews, the project implementation and operation, and the physical features of the project stoves comply with the registered project design document /2/.</p> <p>The verification team has checked the information in the monitoring report /1/ and compared it against the registered/ PDD /2/ and found it consistent.</p> <p>During the Remote-site interviews, the verification team checked the project location, implementation, technology applied, project equipment, physical features, and monitoring system against the information in the registered PDD /2/.</p>	Project Year	NP,y	1	12,020	2	33,613	3	41,596	4	47,296	5	47,771
Project Year	NP,y												
1	12,020												
2	33,613												
3	41,596												
4	47,296												
5	47,771												
Findings	CL 07 and CAR 03 have been raised to clear the ICS dimension which is not in line with OEM specification and has been resolved. Refer appendix 4.												
Conclusion	<p>The verification team confirms that:</p> <p>a) The project activity is implemented as per registered PDD/2/.</p> <p>b) The actual operation of the proposed GS project activity is in line with the registered/ PDD/2/.</p> <p>In summary, the monitoring period is reasonable, and the operation of the project activity is in accordance with the registered PDD /2/.</p>												

E.3. Post-registration changes

E.3.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents¹.

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Not Applicable

E.3.2. Corrections

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Not Applicable

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

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Not Applicable

E.3.4. Inclusion of a monitoring plan

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Not Applicable

E.3.5. Permanent changes from registered monitoring plan, or permanent deviation of

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

monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

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Not Applicable

E.3.6. Changes to the project design

>>Not Applicable

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

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Not Applicable

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

Means of verification	During this monitoring period, the validated and registered monitoring plan was found to be in accordance with the applied methodology /4/ .
Findings	CL 06 has been raised regarding monitoring plan and has been resolved. Refer appendix 4.
Conclusion	The verification team has confirmed the monitoring plan from registered PDD /2/ and applicable tools used during this monitoring period. The verification team has confirmed the monitoring procedures during the remote-site interviews with enumerators, stakeholders and end users and from document review by means of comparison with the information given in the monitoring plan and grievance mechanism. As per section G.1 of MR /1/ , no grievances/input were received by PP during this monitoring period. Verification team confirms that the monitoring plan and grievance mechanism is in accordance with the approved methodology /4/ and registered PDD /2/ .

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

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

Means of verification	The following ex-ante parameters are considered in the calculation of the emission reductions:		
	Parameter	Value	Description/Assessment
	CO2 emission factor arising from use of fuels in baseline scenario (EF_{b,co2})	355.04 tCO2/TJ	The verification team checked the ER sheet /3/ & PDD /2/ and found that the value for (EF _{b,co2}) is considered from approved methodology /4/ and in line with PDD /2/ . So, the default value is acceptable.
	Non-CO2 emission factor arising from use of fuels in baseline scenario (EF_{b,non co2})	29.988 tCO2/TJ	The Verification team has checked the ER sheet /3/ & PDD /2/ and found that the value for (EF _{b,non co2}) is considered from approved methodology /4/ and in line with PDD /2/ . So, the default value is acceptable.
	CO2 emission factor arising from use of fuels in project scenario (EF_{b,co2})	355.04 tCO2/TJ	The Verification team has checked the ER sheet /3/ & PDD /2/ and found that the value for (EF _{b,co2}) is considered from approved methodology /4/ and in line with PDD /2/ . So, the default value is acceptable.
	Non-CO2 emission factor arising from use of fuels in project scenario (EF_{b,non co2})	29.988 tCO2/TJ	The Verification team has checked the ER sheet /3/ & PDD /2/ and found that the value for (EF _{b non,co2}) is considered from approved methodology /4/ and in line with PDD /2/ . So, the default value is

			acceptable.
	Net calorific value of the fuels used in the baseline (NCV _b)	0.0295 TJ/ton	The verification team has checked the ER sheet/3/ & PDD/2/ and found that the value for (NCV _b) is considered from approved methodology /4/ and in line with PDD/02/. So, the default value is acceptable.
	Net calorific value of the fuels used in the baseline (NCV)	0.0295 TJ/ton	The verification team has checked the ER sheet/3/ & PDD/2/ and found that the value for (NCV _b) is considered from approved methodology /4/ and in line with PDD/02/. So, the default value is acceptable.
	Non-renewability status of woody biomass fuel in scenario i during year y (f _{NRB,i,y})	86.00 %	The verification team has checked PDD/2/ and found that the value for (f _{NRB}) is calculated based on approved methodology /4/ and in line with PDD/02/. The value is fixed for the entire crediting period. So, the value is acceptable.
Findings	CL 08 and CAR -08 have been raised regarding parameters and have been resolved. Refer appendix 4.		
Conclusion	The verification team confirms that the data and parameters fixed ex-ante are in compliance with the registered/ PDD /2/ and monitoring plan. Please refer to the Annex 5 for assessment of each parameter.		

E.5.2. Data and parameters monitored.

Mean of Verifications	SDGs	Parameter	Value	Description/Assessment
	13	Quantity of fuel that is consumed in baseline scenario b during year y (P _{b,y})	0.00210	This is assessed through users interviews during the monitoring. Survey (Baseline KPT survey made in 2020), In line with the applied methodology the P _{b,y} is considered correctly.
	13	Quantity of fuel that is consumed in baseline scenario b during year y (P _{p,y})	0.001103	This is assessed through users interviews during the monitoring. Survey (Project KPT 2021), In line with the applied methodology the P _{b,y} is considered correctly.
	13	Usage rate in project scenario p during year y (U _{p,y})	0.90	The information is as per user survey/11/.
	13	Project technologies credited (units) - N _{p,y}	33,614	The information is as per MR/2/ and total sales record where a correction factor of 0.95 is applied and N _{p,y} in consequence calculated as follows: N _{p,y} = number of sold stoves * correction factor (0.95)

	13	Leakage in project scenario p during year y - $LE_{p,y}$	0	The information is as per MR/2/
	13	Charcoal use in baseline scenario (CU_b)	0.00210	The information is as per Baseline FT (Baseline KPT made 2020 ²), baseline FT updates, and any applicable adjustment factors /11/.
Findings	CL 08 has been raised regarding this and has been resolved. Refer appendix 4.			
Conclusion	<p>The verification team confirms that the data and parameters monitored are in compliance with the registered/revised PDD /2/ and the monitoring plan provided in registered PDD/2/.</p> <p>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.</p>			

