



INSTALLATION OF HIGH EFFICIENCY WOOD BURNING COOKSTOVES IN ANGOLA- PROJECT 2



Document Prepared by Earthood Services Private Limited

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Summary:

Earthood Services Private Limited (hereafter referred to as ESPL) has been contracted by C-Quest Capital SG Angola Stoves Private Limited to conduct the verification of the grouped project - 'Installation of High Efficiency Wood Burning Cookstoves in Angola – Project 2' (VCS ID – 2981), with regards to the relevant requirements of VCS, which includes the following: VCS Program Guide (v4.2), VCS Standard (v4.3), Program Definitions (v4.2), Registration and Issuance Process (v4.2), VCS Validation and Verification Manual (v3.2) applicable at the time. Relevant Applicable requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting has been applied for verification.

The monitoring period covered under this verification is from 01/09/2021 to 30/06/2022.

The verification includes confirming the implementation of the monitoring plan registered in VCS PD and provided in the final MR (VCS ID 2981) and application of the monitoring methodology VMR0006: "Methodology for Installation of High Efficiency Firewood Cookstoves", version 1.1.

The project activity is about distribution and installation of high efficiency wood burning TLC stoves for household cooking purpose in Angola. The installed stoves are called as TLC-CQC Rocket Stove. These high efficiency TLC-CQC Rocket Stoves (ICS) replaces the existing inefficient, conventional open fire stoves. These improved cookstoves will burn more efficiently as compared to the baseline stoves and thus will save the amount of wood burnt in cooking purpose and emissions associated with it. The project activity also reduces deforestation in host country and minimises the health risks associated with indoor smoke pollution. The project activity further also reduces the time for collection of firewood for women and children.

A risk-based approach has been followed to perform this verification. In the course of verification, 07 Corrective Action requests (CARs), 00 Forward Action Request (FARs), and 06 Clarification request (CLs) were raised and successfully closed.

The review of the project description, monitoring report and additional documents related to baseline and monitoring methodology; the subsequent background investigation, telephonic interviews and stakeholders have provided Earthood with sufficient evidence to validate the fulfillment of the stated criteria.

Earthood confirms that the project is implemented in accordance with the registered VCS PD & applied baseline and monitoring methodology. The project implementation is in line with the information provided in the final MR. The monitoring system is in place and the emission reduction are calculated without material misstatements. Our opinion related to the project's GHG emissions, and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the emission reductions from the project activity "Installation of High Efficiency Wood Burning Cookstoves in Angola– Project 2" during the period 01/09/2021 to 30/06/2022 amounts to 38,028 tons of CO₂e.

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1 INTRODUCTION

1.1 Objective

Earthood Services Private Limited has been contracted by C-Quest Capital Stoves Asia Limited, to undertake the verification of the project titled 'Installation of High Efficiency Wood Burning Cookstoves in Angola - Project 2' (VCS ID- 2981). The verifiers have reviewed the GHG data collection to date for the monitoring period from 01/09/2021 to 30/06/2022 covered in this verification.

The purpose of the verification is to review the monitoring results and verify that monitoring methodology was implemented according to monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive and presented in a concise and transparent manner. In particular, monitoring plan, monitoring report and the project's compliance with relevant VCS, UNFCCC and host party criteria are verified in order to confirm that the project has been implemented in accordance with previously registered design and conservative assumptions, as documented. This verification is a thorough and independent assessment of registered project activities against the applicable VCS requirements by the VVB. The verification process shall determine whether the proposed project activity complies with the requirement of latest VCS guidelines, applicability conditions of the selected methodology, relevant host country regulations and guidance issued by the VCS Board.

1.2 Scope and Criteria

The scope of verification is to assess the claim and assumptions made in the VCS monitoring report/2.2/ against the VCS criteria, including but not limited to, VCS standard version 4.3/05/, applied methodology/07/ and other relevant rules and requirement established for VCS project activities.

- To verify the project implementation and operation with respect to the registered VCS PD.
- To verify the implemented monitoring plan with the registered VCS PD 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 is not meant to provide any consultation towards the project proponent. However, stated request for clarification and/ or corrective actions request may have provided inputs for improvement of the project design. The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

1.3 Level of Assurance

☒ Reasonable Level of Assurance

☐ Limited Level of Assurance

The level of assurance of the verification report falls under reasonable assurance engagements. Reasonable assurance is high level of assurance regarding material misstatement, but not an absolute one.

Reasonable assurance includes the understanding that there is a remote likelihood that material misstatement will not be prevented or detected on a timely basis. To achieve reasonable assurance, the auditor needs to obtain sufficient appropriate audit evidence to reduce audit risk to an acceptable low level. This means that there is some uncertainty arising from the use of sampling, since it is possible that a material misstatement will be missed.

The evidence used to achieve a reasonable level of assurance is specified in section 2.3 and 2.4 of this report.

1.4 Summary Description of the Project

This is the first monitoring period for the project “Installation of High Efficiency Wood Burning Cookstoves in Angola - Project 2”. The project activity is a grouped project activity for distribution and installation of high efficiency TLC wood burning stoves for household cooking purpose in Angola. The project activity applies approved baseline and monitoring VCS methodology; VMR0006 version 1.1/7/. The grouped project involves distribution of fuel-efficient improved cook stoves (ICS) in Angola. As per the registered PD/01/ and validation report/04/, the project expects to disseminate 500,000 fuel efficient (ICS) TLC-CQC Rocket stove through 4 years.

The verification team has verified that the ICS distributed under the project is TLC-CQC rocket stove which will reduce the amount of non-renewable biomass used for cooking and emission released associated with the burning of wood. The new efficient ICS stoves will burn more efficiently and will not only help in saving fuel but also will help to prevent deforestation in the host country Angola. Therefore, the project reduces greenhouse gas emissions and thereby contributes to sustainable development.

As per the registered PD, each ICS distributed is considered as project activity instance. The start date of the project activity is 01/09/2021, it is also the date on which first ICS was installed under the project activity. A total of 26,206 stoves were installed under the project by the end of current monitoring period. These project stoves replace the inefficient, conventional 3- stone fire stove in the baseline. The crediting period of the project is from 01/09/2021 to 31/08/2031 (fixed – 10 years). This is the first monitoring period of the project i.e., 01/09/2021 to 30/06/2022 and the total emission reductions achieved under this monitoring period are 38,028 tCO₂e.

Based on the assessment of the documents, the assessment team can confirm that the project activity is fully functional and implemented as described in the registered VCS PD/01/ & MR/2.2/.

2 VERIFICATION PROCESS

The registered VCS project is undergoing first verification under its 10 years fixed crediting period, the approach adopted to ensure the quality of emission reduction is described in the following sections.

2.1 Method and Criteria

The verification approach consists of two phases.

In the first phase, Earthood completed a strategic review and risk assessment of the project activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant.
- Protocols used to estimate or measure GHG emissions from these sources.
- Collection and handling of data.
- Controls on the collection and handling of data.
- Means of verifying reported data.
- Compilation of the verification Report.

At the end of this phase, Earthood produces a verification checklist which is based on the risk assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

In the third phase using the verification checklist, Earthood verified the implementation of the monitoring plan and data presented in the VCS MR for the period in question. The assessment involved the interview of project proponent representative's during the on-site visit and the desk review of the monitoring report along with the supporting documents. The verification report describes the finding of this assessment.

2.2 Document Review

The verification is performed as document review of the registered VCS PD/01/ & MR/2.2/, Validation report/04/ and associated documents as stated in detail in appendix 1 of this document. The cross check between information provided in the monitoring report/2.2/, VCS PD/01/ and information from sources other than those used, if available, the team's sectoral or local expertise and, if necessary, independent background investigations.

2.3 Interviews

The onsite visit for the project location, by the assessment team, was conducted on 14/02/2023 to 16/02/2023 /08/ and the following personnels from PP and IP along with end users were interviewed.

S.No.	Interview	Affiliation	Date	Subject	Team Member
1.	Akhilesh Joshi	Head of Compliance- CQC CSAT	14/02/2023-16/02/2023	Project Design, Start Date and Location, monitoring system, roles, and responsibility, QA/QC procedures, Baseline scenario, criteria and compliance of new instances added, compliance with relevant laws, predicted social and environmental	N Premjit Singh, Arohi Jain, David Kaninda Kabengele (LE)
2.	Dr. Vijaybhai Patel	CQC			
3.	Vanessa Falkowski	CQC Country Head			
4.	Manual Tomas	ADPP (Implementation Partners)			
5.	Paulo Vicente				

6.	Manuel Paulo Simão			impacts of the project, additionality of the project	
7.	Isabel Gorge	End Users Stove 1 ID: CQCVAN0048266 Stove 2 ID: CQCVAN0048267		Operation and usage pattern of stoves Cost charged for the stoves	N Premjit Singh, Arohi Jain, David Kaninda Kabengele (LE)
8.	Maria Nalengue	End Users Stove 1 ID: CQCVAN0046677 Stove 2 ID: CQCVAN0046678		Stoves used before receiving the ICS Fuel used in the previous (old) stoves	
9.	Fatima Lucamba	End Users Stove 1 ID: CQCVAN0045807 Stove 2 ID: CQCVAN0045808		Feedback on the ICS installed and ongoing LSC activities by PP Training and Ongoing support provided by PP for operation of stoves	
10.	Rosa Ngunda	End Users Stove 1 ID: CQCVAN0050241 Stove 2 ID: CQCVAN0050242		Social and Environmental Benefits from the project activity	
11.	Inês Mujiba	End Users Stove 1 ID: CQCVAN0049200 Stove 2 ID: CQCVAN0049201		Verification of operability of project ICS during the year y (Ny,i,j)	
12.	Helena Merta	End Users Stove 1 ID: CQCVAN0046644 Stove 2 ID: CQCVAN0046645		Verification of the quantity of fuel saved by implementation of the project in tonnes per	
13.	Lucas Tchinumba	End Users			

		Stove 1 ID CQCVAN0046519 Stove 2 ID: CQCVAN0046520		device $B_{y=1,new,i,j,survey}$ Awareness about carbon rights transfer associated with the usage of project ICS	
14.	Terésa José	End Users Stove 1 ID: CQCVAN0046591 Stove 2 ID: CQCVAN0046590			
15.	Terésa Juáquim	End Users Stove 1 ID: CQCVAN0047860 Stove 2 ID: CQCVAN0047861			
16.	Domingas Feli	End Users Stove 1 ID: CQCVAN0046667 Stove 2 ID: CQCVAN0046668			
17.	Teresa Muhongo	End Users Stove 1 ID: CQCVAN0047631 Stove 2 ID: CQCVAN0047632			
3.	Antonia Peart	C-Quest Capital Stove Asia Limited	29/07/2024	Robustness of the stove	Shifali Guleria
4.	Adam Leroux	C-Quest Capital Stove Asia Limited	29/07/2024	champion program,	Shifali Guleria
5.	Vijaybhai Patel	C-Quest Capital Stove Asia Limited	29/07/2024	Monitoring system, roles and responsibilities and training Data collection for monitoring data	Shifali Guleria

				Discussion of the new approach for the ER calculation	
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The assessment team conducted an additional remote audit on 15/09/2023 for the verification of the follow- up survey conducted by the PP as corrective action for CL 06 raised by the assessment team. The details for the same are as follows:

S.No.	Interview	Affiliation	Date	Subject	Team
1.	Sanjith Kakkat	CQC	15/09/2023	Discussion about the procedure for conducting the follow-up survey done as corrective action for CL 06.	Arohi Jain, David Kaninda Kabengele (LE)
2.	Varsha Yadav	CQC			
3.	Gaurav Petakar	CQC			
4.	Vanessa Falkowski	CQC Country Director			
5.	Elsa Pedro	CQC Country Manager			
6.	Domingas Feli	End User		Operation and usage pattern of stoves	
7.	Maria Nalengue	End User		Cost charged for the stoves	
8.	Paulino Pedro	End User		Stoves used before receiving the ICS	
9.	Teresa Joaquin	End User		Fuel used in the previous (old) stoves	
10.	Helena Cashica	End User		Feedback on the ICS installed and ongoing LSC activities by PP	
11.	Rufino Mendonça	End User		Training and Ongoing support provided by PP for operation of stoves	
12.	Rosa Ngunda	End User			
13.	Isabel Jorge	End User			
14.	Ines Mujiba	End User			

15.	Elisa Cutunangui	End User		Social and Environmental Benefits from the project activity	
16.	Teresa Morais	End User		Verification of operationality of project ICS during the year y (Ny,i,j) Verification of the methodology applied for determining the quantity of fuel consumed in project ICS, $B_{y=1,new,i,j,survey}$ Awareness about carbon rights transfer	

2.4 Site Visits

As discussed in the above section, physical site inspection was done for verification.

Approach was in accordance with para 4.1.2 of the VCS Standard, version 4.3/05/, the VVB used standard auditing techniques during the verification.

Other than the desk review, the verification team has employed the interviews conducted on-site as means to carry out its assessment and arrive at a reasonable level of assurance. Various aspects of project activity such as project implementation, project boundary, current situation, monitoring procedures were discussed with the PP representative during the onsite interviews.

The main topics covered during the onsite interview are as follows:

- General aspects of the project and its implementation
- Installation and operation of cookstoves since start of the project activity
- Assessment of project scenario and project boundaries
- Authentication of the applicability of the methodology and monitoring and controlling instruments and operational arrangements.
- Analysis of the monitoring provisions by checking the monitoring arrangement.

Sampling approach for the onsite audit:

There are 26,206 ICS installed by end of the current monitoring period and thus for applicable monitoring parameters, the PP has used the CDM Sampling standard “Sampling and Surveys for CDM Project Activities and Programme of Activities” version 09 for determining the sample size to achieve 90/10 confidence precision. A monitoring survey was done by the PP/16/ with consideration of random sample selection. This in accordance with the procedures mentioned in the registered PD.

So, in line with Sampling Standard v09.0/10/ paragraph 26, the assessment team has also applied the Acceptance Sampling approach for the onsite visit as a part of verification to validate the results of the PP’s sampling survey.

The assessment team has applied the acceptance sampling in line para 28-31 of sampling standard v09.0/10/.