E.5.3. Implementation of sampling plan

Mean of Verifications	<p>Monitoring surveys were conducted during the current monitoring period. The total population of the stoves under project activity considered for the monitoring period is 33,614. The monitoring parameters monitored through the sampling plan are:</p> <ol style="list-style-type: none"> 1. $U_{p,y}$ - Usage rate in project scenario p during year y 2. $N_{p,y}$ - Project technologies credited (units) 3. $P_{p,y}$ - Quantity of fuel that is consumed in project scenario p during year y 4. $LE_{p,y}$ - Leakage in project scenario p during year y <p>The target population is 33,614 ICS considered under the project activity. For this monitoring period the Project/Usage Survey was made by PP with 139 randomly selected project families by direct in-person interviews visiting the end-user's during period 22nd - 26th of August 2022. The 36 randomly selected project households selected for KPT for measuring the average daily fuel consumption during period 22nd to 26th July 2022. The total population is verified from total sales record/03/. From the database, PP considered 9 sample size for user & monitoring survey.</p> <p>Random sampling was applied for the project activity by PD for the selection of the monitoring samples with 90/10 confidence/precision for all the parameters of annual monitoring which is deemed acceptable as per the registered PDD.</p> <p>The sampling plan implemented by the PD is in accordance with the approved monitoring methodology and the PDD. The PD has appropriately performed the Random Sampling procedure in line with the applied methodology and registered PDD and is best suited for this type of project.</p> <p>The verification took cognizance of "Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3.1"/4/ and registered/ revised PDD/2/. The verification team applied a sampling approach for remote-site interviews as part of verification in accordance with paragraph 26 of the Standard: Sampling and surveys for CDM project activities and programs of activities, Version 09.0. In accordance with paragraph 26 of the of "Standard for Sampling and surveys for CDM project activities and programs of activities, Version 09.0" for determining the sampling size to be visited by verification team /7/. In case of the current verification, the estimated emission reduction is 69,046 tCO_{2e} per year, the verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgment and guidance in the Standard 'Sampling and surveys for CDM project activities and</p>
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² Please refer to GS11209 Baseline KPT Report 2020 uploaded to SC App.

	program of activities' version 09.0 171 : Considering Acceptable Quality Level (AQL): 0.5% Unacceptable Quality Level (UQL): 20% and producer risk of 5% and consumer risk of 15% a sample size of 9 was required as per Table 2 in the referred Standard 171 . Acceptance number (c) thus determined for the sample size is 09, CCIPL verified 09 samples to verify the project activity. The verification team selected random samples from PP's sample list. Verification team has assessed (by remote-site interview) a total of 09 samples were found in order and operational.
Findings	CAR 04 was raised regarding sampling and has been resolved. Refer appendix 4.
Conclusion	The necessary confidence/precision of 90/10 for each of the parameters is met. This has been cross verified by the verification team from the supporting documents submitted and through random acceptance sampling.

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

Means of verification	There is no monitoring equipment involved in monitoring of the required parameters. Hence, no calibration requirement applicable for the project activity.
Findings	N/A
Conclusion	N/A

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

E.7.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	Baseline Emission:	
	The baseline emission reduction has been calculated using following formulae: $B_{b,y} = N_{p,y} * P_{b,y} * \text{days}$	
	$N_{p,y}$	Technologies in the project database for project scenario p through year y. The value of $N_{p,y}$ is 33,614 units.
	$P_{b,y}$	Quantity of fuel that is consumed in baseline scenario b during year y. The value of $P_{b,y}$ is 0.00210 tons/household-day as per user survey.
	f_{NRB}	The value of f_{NRB} is 86% and fixed for entire crediting period.
	$EF_{b,fuel, CO2}$	CO ₂ emission factor arising from use of fuels in baseline scenario. The value of $EF_{b,fuel, CO2}$ is 355.04 tCO ₂ /TJ, IPCC default value.
	$EF_{b,fuel, nonCO2}$	Non-CO ₂ emission factor arising from use of fuels in baseline scenario. The value of $EF_{b,fuel, non-CO2}$ is 29.988 tCO ₂ /TJ, IPCC AR 5 report default value.
	$NCV_{b, fuel}$	Net calorific value of the fuels used in the baseline. The value of $NCV_{b,fuel}$ is 0.0295, IPCC default value.
	Project Emission:	
	The project emission reduction has been calculated using following formulae: $PE_{p,y} = B_{p,y} * ((f_{NRBy} * EF_{p,fuel, CO2}) + EF_{p,fuel, nonCO2}) * NCV_{p, fuel}$ $B_{p,y}$ has been calculated using Following formule : $B_{p,y} = N_{p,y} * ((P_{p,y} * U_{p,y}) + (P_{b,y} * (1 - U_{p,y})))$	
$N_{p,y}$	= Technologies in the project database for project scenario p through year y. The value of $N_{p,y}$ is 33,614 units.	
$P_{b,y}$	= Quantity of fuel that is consumed in baseline scenario b during year y. The value of $P_{b,y}$ is 0.00210 tons/household-day as per user survey.	
$P_{p,y}$	= Quantity of fuel that is consumed in project scenario p during year y. The value of $P_{p,y}$ is 0.001103 tons/household-day as per project KPT 2021.	

	$U_{p,y}$	=	Usage rate in project scenario p during year y. The value of $U_{p,y}$ is 0.90 (90%) as per user survey.
	The value of $B_{p,y}$ is 1228.4 tons is in line with MR/01/ and ER sheet/03/.		
	f_{NRBy}	=	Non-renewability status of woody biomass fuel in scenario i during year y. The value of f_{NRB} is fixed ex-ante for entire crediting period is 0.86 (86%).
	$EF_{p,fuel, CO2}$	=	CO_2 emission factor arising from use of fuels in baseline scenario. The value is taken from IPCC default value of 355.04 t_{CO2}/TJ
	$EF_{p,fuel, nonCO2}$	=	Non- CO_2 emission factor arising from use of fuels in baseline scenario. The value is taken from AR 5 report of IPCC default value of 29.988 t_{CO2}/TJ
$NCV_{p, fuel}$	=	Net calorific value of the fuels used in the project. The value is taken from IPCC default value of charcoal deemed valid by TPDDTEC Methodology is 0.0295 TJ/ton	
From the MR/01/ and ER sheet /03/, the baseline; BE_y and project PE_y calculation is 161,735 tCO_{2e} and 92,689 tCO_{2e} . respectively.			
Findings	N/A		
Conclusion	The verification team confirms that the calculation of baseline emission and project emission are in accordance with the applied methodological equation and the registered PDD/2/. Calculations have been checked and confirmed from the ER spreadsheet/3/. The verification took cognizance of PDD/2/ and GS4GG requirements/5/.		

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

>> NA

E.7.3. Calculation of leakage GHG emissions

Means of verification	The Net to Gross Leakage Adjustment Factor has been included in the emission reduction calculations applying adjustment factor 0.95 as per paragraph 38 (c) of the applied methodology. The leakage is considered. Considering the leakage of 0% (as per the methodology), it is accounted as 0 tCO_{2e} .
Findings	N/A
Conclusion	N/A

E.7.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	The emission reductions, (batch from 02/07/2021 to 01/08/2021) has been calculated using following formulae: $ER_y = \sum BE_{b,y} - \sum PE_{p,y} - \sum LE_{p,y}$	
	$BE_{b,y}$	= Baseline emission for baseline scenario b through the year y. The value of $BE_{b,y}$ is 161,735 tCO_{2e}
	$PE_{p,y}$	= Project emission for project scenario b through the year y. The value of $PE_{p,y}$ is 92,689 tCO_{2e} .
	$LE_{p,y}$	= As per Field surveys 2021 (1st MP), the leakage is 0 $tCO_{2e}/year$.
From the MR/01/ and ER sheet /03/, the emission reduction ER_y is 69,046 tCO_{2e} .		
Findings	N/A	
Conclusion	The verification team confirms that the calculation of emission reductions is in accordance with the applied methodological equation and the registered PDD/2/. Calculations have been checked and confirmed from the ER spreadsheet/3/. The verification took cognizance of PDD/2/ and GS4GG requirements/5/.	

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

Means of verification	The emission reductions from the project for the monitoring period as reported in the monitoring report revision 03 of 29/12/2023 /1/ is equivalent to 69,046 tCO ₂ e. which is 16.32% less than estimated emission reductions of 80,315 tCO ₂ e for the monitoring period.
Findings	N/A
Conclusion	The emission reduction calculations provided in the spreadsheet /3/ have been verified to be correct and in line with the final PDD /2/.

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

Means of verification	The achieved emission reductions are 16.32% less than estimated emission reductions. The reduction is due to reduction in operational status of project ICS and effective number of days considered for the monitoring period.
Findings	N/A
Conclusion	Conservative approach is applied for adjustment of emission reductions based on survey results and methodology requirements

E.8. Assessment of reported sustainable development co-benefits.

Means of verification	Data Variable	Source of Data	Reported value for the project period
	Average household savings (SDG 1)	Survey Report /11/	6,553
	Assessment		
	The monitoring procedure is as per registered monitoring plan and verification team also interviewed end users who confirmed positive feedback related to the saving of the average household compared with baseline scenario		
	Data Variable	Source of Data	Reported value for the project period
	households using the fuel-efficient cookstoves (SDG 7)	Survey Report /11/	28,483
	Assessment		
	As per the user survey guide, there is positive feedback on fuel-efficient cookstoves compared with baseline scenario.		
	Data Variable	Source of Data	Reported value for the project period
	Emissions Reductions (SDG 13)	ER Sheet /3/	69,046
	Assessment		
	Validation has assessed the ER sheet of the project activity and confirms that the quantified ERs of the project the current monitoring period are 69,046 tCO ₂ e. The detailed calculations provided in the ER sheet deemed to be correct and acceptable.		
	Data Variable	Source of Data	Reported value for the project period
	Total non-renewable wood fuel saved (SDG 15)	Survey Report /11/	10,517
	Assessment		
	As per the user survey guide, there is positive feedback on fuel-efficient cookstoves compared with baseline scenario.		
Findings	CL 02 has been raised and has been resolved. Refer appendix 4.		
Conclusion	CCIPL confirms that monitoring of all the sustainable development monitoring parameters during this monitoring period is in line with the SD monitoring plan and are consistent with off-site visit observations.		

Comparison of actual SDG Impacts with estimates in approved PDD

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values achieved during this monitoring period	Justification
13	80,315 tCO ₂ e	69,046 tCO ₂ e	The verification team observed that the SDGs 13, 1, 7 & 15 value for current monitoring period is lower than estimated value in the PDD/02/
1	7,721 MZN/hh- y	6,553 MZN/hh-y	
7	26,803 HHs	28,483 HHs	
15	10,540 tons/y	10,517 tons/y	

Comparison of monitored parameters with last monitoring period.

Data/Parameter	Value obtained in this monitoring period	Value obtained in last monitoring period
P _{p,y}	N/A	0.001103
U _{p,y}	0.90 (capped from 0.92)	0.90 (capped from 0.95)
N _{p,y}	33,614	12,020
LE _{p,y}	0	0

SECTION F. Internal quality control

>>

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

SECTION G. Verification opinion

>>

Carbon Check (India) Private Ltd. (CC IPL) has performed the second (2nd) periodic verification of the registered GS Project Activity "Production and sale of efficient cookstoves in the urban areas of Maputo Province" GS 11209.

The verification team assigned by the VVB concludes that the project activity titled "Production and sale of efficient cookstoves in the urban areas of Maputo Province" as described in the PDD (Version 7, date 13/03/2023) /2/ and the Monitoring report (version 3, dated 29/12/2023) /1/, meets all relevant requirements of the Gold Standard. The verification has been conducted in line with the GS4GG requirements /5/ for project activities.

Verification methodology and process

The Verification team confirms the contractual relationship signed on 12/10/2022 between the VVB, Carbon Check (India) Private Ltd., and the Project Participant, Carbonsink Group S.r.l (Carbonsink). The team assigned to the verification meets the CCIPL's internal procedures including the GS requirements for the team composition and competence. The verification team has conducted a thorough contract review as per GS4GG 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 registered PDD (Version 7, date 13/03/2023) /2/, including the monitoring plan and the corresponding verification report.
- Desk review of the verification report MR /1/ 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 thermal energy consumption (TPDDTEC), version 3.1/4/).
- Remote-site interview (24/11/2023 & 25/11/2023)
- Resolution of CARs and CLs raised during verification.
- Issuance of Verification Report

The project activity was correctly implemented according to the selected monitoring methodology, monitoring plan, and the registered PDD. The monitoring system was installed, and 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-site interview, the verification team confirms that the project activity has resulted in 69,046 tCO₂e emission reductions during the 2nd monitoring period of 1st crediting period.

This statement covers the verification period from 02/08/2021 to 01/08/2022.

The Verification team has raised 08 clarifications and 09 corrective action requests, all of which are closed.