- A random sample selection process was chosen from the project proponent’s survey results

- Document review of project information including project design in PD, Monitoring survey details provided by PP, Validation report, previous verification was done and based on its own professional judgement AQL of 0.5 and UQL of 20% was selected. The Producer Risk and Consumer risk are assumed to be 10% each. Acceptance number taken for the sample size is 0. Applying paragraph 39 of the sampling standard, version 09/10/, a sample size of (15 (total) =11 (main) +04 (backup)) households was chosen and randomly selected from the survey data. Acceptance number thus determined for the sample is 0. Though the host country Angola is in the list of the designated LDC by the UN, the assessment team has selected and interviewed 11 selected samples.

The information provided in the sampling sheet has been cross checked with results of interviews. By the means of acceptance sampling, the assessment team could verify that there is no discrepancy in the Sampling/14/ and the sampling records as provided by the PP are acceptable in accordance with the para 33 of the Sampling standard.

The verification team also has carried out remote interviews with representative of PP/8.1/ in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for the Sampling plan/10/.

VVB verification team will be applying standard auditing techniques while verifying the project after assessing the risks of conducting remote audit, as discussed below:

No.	Risk that could lead to unsuccessful on-site visit	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Unavailability of households	Medium	The households in the audit region primarily practice agriculture and may not be available at	In case of unavailability of households, the audit team will opt for interview of the

			the time of visit. Therefore, the risk is medium.	households selected as backup households.
2.	Unverifiable identity of the end-users and Stove IDs	Low	The PP and IP have collected the names, addresses and geo-coordinates of the end-users which have been reported in the project database. Therefore, the end-users will be identifiable through one or all of these data points.	The survey questionnaire will include questions to check and confirm the name, address, geo-coordinates, Stove IDs, pamphlets along with end-user agreements of the end-users to ensure that the correct user is being surveyed. In case of unverifiable Stove ID, the audit team will opt for interview of the households selected as backup households.
3.	Document unavailability	Medium	The PP and IP have collected evidence of registration of stoves and provided pamphlets to support for construction of stoves and customer service access to the end-users.	In case of unverifiable documents leading to incomplete surveys, the audit team will decide based on available information if the survey can be considered complete. If not considered complete, assessment team will opt for interview of the households selected as backup households.
4.	Cultural Barrier	Low	There is a possibility of cultural barriers, and the end users may be uncomfortable with the audit team as the audit team belongs to different region than the end users and there may be different traditions or cultures followed in the	To overcome the challenges faced (if any) due to cultural barriers in the audit region, the audit team is accompanied by the local expert.

			audit regions unknown to the audit team.	
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2.5 Resolution of Findings

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review and interaction with project proponent and their site representative. The verification team prepares and/or updates a verification protocol (internal document) that records the conformities and non-conformities, which may be of following types.

CAR (Corrective Action Request) is raised if one of the following occurs:

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

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Forward action request (FAR) is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

All CARs and CLs raised by the Earthood during verification shall be resolved prior to submitting a request for issuance. All the findings that are raised and communicated to project participant during the verification are included under Appendix 3. The section also includes the response, if provided, by the project proponent and an assessment by the verification team if it was closed out or otherwise.

A total number of 06 CLs, 07 CAR and 00 FARs were raised during the current verification and successfully closed.

2.5.1 Forward Action Requests

The project activity is undergoing first verification in VCS. No FAR was raised during the current monitoring period.

Details for which can be checked from Appendix 3 of this verification report.

2.6 Eligibility for Validation Activities

This section is not applicable for present verification.

3 VALIDATION FINDINGS

Not Applicable.

3.1 Participation under Other GHG Programs

The project is registered under VCS only (VCS ID- 2981).

The PP has submitted the declaration/09/ which states that the net GHG emission reductions generated by the project activity will not be used for compliance with any other emission trading program or to meet binding limits on GHG emissions for the same monitoring period.

Issue 2 under CAR 01 was raised regarding the same and closed as PP substantiated no participation in any other GHG program or scheme.

3.2 Methodology Deviations

There are no methodology deviations observed during the current monitoring period.

3.3 Project Description Deviations

There is no project description deviation identified during current monitoring period.

3.4 Grouped Project

The project activity is a grouped project. It is about distribution of energy efficient stoves for household cooking purpose in Angola. By the end of this monitoring period a total of 26,206 cookstoves have been installed.

Eligibility criteria for all new project activity instances to be added during the crediting period is specified in the section 3.5.15 of VCS standard Version 4.3 and accordingly incorporated in the registered PD. The eligibility of the added PAIs is verified as below:

S.No.	Criterion	Compliance Requirement	Method Evaluation of	VVB Assessment
1	Methodology: Meet the	The project activity instance shall use	All new project activity instances	During the course of validation/4/, the PP has

	applicability conditions set out in the methodology applied to the project	VCS approved methodology-VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1 and shall meet the applicability conditions set out in the methodology.	(TLC-CQC Rocket Stoves) meet the applicability conditions set out in Section 3.2 of the PD, where the end-user is household and the ICS deployed has 34.5% thermal efficiency, which is higher than 25%. Same can be verified from the project database provided to VVB.	justified and the validating VVB has validated that the TLC-CQC Rocket Stoves meets the methodological requirement of at least 25% thermal efficiency and use of woody biomass as fuel /16/. The records for the PAIs / ICS installed have been checked and it is confirmed that all the ICS installed during the monitoring period are TLC-CQC Rocket Stoves. Further beneficiary records /18/, process of beneficiary selection /8.1/ and PAI installation process/22/ have been checked and it is confirmed that project PAIs installed during the current verification are installed in the domestic premises of the households. The geocoordinates of the installations are provided by the PP (monitoring survey results) and some random selected instances were checked. It is confirmed that PAIs installed are in geographical location of Angola only. As confirmed from the manufacturer's specifications (TLC Green and C- Quest Capital) /18/ and project design the stoves does not use the biomass processed residues as a fuel. So, the new added instances are confirmed to be meeting the criteria as defined in the applied methodology/07/.
2	Technology: Use the technologies and measures specified in the project description	The project activity instance shall implement TLC-CQC Rocket Stoves having minimum efficiency of 25%; below which it shall not be eligible under this grouped project.	Only double pot fixed TLC-CQC Rocket stoves have been adopted in the project.	The assessment has checked the installed stove records/17/ and also verified the samples during the onsite visit/8/ through interviews and checking the kitchens of the households that all the stoves used are TLC- CQC Rocket stoves.
3	Baseline Scenario: Are	All new project activity instances will	Baseline scenario and geographical	The assessment team conducted the onsite audit of

	subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	be installed within Angola only and the baseline scenario is the continued use of non-renewable wood fuel by the target population to meet similar thermal energy needs as provided by the project cookstoves in absence of the project activity. This also conforms to the applied methodology.	boundary can be confirmed from registration records cum consent deeds of individual ICS which contains geographical coordinates, address as well as confirmation by end user (stove owner) stating that they were using traditional three stone fire or pot support before the installation of project stove.	11 samples taken in line with 'Sampling and surveys for CDM project activities and programmes of activities' v9.0/10/ and it was confirmed that all the selected project instances are installed in Angola which is the project boundary and the stoves replaced are the same as baseline scenario i.e., 3- stone fire stoves as determined in section 3.3.4 of registered VCS PD. Further, the project proponent has also submitted the registration records /22/ with end-user agreements signed by the beneficiaries prior to the installation of the project cook-stoves for the stoves installed during the current monitoring period. These end- user agreements contain confirmation / declaration from each beneficiary that they were using the conventional three stone fire or traditional open stoves prior to installation of project stove and now they have replaced the traditional 3- stone fire stoves with the project stoves. The consent deeds are checked in samples by the assessment team and details are found to be matching with the claims by the PP. Also, during the onsite audit, the assessment team has interviewed the sampled beneficiaries and each of them has confirmed using the conventional/traditional stoves in the baseline. The same was also cross-checked with the other households (who have not received the project ICS) in the areas of selected samples.
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				The consent deeds also mention the location and address of beneficiaries which confirm the geographical location as selected in PD – Republic of Angola.
4	Additionality: Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	Each project activity instance shall demonstrate its compliance with- 1.Regulatory Surplus: The project should not be mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework. 2. Positive List: The inclusion of new project activity instances shall have to comply with positive list that is the ICS are installed/ distributed at zero cost to end user and the project activity instance has no other source of revenue but GHG credits.	There is no law, statute or government programme or policy in Angola mandating the project activity nor is there any systematically enforced law, statute or other regulatory framework for such projects. Hence this requirement is satisfied for all project activity instances to be included in the current grouped project. Same can be confirmed from the registration cum consent deed signed by each household, where they confirm to voluntarily shifting from traditional three stone fire stove to project stove provided by PP.	The applied methodology uses activity method for the demonstration of additionality, where it can be approved as additional considering positive list of technologies provided the stoves are distributed free of cost. As verified above, the geographical area of the added PAIs is the Republic of Angola. There are no laws and the current applicable regulations, related to cookstove distribution, applicable in the host country Angola. The assessment team has searched the publicly available information and the applicable policies directly from the government of Angola. Further, representatives of the PP and the beneficiaries were also interviewed during the onsite audit. It was confirmed that the distribution of the household cook stoves in the Angola is a regulatory surplus activity. There is no regulation of guidelines which mandates the project proponent to distributes the ICS. Further during the audit of sampling survey, it was checked and confirmed with each beneficiaries the ICS are given to them free of cost and they are not being charged in any terms at the

				time of installation or during the ongoing operation. The sample purchase records/19/ for stoves are also checked to confirm the purchase of stoves by the PP. Thus, PAs added during the monitoring period are confirmed to be complying the additionality requirement as defined in the applied methodology and the registered PD.
5	Occur within one of the designated geographic areas specified in the project description	All new project activity instances will be installed within Angola only.	Project Activity Instance Database containing Geographical Coordinates of each household to which cookstoves are distributed.	The verification team has verified during the onsite visit that the project has been implemented in Republic of Angola which is the same as the project boundary mentioned in the registered VCS-PD/1/. The same has been verified from the geocoordinates mentioned in the project database and monitoring survey/16/ results as well.
6	Ownership: Have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance	A default Beneficiary Agreement for end users including the provision that emission reductions generated by the project activity are owned by the Project Proponent will be provided for project activity instance.	Copy of registration form cum consent deed from end user (Stove owner) to Project Proponents regarding emission reduction claims.	The assessment team has examined the copy of consent letters/ End user agreement/21/ given by end users to project participant regarding emission reduction claims.
7	Start Date	The start date of project activity instance shall be same as or later than the grouped project start date	Project Activity Instance Database containing date of installation of each ICS.	The start date of the project has been verified by the verification team from the end user agreement of the first stove installed under the project. The first ICS under the project has been installed on 01/09/2021 which is same as the start date of the project in the registered VCS PD/1/.

8	Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit	1. The aggregate energy savings by a single project activity shall not exceed the equivalent of 180 GWh_{th}/year as mentioned in the methodology AMS II G: Energy efficiency measures in thermal applications of non-renewable biomass. 2. Each project activity instance that exceeds one percent of the capacity limit (i.e., 1.8 GWh_{th}) shall be identified. 3. Such instances shall be divided into clusters, whereby each cluster is comprised of any system of instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters.	No project activity instance exceeds the applicable limit, which is 180 GWh_{th}/y. The expected annual energy saving for each project activity instance is approximately 0.00953 GWh_{th}/y. or 0.01% of the limit. <i>As the annual energy saving is below 1% of the limit, therefore no project activity instance is identified and divided into clusters.</i>	The registered and validated PD considers the one single ICS as a Project Activity Instance. The initial (highest) efficiency of the project activity cook stove is validated and fixed ex-ante during the validation based on the manufacture's specification. As per the applied methodology, the PP has carried out the survey during the first monitoring period and expected wood saving to be achieved per stove is also determined and fixed in first monitoring period and fixed for the rest of the crediting period. In view of above the expected annual energy saving for each PAI comes to approximately 0.00953 GWh_{th}/y only. Which is 0.01% of the limit. The efficiency of the stove is not expected to increase (or rather it will decrease) and wood (energy) saving per stove to be claimed is also fixed. So, it is concluded that no PAI has crossed or is expected to cross the limit. Further there is also no requirement of the cluster wise determination as instance cross the mark of 1% capacity limit.
9.	Double Counting	The Improved Cookstove distributed under this project shall be uniquely identifiable based on the distribution records	Project Activity Instance Database containing unique serial number of each ICS. Each ICS distributed will have corresponding end	The assessment team has examined the copy of consent letters/ End user agreement/21/ given by end users to project participant regarding emission reduction claims containing corresponding end user

			user (stove owner) details (i.e., name, geographical coordinates, address, unique serial number). The combination of this unique serial number of each ICS along with geographical address of the stove owner confirms the unique identity of each project device.	details (i.e., name, geographical coordinates, unique serial number) and the Project Activity Instance Database/24/ containing unique serial number of each ICS.
10	Target Population	End user for each project activity instance shall be households, with non-renewable biomass on inefficient wood stoves. Each ICS will be assigned a unique serial number with name of ICS user, address, GPS of household, stove model, distribution date, etc	Database/ICS Registration form.	The assessment team reviewed the End user agreement/21/ given by end users to project participant regarding emission reduction claims containing corresponding end user details (i.e., name, geographical coordinates, unique serial number), the Project Activity Instance Database/24/ and through onsite interviews/08/.
11	Crediting period	Be eligible for crediting from the start date of the instance through to the end of the project crediting period (only). Note that where a new project activity instance starts in a previous verification period, no credit may be sought for GHG emission reductions or removals generated during a previous verification period and new instances are eligible for crediting from the	The start date of the instance will be the date, the stove began generating GHG emission reductions or removals. The end of the crediting period of instance will be the end date of project crediting period as mentioned in section 1.6.	In accordance with the supporting document 'Manufacturer specifications'/18/ submitted by the PP the ICS distributed has a lifetime of 10 years. Accordingly, PP has opted for a crediting period of fixed 10 years which is in line with the VCS standards.

		start of the next verification period.		
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4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity involves distribution of energy efficient cookstoves for household cooking purpose in Angola.

The Stoves distributed are TLC-CQC rocket stoves/17/which significantly reduces the fuel usage and emissions while cooking. The working conditions of all the stoves of the monitoring survey were verified during the onsite visit and found to be in operational condition. The assessment team confirms that the stoves are working fine.

The project has installed a total 26,206 cookstoves by the end of the monitoring period. The installation and implementation are in line with the details provided in the registered PD.