The Verification team considers necessary to give reasonable level of 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.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CC IPL	Carbon Check India Pvt. Ltd.
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GS4GG	Gold Standard for Global Goals
ICS	Improved Cooking Stoves
IPCC	Intergovernmental Panel on Climate Change
LDC	Least Developed Country
LSC	Local Stakeholder Consultation
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Participant(s)
SDG	Sustainable Development Goals
UNFCCC	United Nations Framework Convention on Climate Change
VNV	Value Network Ventures Advisory Services Pte. Ltd.
VVB	Validation and Verification Body

Appendix 2. Competence of team members and technical reviewers



Carbon Check (India) Private Limited

Certificate of Competency

Mr. Harish Sharma

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:

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> Validator | <input checked="" type="checkbox"/> Verifier | <input checked="" type="checkbox"/> Team Leader | <input checked="" type="checkbox"/> Technical Expert |
| <input type="checkbox"/> Technical Reviewer | <input type="checkbox"/> Health Expert | <input type="checkbox"/> Gender Expert | <input type="checkbox"/> Plastic Waste Expert |
| <input type="checkbox"/> CCB Expert | <input type="checkbox"/> Legal Expert | <input type="checkbox"/> Financial Expert | <input type="checkbox"/> Environmental, Health and Safety financial matters |
| <input checked="" type="checkbox"/> SDG+ | <input checked="" type="checkbox"/> Social no-harm(S+) | <input checked="" type="checkbox"/> Environment no-harm(E+) | |
| <input checked="" type="checkbox"/> Local Expert for India | | | |

in the following Technical Areas:

- | | | | | |
|--|--|----------------------------------|---|----------------------------------|
| <input checked="" type="checkbox"/> TA 1.1 | <input checked="" type="checkbox"/> TA 1.2 | <input type="checkbox"/> TA 2.1 | <input checked="" type="checkbox"/> TA 3.1 | <input type="checkbox"/> TA 4.1 |
| <input type="checkbox"/> TA 4. n | <input type="checkbox"/> TA 5.1 | <input type="checkbox"/> TA 5.2 | <input type="checkbox"/> TA 7.1 | <input type="checkbox"/> TA 8.1 |
| <input type="checkbox"/> TA 9.1 | <input type="checkbox"/> TA 9.2 | <input type="checkbox"/> TA 10.1 | <input checked="" type="checkbox"/> TA 13.1 | <input type="checkbox"/> TA 13.2 |
| <input type="checkbox"/> TA 14.1 | <input type="checkbox"/> TA 15.1 | <input type="checkbox"/> TA 16.1 | | |

Issue Date

5th December 2023

Priya Suman

Ms. Priya Suman
Compliance Officer

Expiry Date

31st December 2024

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

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

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

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



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:

- | | | | |
|--|--|---|---|
| <input checked="" type="checkbox"/> Validator | <input checked="" type="checkbox"/> Verifier | <input checked="" type="checkbox"/> Team Leader | <input checked="" type="checkbox"/> Technical Expert |
| <input checked="" type="checkbox"/> Technical Reviewer | <input type="checkbox"/> Health Expert | <input type="checkbox"/> Gender Expert | <input checked="" type="checkbox"/> Plastic Waste Expert |
| <input type="checkbox"/> CCB Expert | <input type="checkbox"/> Legal Expert | <input checked="" type="checkbox"/> Financial Expert | <input type="checkbox"/> Environmental, Health and Safety financial matters |
| <input checked="" type="checkbox"/> SDG+ | <input checked="" type="checkbox"/> Social no-harm(S+) | <input checked="" type="checkbox"/> Environment no-harm(E+) | |
| <input checked="" type="checkbox"/> Local Expert for India and Sri Lanka | | | |

in the following Technical Areas:

- | | | | | |
|--|--|----------------------------------|---|---|
| <input checked="" type="checkbox"/> TA 1.1 | <input checked="" type="checkbox"/> TA 1.2 | <input type="checkbox"/> TA 2.1 | <input checked="" type="checkbox"/> TA 3.1 | <input type="checkbox"/> TA 4.1 |
| <input type="checkbox"/> TA 4. n | <input type="checkbox"/> TA 5.1 | <input type="checkbox"/> TA 5.2 | <input type="checkbox"/> TA 7.1 | <input type="checkbox"/> TA 8.1 |
| <input type="checkbox"/> TA 9.1 | <input type="checkbox"/> TA 9.2 | <input type="checkbox"/> TA 10.1 | <input checked="" type="checkbox"/> TA 13.1 | <input checked="" type="checkbox"/> TA 13.2 |
| <input type="checkbox"/> TA 14.1 | <input type="checkbox"/> TA 15.1 | <input type="checkbox"/> TA 16.1 | | |

Issue Date

5th December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
2022 ¹	Annual revision
Jan 2023	Annual revision
Dec 2023	Change in the template due to revision in TA and function

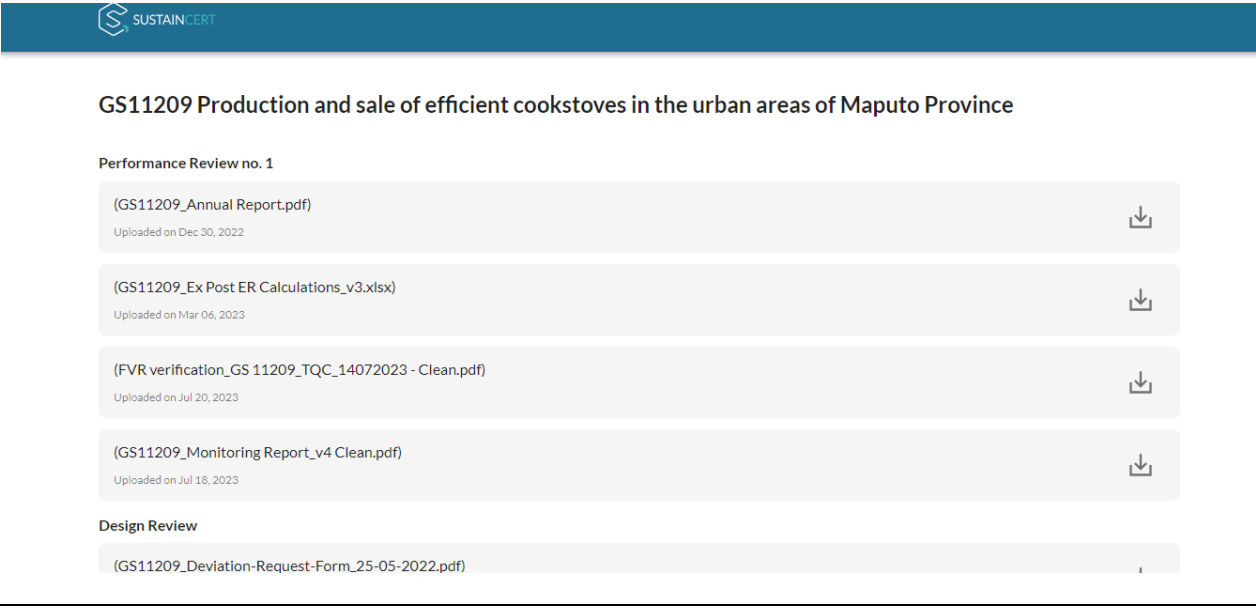
Appendix 3. Documents reviewed or referenced.