By the end of the current monitoring period the implementation status of the project in various provinces of Angola is as follows:

Province	No. of stoves installed
Benguela	20,450
Cuanza Sul	330
Malanje	5,426
Total no. of stoves by the end of this monitoring period (01/09/2021- 30/06/2022)	26,206

The project proponent for the project activity is C-Quest Capital SG Angola Stoves Private Limited who owns the rights to VERs. The assessment team has interviewed the end-users during the onsite audit and confirmed that project has been implemented as planned and as mentioned in the VCS- PD/01/, the records available and the survey samples. The assessment team also checked the sample calculations as per the “Sampling and Survey for CDM Project Activities and Program Activities” Version 09.0/10/ and found to be consistent for the current monitoring period. It has been confirmed that the project has not received any other form of environmental credit. The project has been implemented as described in the registered VCS PD/01/ and no discrepancy was identified between the project implementation and the project description. The data and variables provided in the monitoring report are same as stated in the approved PD/01/. PP has submitted a monitoring survey sheet/16/ as well and its monitoring survey records/16/ where 68 household samples were surveyed and found that all the stoves were in proper working

condition. The verification team has determined 11 samples from the PP's monitoring survey as per "Sampling and Survey for CDM Project Activities and Program Activities" Version 09.0 for interviews during the on-site visit. It was cross-checked during the on-site visit that all the selected project ICS are in working condition and the consumption of fuelwood in the project stoves has reduced significantly as compared to the traditional 3-stone fire stoves and none of the project ICS users are using traditional baseline stoves after the project implementation which the assessment team confirmed by checking the kitchen areas of the households.

However, to be conservative, PP has now applied a cap to the stoves in operation of 90%. The value has also been cross-checked with the secondary database/27/ as provided by the PP, where the stoves operability rate is 91.70% in Sub-Saharan Africa. The dataset consists of other registered projects in Sub-Saharan Africa, and the stove operability rate. This secondary data was compared against the respective GHG program registries for each project and data was found to be consistently reported. In absence of country specific data, this approach has been accepted to estimate the expected cookstoves operability and subsequently, a capping of 90% has been adopted by the PP, which follows the principle of conservativeness.

Based on VVB's experience with several projects in the Sub-Saharan African region, the application of 90% usage rate for initial monitoring periods is reasonable. This is also reflected by the several projects reviewed which present higher than 90% usage rate in the first monitoring period. Consequently, this revised value (90% usage rate) is considered acceptable,

The verification team also confirms through the on-site visit that PP has conducted regular spot checks /26/ to check the status of ICSs as mentioned in the MR/2.2/ and registered VCS PD/01/. Further, the procedures used by PP to address the concerns regarding the replacement of the part damaged or broken parts were checked and confirmed during the onsite visit/8/ through interviews with the beneficiaries. All the beneficiaries confirmed that they have been given training on how to use the stoves during the installation and are also aware of the procedures/contact details to the PP/Implementation Partner in case of any stove is damaged or broken. In such case the PP/IP guides them on re-build or replaces the necessary parts if needed. This is the first verification and the total emission reductions achieved under this monitoring period i.e., from 01/09/2021 to 30/06/2022 are 38,028 tCO₂e.

Assessment team concludes the following:

- There are no material discrepancies between project implementation and the project description provided in the registered PD/01/.
- The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling, and analysing the monitored data and parameters) is appropriate.
- There are no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description/01/ and the applied methodology/07/.
- All the ex-ante parameters which are used in the calculations of the emission reductions are consistent with the VCS PD/01/.

- The GHG emission reductions or removals generated by the project have not included in another emission trading program or any other mechanisms that includes GHG allowance trading/09/.
- The project has not received or sought any other form of environmental credit or has become eligible to do so since validation/04/.
- The project activity is registered under VERRA only.

In the view of the information's verified above the assessment team is of the opinion that the project has been implemented as described in the project description.

CL#01 was raised for submission of various supporting documents related to the project status and verification. The CL#01 was successfully closed.

Consideration of materiality in planning the verification:

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Erroneous transfer of information from primary monitoring survey records to monitoring survey and calculation sheets	Low	The number of samples covered during the monitoring are 68 and therefore, a relatively manageable dataset quantitatively, thus reducing the risk of overall systematic or systemic errors in data transfer. Therefore, the risk is low.	On a sampling basis, the records are being checked with the information from monitoring survey sheets and substantiated by on-site observations. The familiarity of the project representatives with the survey records is also checked.
2.	Erroneous consideration of technical specifications of CEPs	Low	The technical specifications are provided by manufacturer	Technical specifications of each model will be checked against the document issued by manufacturer.

3.	Observational error by monitoring survey staff of project implementer while recording the responses of users for survey parameters	Medium	Most of the monitored parameters are recorded through survey questionnaires or monitoring equipment. Therefore, risk of obtaining an inaccurate data is medium. Discrepancies are to be dealt with as per the acceptance sampling approach.	If the aggregated materiality threshold stays within the prescribed materiality threshold, no additional effort is required. However, if the aggregated materiality threshold is above the prescribed threshold, additional samples are to be inspected. If additional sampling is not able to reduce the materiality threshold to a reasonable level of assurance, the monitoring result by the project implementer for that parameter is to be discarded. Trainings of surveyors will also be reviewed to check the QA/QC procedures for obtaining accurate values.
4.	Calculation and referencing errors in ER sheet	Low	Due to presence of multiple calculation tabs in the ER calculation sheet, referencing errors within the ER sheet may occur due to the amount of data. However, since most of the calculations are repetitive and automated using Excel formulae, the calculations are easily verifiable. Therefore, the risk is low.	All calculations and referencing will be checked by verification team with respect to applicable requirements under various documents viz., methodology, registered PD, etc.

4.2 Safeguards

4.2.1 No Net Harm

The project activity does not involve any negative environmental or socio-economic impacts, as the project activity involves distribution of energy efficient improved cookstoves, which requires less amount of fuel compared to the open fire stoves. Hence, no mitigation measure is required.

4.2.2 Local Stakeholder Consultation

The project activity is undergoing first verification and local stakeholder consultation was appropriately conducted prior to validation as the way of informing the stakeholders about the project design and maximise participation from stakeholders.

The verification team has also confirmed during the onsite site visit that the PP has conducted regular spot checks to check the status of improved cookstoves distributed. Further, the information regarding the procedure for replacement of damaged or missing parts was also checked.

It was confirmed during the onsite visit/8/ that PP has a robust grievance mechanism and a proper ongoing communication with stakeholders and no negative feedback were received from the end users, for the current monitoring period. In case of any support or if replacement of any stove part is required, the stove users can contact the PP/ local implementation partner. The contact details for the same, were shared during the time of installation. In case of any feedback the beneficiaries are able to contact the site team / representative of the PP/IP and register their grievance.

4.3 AFOLU-Specific Safeguards

Not applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The assessment team has reviewed the monitoring plan and found out that the monitoring of GHG emission reduction from the project activity was implemented in accordance with the registered PD/01/. The monitoring plan has been implemented as per the applied methodology and all parameter in the monitoring plan had been sufficiently monitored as per the applied methodology VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1/07/.

Data and parameters monitored:

1. Number of project devices of type l and batch j operational during year y , $N_{y,l,j}$

Means of verification	Criteria/ Requirements	Assessment/Observation
	Measuring/ Reading /Recording frequency	As per the applied methodology and the registered Project Description, the parameter is required to be recorded once every two years. However, the PP conducts the monitoring survey annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes/No)	Yes, measuring and reporting frequency is in accordance with monitoring plan and methodology.
	Monitored Value	23,585
	Monitoring equipment	No equipment was used for the monitoring
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specifications?	NA
	Calibration Frequency/ interval	There is no calibration required since the value is obtained from installation database.
	How are the values in the monitoring report verified?	The value of the parameter recorded as 23,585 operational stoves. The proportion of operational cookstoves was initially monitored through annual monitoring surveys by the project developer and reported 100% operability. The verification team cross-checked this parameter by applying acceptance sampling across the monitored samples database. Since all stoves were found

		operational during the acceptance sampling and the site observations were consistent with the monitoring data, the monitoring survey were accepted. However internal investigation by PP's management later revealed new information regarding the monitoring surveys, indicating uncertainty in the accuracy of data provided since the representatives of the population was compromised. Therefore, the results from monitoring surveys are now discarded. As an alternative, the secondary data/27/ of other projects is used. The secondary data contains of the operability rate of the similar cookstoves projects in the Sub-Saharan African region. In total of 77 projects were considered and as per the secondary dataset of other projects, average percentage of stoves in operation were 91.70%./29/. Based on the principle of conservativeness and assessment team's experience in the region with similar projects, the PP's consideration for number of stoves in operation as 90% has been accepted. Proportion of operational stoves: 90% $N_{y,i,j} = 90\% \times 26,206$ $=23,585$ This approach was found to conservative and appropriate by the assessment team. The VVB confirms that the value reported in the MR is consistent with the value reported in the ER sheet, and the secondary data provided by
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		the PP. Additionally, these values used for the calculation of the average operationality rate in the secondary database were cross-checked with publicly available reports on the registry webpages and were found to be consistent with the registered projects.
	If applicable, has the reported data been crosschecked with other available data?	Yes, the reported data in MR has been compared with monitoring survey records/16/ and ER sheet/03/. Further results were verified through acceptance sampling of the monitoring survey. Based on new information provided by PP. The value is now cross-checked with the secondary database data/27/ as provided by the PP, where the stove operationality rate o Sub-Sharan Africa region is 91.70%. Additionally, PP has applied a cap on the stove operationality of 90%. Based on the principle of conservativeness, the lowest value of the parameter obtained from sources discussed above has been determined as 90%, which is found to be an acceptable approach.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensure correct transfer of data and reporting of emission reduction and all necessary QA/QC processes are in place.
Findings	CL 04 and CAR 03 were raised and closed successfully.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to	

	be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. The verification team is able to confirm that the project is implemented as per the registered PD and there is no discrepancy observed between the actual monitoring system and the monitoring plan set out in the registered PD and the applied methodology. The emission reduction calculation for the project activity is estimated based on the biomass saved by the ICS. The data has been verified from PP's monitoring survey submitted to the verification team. Further, it was cross-checked by applying acceptance sampling based on "Sampling and surveys for CDM project activities and programmes of activities", v9.0/10/ and determining 11 households as samples for interviews during the on-site visit. Based on the observations, the team can ascertain that the values taken for emission reduction calculation are free from material errors. Since operation rate of 90% has been considered as the most conservative approach as discussed above, it has been accepted by the assessment team.
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2. Efficiency of the improved cookstove type i and batch j during year y, $\eta_{new,i,y}$

Means of verification		
	Criteria / Requirement	Assessment/ Observation
	Measuring / Reading / Recording frequency	The parameter is measured and recorded during validation and thereafter calculated annually.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes/ No)	Yes, measuring/calculating and reporting frequency is in accordance with monitoring plan and methodology.
	Monitoring Equipment	The value has been calculated.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/ national standards, as per the manufacturer's specification?	NA

	Calibration frequency/ interval:	NA				
	How were the values in the monitoring report verified?	The Efficiency of cookstoves is defined as per the vintage year of operation as defined in the applied methodology and registered PD/01/. The value for the first year is considered based on the manufacturer's specification/18/. The registered PD defines, the efficiency of the improved cookstoves with estimation of loss in efficiency per year using equation 5 of the applied methodology. So, the efficiency of the stoves is checked and verified as <table><tr><td>Year</td><td>$\eta_{new,y,i,j}$</td></tr><tr><td>1</td><td>32.43%</td></tr></table>	Year	$\eta_{new,y,i,j}$	1	32.43%
	Year	$\eta_{new,y,i,j}$				
	1	32.43%				
If applicable, has the reported data been cross checked with other available data?	The reported data is cross checked with Manufacturer's specification/18/, registered PD/01/ and calculation provided in the ER sheet/03/ for yearly loss.					
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC process in place?	This is a calculated parameter and transfer of data, calculation and reporting in ER calculation is correct.					
Findings	No findings were raised.					
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. The verification team is able to confirm that the project is implemented as per the registered PD and there is no discrepancy observed between the actual					

	monitoring system and the monitoring plan set out in the registered PD and the applied methodology. The emission reduction calculation for the project activity is estimated based on the biomass saved by the ICS. Since 100% data was verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors.
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3. Annual quantity of woody biomass used by improved cookstoves in tonnes per device of type i and batch j, $B_{y=1,new,i,j,survey}$

Means of verification		
	Criteria/ Requirements	Assessment/ Observation
	Measuring/ Reading / Recording frequency	The value is monitored in the first year of the project implementation and after that fixed for the crediting period.
	Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes/ No)	Yes, measuring and reporting frequency is in accordance with monitoring plan and methodology.
	Monitoring Equipment	In accordance with the applied methodology and validated registered PD, the parameter is determined during the first verification and fixed for the remaining crediting period. A weighing scale was used to measure the amount of wood being used by the cookstove during the current monitoring period. The details regarding the calibration were checked from calibration certificates and the user manuals/11/.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment, does the accuracy of	The assessment team has verified the values used in the current Monitoring Period and subsequent calculation for the same.

	the monitoring equipment comply with local/ national standards, or as per the manufacture's specification?	
	Calibration Frequency/ interval:	In accordance with the applied methodology and validated registered PD, the parameter is determined during the first verification and fixed for the remaining crediting period. The assessment team:Has verified sampling and calculation sheet of MP1/23/ for determination of wood consumption for checking the consistency of values used. Confirms it was demonstrated that the consumption of biomass for individual project stoves can be measured exclusive of one another (for two pot stoves)
	How were the values in the monitoring report verified?	The value of the parameter is 0.9811 ton/device/year . The value has been calculated inline with sampling standard "sampling and surveys for CDM project activities and programme of activities" version 9 and Sampling based survey (questionnaire survey/interviews) Interview with end user and estimate the daily consumption of woody biomass of ICS (Daily consumption of woody biomass). It was observed by the assessment team that the methodology used for the determination of this parameter is based on end user's judgement. The assessment team raised CL 06 in view of same, as a corrective action for CL 06, the PP conducted a follow- up survey in which the field enumerators