No.	Documents	Provider
/1/	GS11209_Monitoring Report-version 1 dated 13/09/2023 GS11209_Monitoring Report -version 2 dated 07/12/2023 GS 11209_Monitoring Report- Version 3 dated 29/12/2023	PP
/2/	GS11209_GS11029_PDD_v7_27/05/2022	PP
/3/	GS11209_ Ex post ER calculation_v1_13/03/2023 GS11209_Usage & Project Survey_V2_07/12/2023	PP
/4/	Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3.1	Publicly
/5/	Gold Standard for the Global Goals (GS4GG) Principles & Requirements	Publicly
/6/	GS11209_GS11209_Annual Report	PP
/7/	Sampling and surveys for CDM project activities and programmes of activities v9	Publicly
/8/	GS11209_Households (HHs)Database	PP
/9/	LDC Country Information	Publicly
/10/	Mbaula Poupa+_OEM Specification	PP
/11/	GS11209_ICs User Survey	PP
/12/	GS Validation and Verification Standard; version 1.0	Publicly
/13/	Guideline: Application of materiality in verifications, version 2.0	Publicly
/14/	GS Site Visit and Remote Audit Requirement, version 2.0	Publicly
/15/	GS deviation request form_08/11/223	PP
/16/	Contract between PP and carbon Check India Pvt. Ltd.	PP
/17/	Users signed selling contract (screenshot)	PP
/18/	<ul style="list-style-type: none"> • GS 11209 KPT Report_2020 • GS 11209 Baseline survey report_2020 	PP

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

Clarifications (CLs)

Table 1 CLs from this verification

CL ID	01	Section no.	Project information table	Date: 30/09/2023
Description of CL				
In the Project information table, the date of last annual report is not in line with PD uploaded on GS registry. PP shall clarify.				
Project participant response				Date: 04/10/2023
The clarification request is not clear, as the mentioned date of upload of the latest Annual Report is 30/12/2022 (hence the same mentioned in version 01 of MR) as per the screenshot below (https://platform.sustain-cert.com/public-project/2437):				
				
Documentation provided by project participant				
VVB assessment				Date: 01/12/2022
VT has reviewed PP response and found that PP has not updated latest annual report completion date in line with PD uploaded on GS registry.				
CL is open.				
Project participant response				Date: 11/12/2023
Please refer to the updated version 02 of MR "GS11209_Monitoring Report_v2.docx", in which the date related to the annual report has been modified accordingly to the completion date reported into the Annual Report "GS11209_Annual Report.docx" uploaded on SC platform.				
VVB assessment				Date: 01/12/2022

The date has been revised to 21/12/2022, which is consistent with the last annual report.

CL Is closed.

CL ID	02	Section no.	Table 2	Date: 30/09/2023
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Description of CL

In table 2, the value of SDG 1 and SDG 7 are not in line with Ex post ER calculation sheet v1. PP shall clarify.

Project participant response	Date: 07/12/2023
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Values of outcomes for both SDGs 1 & 7 are in line with what reported respectively in cells H19-20 & H30-31 of 'Summary SDGs Impacts' tab of the mentioned sheet. Please note that units were wrongly reported though, so corrections have been applied to cells F18, G18, H18 and F29, G29, H29 in the same tab.

Documentation provided by project participant

VVB assessment	Date: 01/12/2023
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VT has reviewed PP response and found that the value of SDG 1 and SDG 7 are not in line with Ex post ER calculation sheet v1.

CL is open.

Project participant response	Date: 11/12/2023
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Please refer to the updated version of MR "GS11209_Monitoring Report_v2" and its table 2, plus the updated version of ERs excel sheet with its "Net benefit" cells in the tab "Summary SDGs Impacts".

Here the references:

SDG 1 - No poverty						
Monitoring indicator	Average household savings i.e., decrease in expenditure on basic service such cooking, lighting, drinking					
Baseline Estimate	$P_{b,y} * Fuel\ expenditure$					
Project Estimate	$P_{p,y} * Fuel\ expenditure$					
Project year	Period to be monitored		Pp tons/hh-y	Baseline estimate MZN/hh-y	Project estimate MZN/hh-y	Net benefit MZN/hh-y
	From	To				
Year 2	02/08/2021	31/12/2021	0,402465721	13.797	7.244	6,553
	01/01/2022	01/08/2022				
SDG 7 - Energy generation, efficiency & access						
Monitoring indicator	Increased access to energy					
Baseline Estimate	Distributed units - $N_{p,y}$					
Project Estimate	$N_{p,y} * U_{p,y}$					
Project year	Period to be monitored		Up,y %	Baseline estimate Households	Project estimate Households	Net benefit Households
	From	To				
Year 2	02/08/2021	31/12/2021	0,90	1.769	30.252	28,483
	01/01/2022	01/08/2022				

Table 2 – Product Vintages

		Amount Achieved			
Start Dates	End Dates	VERs	MZN/hh-y	Households	NRB savings
02/08/2021	31/12/2021	15,638	6,553	28,483	2,039
01/01/2022	01/08/2022	53,408	6,553	28,483	8,478

VVB assessment **Date: 18/12/2023**

PP has now updated the value of SDG 1 and SDG 7 are not in line with Ex post ER calculation sheet v1.

CL is closed.

CL ID	03	Section no.	A.1	Date: 30/09/2023
Description of CL				
In section A.1, PP shall clarify the role and responsibility of AVSI foundation. Furthermore, PP shall share agreement documents with AVSI foundation.				
Project participant response				Date: 04/10/2023
Section A.1 was wrongly reporting AVSI Foundation as a project partner. Corrections have been applied accordingly.				
Documentation provided by project participant				
VVB assessment				Date: 01/12/2023
VT has reviewed the PP response and found that PP has now updated section A.1 in line with raised clarification.				
CL is closed.				