		provided measured bundles of fuelwood to the end users for each stove separately on the first day and visited them again the next day at almost same time to measure the left-over fuelwood. To determine the fuel consumption in the project ICS, the leftover fuel wood quantity is subtracted from the quantity of fuelwood in the measured bundle provided to the end users. The assessment conducted a follow- up remote audit for the verification of the follow- up survey, the details of which are mentioned under section 2.3 of this report. However, in the result of the follow-up survey, it was found that the fuel consumption in the project ICS is higher than the previous survey results, which will result in higher ERs. The PP has decided to apply the value from the previous survey as a conservative approach which according to the assessment team is the most suitable for this grouped project activity. This parameter value has been further revised based on the new data submitted by PP's operations team. PP clarified that through internal investigations in the company, it was revealed that inaccurate data for this parameter had been reported during the initial verification. The actual survey records which were recorded by PP operations team revealed the mean wood fuel usage per day in a household as 3.07kg. The sampling approach applied by the PP for this new data is in line with the registered VCS-PD where the reliability levels
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		were set at 90% confidence and 10% precision as per VMR0006, version 1.1. As the achieved precision level for the parameter is 12.47% as confirmed from the reliability calculation sheet/28/ provided by the PP, lower bound value of 2.688kg/day as been used as fuel consumption for the project devices for ER estimates. The credibility of the on-ground operations data is confirmed by the VVB from the declaration letter provided by the PP dated 22/09/2024, issued by Milbank LLB, an international law firm assisting PP in the investigation of matters related to the misstatement of carbon credits. This declaration endorses the accuracy and completeness of the <i>by.new,lj,survey</i> data provided by the PP's operations team, which was considered acceptable for this assessment.
	If applicable, has the reported data been cross checked with other available data?	NA, since this is first verification.
	Does the data management ensure correct transfer of data and reporting of emission reduction and are necessary QA/QC processes in place?	Yes, the data ensure correct transfer of data and reporting of emission reductions management. QA/ QC processes are in place.
Findings	CL 04 and CL06 were raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. The verification team is able to confirm that the project is implemented as per the registered PD and there is no discrepancy observed between the actual	

	monitoring system and the monitoring plan set out in the registered PD and the applied methodology. The emission reduction calculation for the project activity is estimated based on the biomass saved by the ICS. Since 100% data was verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors.
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4. The operating lifetime of the project device, Life span

Means of verification		
	Criteria/ Requirement	Assessment/ Observation
	Measuring/ Reading/ Recording frequency	The parameter was calculated once at the beginning of project improved cookstove installation.
	Is the measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes/ No)	Yes, measuring and reporting frequency is in accordance with monitoring plan and methodology.
	Monitoring Equipment	The value is measured based on the manufacturing specification/18/. So, there is no monitoring equipment.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/ national standards, or as per the manufacture's specification?	NA
	Calibration Frequency/ interval:	NA
	How were the values in the monitoring report verified?	The value monitored is 10. The value used has been verified from the manufacturing

		specifications/18/ of the improved cookstoves and from the registered VCS PD/01/ and validation report/04/.
	If applicable, has the reported data been cross checked with other available data?	Cross checked with previous validation report and manufacturing specifications/18/
	Does the data management ensure correct transfer of data and reporting of emission reduction and are necessary QA/QC processes in place?	Yes, the data ensures correct transfer of data and reporting of emission reductions management. QA/ QC processes are in place.
Findings	CL 02 was raised and resolved.	
Conclusion	This parameter has been verified from manufacturer's specifications provided by the PP. The emission reduction calculation for the project activity is estimated based on the biomass saved by the ICS. Since 100% data was verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors.	

The details of the parameters fixed at the beginning of the project are given below:

Ex- ante parameters:

Parameter	Value	Unit	Assessment
$f_{NRB,y}$	0.72	Fraction	The fraction of woody biomass saved is calculated by C4 Eco solutions in line with applicable methodological CDM Tool 30, version 3.0. The value has been checked with the registered PD/01/ and is found consistently reported and used during the current monitoring period.
$NCV_{wood\ fuel}$	0.0156	TJ/tonne	The value used for Net calorific value of the non-renewable woody biomass is a default value from the 2006 IPCC Guidelines. The value has been checked with the registered PD/01/ and is found consistently reported and

			used during the current monitoring period.
EF_{wf,CO_2}	112	tCO ₂ /TJ	The value taken for CO ₂ emission factor for the use of wood is a Default value from 2006 IPCC guidelines. The value has been checked with the registered PD/01/ and is found consistently reported and used during the current monitoring period.
$EF_{wf,non\ CO_2}$	26.23	tCO ₂ /TJ	The value used for non-CO ₂ emission factor for the use of wood fuel is taken from 2006 IPCC Guidelines. The value has been checked with the registered PD/01/ and is found consistently reported and used during the current monitoring period.
η_{old}	0.1	Fraction	The value for efficiency of baseline cookstove is taken from default methodology/07/ used. The value has been checked with the registered PD/01/ and is found consistently reported and used during the current monitoring period.
η_p	0.345	Fraction	The value for efficiency of project stove is taken from the manufacturer's specification/18/. The value has been checked with the registered /01/ and is found consistently reported and used during the current monitoring period.

Sampling approach:

By the end of current monitoring period, the project activity has installed 26,206 number of the ICS / PAIs. For as defined in the registered PDD, the PP has applied sampling approach for measurement and determination of the parameter $N_{y,i,j}$ (i.e. Number of ICS installed and operating till the end of the current monitoring period - "Number of project devices of type i and batch j operational during year y,) and $B_{y=1,new,i,j,survey}$ (i.e., Annual quantity of woody biomass used by improved cookstoves in tonnes per device of type i and batch j).

The sampling approach was checked and verified by the assessment team as below.

Determination of the Sample Size:

Emission reductions for the grouped project activity is being claimed for this monitoring period i.e., 01/09/2021 to 30/06/2022 with total number of installed stoves being 26,206. In line with the VCS PD/01/ and applied methodology VMR0006 version 1.1/07/, the PP has calculated the sample size considering the confidence level of 90% and precision 10% with simple random sampling technique. In doing so, it has considered an expected proportion (p) of 0.85, which is a conservative approach as compared to normal range of 90%. This calculation gives a sample size of 68. The formula used for the calculation of sample size is:

$$n \geq \frac{1.645^2 N \times p \times (1 - p)}{(N - 1) \times 0.1^2 \times p^2 + 1.645^2 p \times (1 - p)}$$

Where:

n = Sample size

N = Population size

p = Expected proportion, 0.85

1.645 = Represents the 90% confidence required

0.1 = Represents the 10% relative precision

$$n \geq \frac{1.645^2 \times 26,206 \times 0.85(1 - 0.85)}{(26,206 - 1) \times 0.1^2 \times 0.85^2 + 1.645^2 \times 0.85(1 - 0.85)} = 47.68$$

For estimating the sample size for the quantity of woody biomass used by the improved cookstoves, PP has considered the expected mean to be 2 and expected standard deviation to be 1.

$$n \geq \frac{1.645^2 NV}{(N - 1) \times 0.1^2 + 1.645^2 V}$$

Where:

$V = (SD/m)^2$

n = Sample size

N = Population size (Total number of households/ICS)

m = Expected mean

SD = Expected standard deviation

1.645 = Represents the 90% confidence required

0.1 = Represents the 10% relative precision

$$\frac{1.645^2 \times 26,206 \times \left(\frac{1}{2}\right)^2}{(26,206 - 1) \times 0.1^2 + 1.645^2 \times \left(\frac{1}{2}\right)^2} = 67.49$$

As sampling units for parameters $N_{y,i,j}$ and $B_{y=1,new,i,survey}$ are the same, a single survey was conducted for these two parameters, choosing the parameter with the biggest sample size. Therefore, 68 samples were covered by the PP.