CL ID	04	Section no.	A.1	Date: 30/09/2023
Description of CL				
The distribution of cookstove started in Aug 2020, that aged 2 years in 2023. PP shall clarify why ICS is not included in this monitoring period.				
Project participant response				Date: 04/10/2023
As documents regarding the third MP of the project were not ready at time of first submission for this review, the current verification shall include only devices distributed between 02/08/2020 and 01/08/2022 (MP2).				
Documentation provided by project participant				
VVB assessment				Date: 01/12/2023

VT has reviewed PP response and found that PP has included devices distributed between 02/08/2020 and 01/08/2022 (MP2) in line with ER sheet.


CL is closed.

CL ID	05	Section no.	D.2	Date: 30/09/2023
Description of CL				
For parameter "Pp,y", PP has represented "As a cross check between estimated fuel consumption and actual fuel consumed by each device, a value of 0.00118 ton/household-day should be taken as referral as per registered PDD. This is reasonably consistent with the measured value from KPT 2021". The certified PDD version 7 specified a different value, therefore, PP shall clarify the source of value 0.00118 ton/hh/day.				
Project participant response				Date: 04/10/2023
The mentioned value was corrected with reference to cell F10 of tab 'Project Emissions' of Ex Post Calculations Spreadsheet. Please refer to amended MR, section D.2.				
Documentation provided by project participant				
VVB assessment				Date: 01/12/2023
VT has reviewed the PP responses and found that PP has changed the value of parameter "Pp,y" inline with PD version 7.				
CL is closed.				

CL ID	06	Section no.	D.2	Date: 30/09/2023
Description of CL				
PP to clarify the addition of new monitoring parameter Cup as the same is not the part of monitoring plan of the certified PD version 7.				
Project participant response				Date: 04/10/2023
Box of parameter CU _p has been deleted from section D.2 according to the observed inconsistency.				
Documentation provided by project participant				
VVB assessment				Date: 01/12/2023
VT has reviewed the PP responses and found that PP has deleted the CU _p parameters in line with PD version 7.				
CL is closed.				

CL ID	07	Section no.	B.1 (Table B-1)	Date: 01/12/2023
Description of CL				
The unit size is not in line with submitted OEM technical specification. PP Clarify.				
Project participant response				Date: 11/12/2023
Please refer to version 02 of MR for corrected values and screenshot of testing report below				

Technical data:

Stove Name / Type	Technical data						
BECT testing code 17C05/008	Air Intake	width	height	Air Breach	1.2	Ø	In / Out Ratio
Mbaula Alu Charcoal stove Improved cookstove Portable Household use	cm ²	10	3.5	cm ²	1.13094	13	2.38
	Air Outlet 2 (Between pot and Stove min.)						
	cm ²	Ø	perimeter	height			
	87.95	28	87.948	1			
	Weight			Measurement			Diameter Ø cm
	Stove	Accessory	Total gr	High	Ø base	h/Ø Ratio	min. pot size max. stove
	6450		6450	23	28	0.82	28.00
	Volume (Coal)			Base geometrie:			Optimal pot size:
	Ø	h		round	17 lts		
	21	7		Materials:			
	Total cm³			Aluminium sheet 1.2 mm, ceramic, 8			
	1200			mm construction metal			

Energetic values and emissions (VBT 4.2.3)

IWA 11		Average values of		4	tests
High Power Thermal Efficiency	30.47	%	Time to boil 2,5 lts Hot Start	16	min
	0.18%	COV %			
Low Power Specific Fuel Consumption	0.0313321	MJ/(min·L)	Firepower (hot)	2154	watts
	32.09%	COV %			
CO		ppm	PM 2.5		ug/m3

Documentation provided by project participant



GS11209_BECT
(2017)_Testing Report

VVB assessment

Date: 18/12/2023

PP has now updated the height dimension of ICS to 23, in line with OEM technical specification.

CL is closed.

CL ID	8	Section no.	D.2	Date: 06/12/2023
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Description of CAR

"The value of f_{NRB} is fixed ex-ante for entire crediting period even". the additional comments are not in line with PD version 7.0. PP shall clarify for keeping this parameter in "Data and parameters monitored" section. Further,

Furthermore, PP shall share f_{NRB} report.

Project participant response

Date: 11/12/2023

No f_{NRB} report is available as the extended calculation is provided in section B.4 of VPA-DD.

Parameter table has been moved and amended in version 02 of MR according to the observations.

Documentation provided by project participant

VVB assessment

Date: 18/12/2023

VT has reviewed the MR and found that f_{NRB} value is in line with registered PDD version 7.0.

Furthermore, the value of f_{NRB} is fixed for entire crediting period.

CL is closed.


Corrective action required (CARs)

Table 2 CARs from this verification

CAR ID	01	Section no.	Project Information Table	Date: 30/09/2023
Description of CAR				
In the Project information table, the version of the PD is not in line with PD uploaded on GS registry. PP shall ensure consistency with the final version of the certified PD.				
Project participant response				Date: 04/10/2023
Corrections have been applied to Key Project Information table according to the observed inconsistency.				
Documentation provided by project participant				
VVB assessment				Date: 01/12/2023
VT has reviewed responses and found PP has updated version of PD in the Project information table, in line with PD uploaded on GS registry.				
CAR is closed.				

CAR ID	02	Section no.	A.1	Date: 30/09/2023
Description of CAR				
In footnote 1 "Atanassov et al., 2012: Urban Biomass Energy Analysis Mozambique Ministry of Energy, Maputo (Available at: http://greenlightafrica.com/assets/final_report_mozambique_urban_biomass.pdf)" link is not working.				
Project participant response				Date: 04/10/2023
The mentioned footnote has been removed as it was redundant with the validated PDD, section A.1, v07.				
Documentation provided by project participant				
VVB assessment				Date: 01/12/2023
VT has reviewed response and found that PP has removed the link from footnote 1.				
CAR is closed.				

CAR ID	03	Section no.	Table B.1	Date: 30/09/2023
Description of CAR				
PP to share OEM specification of Mbaula Poupa+ stove.				
Project participant response				Date: 04/10/2023
Technical specifications of the device are included in the Testing Report enclosed below and already shared with GS at time of project Design Certification.				

Documentation provided by project participant	
 GS11209_BECT (2017)_Testing Report	
VVB assessment	Date: 01/12/2023
PP has now shared the OEM technical specification of the Mbaula Poupa+ stove. CAR is closed.	

CAR ID	04	Section no.	Section C	Date: 30/09/2023
Description of CAR				
In section C, PP shall submit the total sales and distribution record.				
Project participant response				Date: 04/10/2023
Refer to footnote #4 in MR and related mentioned supporting documents.				
Documentation provided by project participant				
'GS11209_SD 20-21 + sampling' & 'GS11209_SD 21-22 + sampling'				
VVB assessment				Date: 01/12/2023
VT has reviewed the response and found that total sales and distribution data available in 'GS11209_SD 20-21 + sampling' & 'GS11209_SD 21-22 + sampling' sheet.				
CAR is closed				

CAR ID	05	Section no.	Section C	Date: 30/09/2023
Description of CAR				
PP shall submit a sample of end user signed selling contract at the time of the stove purchase.				
Project participant response				Date: 04/10/2023
Please refer to the screenshot below and to the mentioned supporting documents (Selling Databases) for further cross-checks.				

carbonsink Home Users Partners Stove Models Survey Schemas admin@carbonsink.it

Sale details

Seller Osvaldo Mulhovo	Sale date 01/06/2022 18:09	Place lat: -25.8317812, long: 32.4394693
Model Mbaula A	Stove ID CS305370	Price 600.00 MZM
Buyer Laura Mucuauele	Gender F	Phone 874378310
		Address Boane, Bairro Zilinga, Rua da paragem Elina

Stove sell disclaimer
Confirmo ter recebido um fogão melhorado e percebo que este fogão é subsidiado com a condição de que todos os direitos sobre as suas reduções de emissões sejam passados para Carbonsink Group S.r.l.

Laura

Close

carbonsink Home Users Partners Stove Models Survey Schemas admin@carbonsink.it

Sale details

Seller Lina Massango	Sale date 29/07/2022 12:38	Place lat: -25.8109992, long: 32.528871
Model Mbaula A	Stove ID CS307521	Price 600.00 MZM
Buyer Francisca Chico Ernesto	Gender F	Phone 875452144
		Address Boane, jonasse, Q.42

Stove sell disclaimer
Confirmo ter recebido um fogão melhorado e percebo que este fogão é subsidiado com a condição de que todos os direitos sobre as suas reduções de emissões sejam passados para Carbonsink Group S.r.l.

Chico

Close

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Project AICS Profit (Nova Energia)

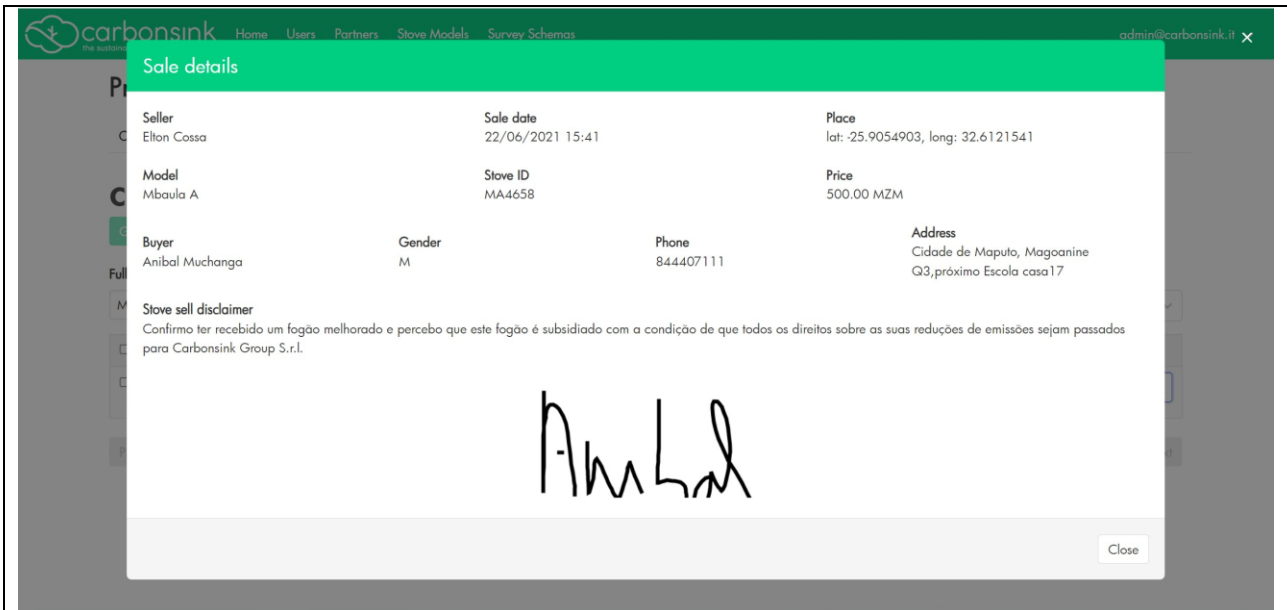
Sale details

Seller Izilda Guambe	Sale date 04/08/2020 12:02	Place lat: -25.8842695, long: 32.5658951
Model Mbaula A	Stove ID MA1452	Price 500.00 MZM
Buyer Alexandrina Alexandre	Gender F	Phone 846672735
		Address George Dimitrov, q 17 casa 32, prox a fase 4

Stove sell disclaimer
Confirmo ter recebido um fogão melhorado e percebo que este fogão é subsidiado com a condição de que todos os direitos sobre as suas reduções de emissões sejam passados para Carbonsink Group S.r.l.

sell

Close





Documentation provided by project participant	
'GS11209_SD 20-21 + sampling' & 'GS11209_SD 21-22 + sampling'	
VVB assessment	Date: 01/12/2023
PP has now submitted a sample of end user signed selling contract (database screenshot) at the time of the stove purchase/sale.	
CAR is closed.	

CAR ID	06	Section no.	Section C	Date: 30/09/2023
Description of CAR				
PP shall submit usage survey report for this crediting period in English language.				
Project participant response				Date: 07/12/2023
Outcome of 2022 Usage Survey are well depicted and already integrated in section C of MR.				
Documentation provided by project participant				
VVB assessment				Date: 01/12/2023
PP has depicted outcome of 2022 Usage Survey in section C of MR but VT required survey report (English language) to verify the information.				
CAR is open.				
Project participant response				Date: 11/12/2023

Please refer to the new version of Usage survey 2022, where all the detailed responses can be found, and now all the questions and related answers have been now translated in English language: "GS11209_Usage & Project Survey_V2.xlsx"

VVB assessment	Date: 18/12/2023
PP has now submitted English translated usages survey.	
CAR is closed.	

CAR ID	07	Section no.	D.2	Date: 30/09/2023
Description of CAR				
PP shall submit GS11209 Baseline Survey Report 2020 and GS11209 KPT Report 2020.				
Project participant response				Date: 04/10/2023
Please find the two documents enclosed and note they were already shared with and reviewed by VVB at time of Design Certification.				
Documentation provided by project participant				
  GS11209_KPT Report_2020.pdf GS11209_Baseline Survey Report 2020.p				
VVB assessment				Date: 01/12/2023
PP has now submitted baseline survey report 2020 and GS11209 KPT Report 2020.				
CAR is closed.				

CAR ID	08	Section no.	E.1	Date: 30/09/2023
Description of CAR				
In section E.1, the value of B _{b,y} used is not in line with its calculated value, PP shall clarify.				
Project participant response				Date: 07/12/2023
Calculation of value for parameter B _{b,y} has been corrected as one factor (number of days in month of reference 02/07/2022-01/08/2022) was missing. Please refer to amended section E.1 of MR and cell H32 of 'Baseline Emissions' tab in Ex Post Calculation spreadsheet for further cross-checks.				
Documentation provided by project participant				
VVB assessment				Date: 01/12/2023
VT has reviewed the responses and found that value of parameters B _{b,y} is not in line with ER calculation sheet (cell H32).				
CAR is open				
Project participant response				Date: 11/12/2023

Please refer to the updated version of MR "GS11209_ Ex Post ER Calculations_v2.xlsx", section E.1 and the ERs calculation sheet. B_{b,y} data and related calculation are in line and consistent with each other. Here presented the references images:

Baseline Emissions (batch from 02/07/2022 to 01/08/2022)

$$B_{b,x} = N_{p,x} * P_{b,y} * \text{days}$$

$$B_{b,x} = 33,613.854 * 0.0021 * 31 \text{ days} = 2,188.26 \text{ tonsCO}_{2\text{eq}}/\text{day}$$

$$BE_{b,x} = B_{b,x} * ((fNRB_y * EF_{b,\text{fuel}, \text{CO}_2}) + EF_{b,\text{fuel}, \text{nonCO}_2}) * NCV_{b, \text{fuel}}$$

Baseline Emissions		Period to be monitored	
Bb,y	N _{p,y} * P _{b,y}	From	To
BE _{b,y}	B _{b,y} * ((fNRB _y * EF _{b,fuel, CO2}) + EF _{b,fuel, nonCO2}) * NCV _{b, fuel}	02/08/2021	31/12/2021
		01/01/2022	01/08/2022

Batch		N _{p,y}			Bb,y	
From	To	Days	Distributed unit	Eligible devices	Cumulative eligible devices	Baseline fuel consumption
02/08/2020	01/09/2020	31,00	2104,00	0,00	0,00	0,00
02/09/2020	01/10/2020	30,00	2503,00	1998,80	1998,80	125,92
02/10/2020	01/11/2020	31,00	2157,00	2377,85	4376,65	284,92
02/11/2020	01/12/2020	30,00	771,00	2049,15	6425,80	404,83
02/12/2020	01/01/2021	31,00	585,00	732,45	7158,25	466,00
02/01/2021	01/02/2021	31,00	374,00	555,75	7714,00	502,18
02/02/2021	01/03/2021	28,00	183,00	355,30	8069,30	474,47
02/03/2021	01/04/2021	31,00	641,00	173,85	8243,15	536,63
02/04/2021	01/05/2021	30,00	618,00	608,95	8852,10	557,68
02/05/2021	01/06/2021	31,00	510,00	587,10	9439,20	614,49
02/06/2021	01/07/2021	30,00	2207,00	484,50	9923,70	625,19
02/07/2021	01/08/2021	31,00	1567,00	2096,65	12020,35	782,52
02/08/2021	01/09/2021	31,00	640,00	1488,65	13509,00	879,44
02/09/2021	01/10/2021	30,00	714,00	608,00	14117,00	889,37
02/10/2021	01/11/2021	31,00	715,00	678,30	14795,30	963,17
02/11/2021	01/12/2021	30,00	2004,00	679,25	15474,55	974,90
02/12/2021	01/01/2022	31,00	1632,00	1903,80	17378,35	1131,33
02/01/2022	01/02/2022	31,00	1709,00	1550,40	18928,75	1232,26
02/02/2022	01/03/2022	28,00	2511,00	1623,55	20552,30	1208,48
02/03/2022	01/04/2022	31,00	3357,00	2385,45	22937,75	1493,25
02/04/2022	01/05/2022	30,00	1631,00	3189,15	26126,90	1645,99
02/05/2022	01/06/2022	31,00	3313,00	1549,45	27676,35	1801,73
02/06/2022	01/07/2022	30,00	2937,00	3147,35	30823,70	1941,89
02/07/2022	01/08/2022	31,00	2889,00	2790,15	33613,85	2188,26

Parameter	Value
EF _{CO2}	355,04
EF _{CH4}	29,988
EF _{N2O}	265
GWP _{N2O AR5}	28
GWP _{CH4 AR5}	3,17
Ratio	0,0295
NCV	0,00210
P _{b,y}	See the tab "Project"
f _{NRB,y}	0,86
M	See the tab "Baseline"
n	See the tab "Baseline"
p	See the tab "Project"
u	See the tab "Project"
z	See the tab "Baseline"
z	See the tab "Project"
ER _y	See the sub-page "Summary SDGs Impacts"
Eligible project hns	0
	0,95
	0,125
	0,305
Fuel expenditure	18,00

VVB assessment Date: 18/12/2023

VT has reviewed the MR & ER sheet and found that PP has now updated formulae and value of B_{b,y} in MR in line with ER sheet.

CAR is closed.

CAR ID	09	Section no.	B.2.1	Date: 06/12/2023
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Description of CAR	
In section B.2.1, PP shall write heading in line with GS template guide v1.1.	
Project participant response	Date: 11/12/2023
Refer to version 02 of MR.	
Documentation provided by project participant	
VVB assessment	Date: 18/12/2023
PP has now updated heading of section B.2.1 in line with GS template guideline v1.1.	
CAR is closed.	

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none">• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);• Make structural and editorial improvements.
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory
Document Type: Form
Business Function: Issuance
Keywords: project activities, verifying and certifying