As under this project activity two stoves have been distributed in each household with a single beneficiary per household, the survey is conducted considering the beneficiary/household as a sample in place of stove. This is more appropriate approach as it widens the range of survey and stove numbers. Thus, a total of 68 households were surveyed by the PP.

Selection of Samples for Survey:

The PP has used the random selection technique for the selection of the samples. A random auto-number generator has been used and based on the same samples were selected.

The process for selection of random numbers, screenshots of the process /17/ and generated numbers are submitted by the PP and checked. Out of total beneficiaries 68 samples are randomly selected and further used for monitoring survey purpose.

The verification team has accessed the screenshots of random numbers /17/ generated during selection and matched it with the monitoring survey results/16/. It is found and concluded that the PP has used as robust and accurate mechanism for selection samples and all the samples selected for the survey are randomly selected.

Conduction of Monitoring Survey:

Selected sample details are conveyed to the field team, which has visited each sample householder and collected the details.

The assessment team has interviewed the person involved in the monitoring survey/16/ and has also witnessed the demonstration of the step-by-step collection of the information during the survey. The verified details of the survey process are as below:

A special mobile application prepared by the PP for survey is used, in which the surveyors receive the question to be asked and details to be verified during the survey. This was assessed by the assessment team during the onsite audit while interviewing the field team/8/.

The surveyor takes the feedback from beneficiaries, checks operating condition of the stoves, and upload the details along with the details and photograph of the respondent/beneficiaries.

The GPS coordinates of location during the survey are also noted down and survey results do not get submitted without GPS results.

The conducted survey forms are submitted by the PP from their server and checked by the verification team for details including photograph and GPS locations of the beneficiaries.

Thus, the assessment team is of the opinion that the PP has established and followed as well robust and accurate procedure for conducting survey. The integrity and correctness of the survey data is reasonably assured.

The sampling surveys have been carried out by the well-trained personnel. Some of them were interviewed by the team during audit as details provided under section 2.3.

Analysis of Results

The parameters that were monitored during the survey are:

- $N_{y,l,j}$: number of project devices operational during year y .
- $B_{y=1,new,l,j,survey}$: quantity of woody biomass used by the improved cookstoves

The parameters were surveyed by a questionnaire and visually inspecting the operational status of ICS installed. End users' interview was also conducted during survey to confirm the operational status.

The table summarizes the Sampling results:

Monitored Parameter	Sample size	Actual Samples surveyed (each household has 2 ICS)	ICS found operational	Precision achieved	Means of verification
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Ny,j,j	68	136	100	0.00%	During the initial monitoring of the PA, 136 samples were surveyed by the PP and the achieved precision was 0%. However, the secondary database /27/ reflects that the operational percentage of stoves from other Sub-Saharan projects includes usage data for cookstoves in those regions. An average usage rate of 91.70% has been applied for this Monitoring Period (MP). The database reflects the weighted average of stove operations across various Sub-Saharan African countries, including Kenya, Malawi, Uganda, and others. Additionally, these values used for the calculation of the average operability rate in the secondary database were cross-checked with publicly available reports on the registry webpages and were found to be consistent with the registered projects. The sampling approach applied by the PP is in line with the registered VCS-PD where the reliability levels were set at 90%
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					confidence and 10% precision as per VMR0006, version 1.1. The achieved precision level for the parameter is 5.12% as confirmed by the VVB from the reliability calculation sheet/28/ provided by the PP.
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By=1,new,l,j,survey	68	136	3.07 kg/stove/day	12.47%	The precision calculation has been verified through a review of reliability calculation sheet/28/ provided by the PP. The data has been cross-checked for consistency and accuracy with the applied methodology. However, a precision test was conducted on these survey results and precision was found to exceed the 10% threshold. The lower bound value of the confidence interval for this parameter has been considered (2.688 kg/day). The approach is in line with para 18 (b) (i) of the CDM Standard for sampling and surveys for project activities and programme of activities version 9.0 and therefore, accepted by the assessment team. Hence, VVB concluded that the version incorporates the verification process and emphasizes the adherence to applied Methodology & registered VCS PD.
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Proportion of operational stoves obtained from the survey is multiplied by the total commissioned stoves to arrive at this value. Since proportion of operational stoves is found 100%, and after taking a conservative approach PP has considered 90% operationality rate.

The quantity of woody biomass used by the project stoves as obtained from the surveys is 3.07 kg/stove/day.. The sampling approach applied by the PP is in line with the registered VCS-PD where the reliability levels were set at 90% confidence and 10% precision as per VMR0006, version 1.1. As the achieved precision level for the parameter is 12.47% as confirmed from the reliability calculation sheet/28/ provided by the PP, lower bound value of 2.688kg/day as been used as fuel consumption for the project devices for ER estimates.

Verification of the Sampling survey by the Assessment team

- The assessment team has checked and verified the ICS installation records as provided by the PP and total number of installed stoves are verified as 26,206 and 23,585 operational stoves. Thus, the PP has correctly considered the population size N in determination of sample size.
- The registered PD mentions the 90/10 confidence/precision ration for sample determination and the same has been correctly applied.
- The expected proposal is considered as 0.85. Based on experience and professional judgement, the assessment team feels is reasonably conservative estimate by the PP in selection of sample size.
- The sample survey questions used, and survey process is robust and is able to provide the result for determination of operational stove from the selected samples.
- The monitoring survey has been carried out by the well-trained personnel. Monitoring parameters $N_{y,j,j}$ is monitored through monitoring sample surveys. Verification team has checked the survey records and sample size calculation and it is found to in line with the applied methodology and registered PD.
- The assessment team used the acceptance sampling approach and a sample size of 11 was determined, based on 0.5% Acceptable quality level and 20% unacceptable quality level with 10% of producer risk and 10% of consumer risk in line with para 30 and 31 of “Sampling and surveys for CDM projects activities and programmes of activities” version 09.0/10/ respectively. Thus, the acceptance number taken by the assessment team is 0.
- 11 samples from the survey data were randomly selected and communicated to the PP for audit. PP had arranged an onsite audit for the interviews of the samples. All 11 samples were checked and verified by the team.
- The survey results provided by PP were crosschecked during the onsite visits of the samples, installation date, monitoring survey date, condition and operating of the stove for all 11 beneficiaries were checked and verified by the assessment team.

- Assessment team interviewed all 11 samples, and as two stoves were distributed in each household, the operational status of the stoves was checked. it was observed that all the 22 stoves were operational and hence, no discrepant records were observed with the survey data of the PP.

Furthermore, the emission reductions have been calculated in accordance with the applied methodology VMR0006 version 1.1/07/ and VCS PD/01/. The PP has used the monitoring data and ex-ante fixed data including default values as mentioned in VCS PD and applied methodology. The values used for calculation of GHG emission reductions have been thoroughly checked by the verification team and is found to be appropriate and correct.

Emission reduction calculations:

Leakage Emissions: Leakage is considered as 0.95, which is default value in accordance with VMR0006 version 1.1/07/.

The project activity is about the replacing the traditional three stone fire pot with the improved energy efficient rocket stoves. Therefore, equations 1 and 2 from the applied methodology is used in calculation of net GHG emissions.

Equation 1.

$$ER_y = \sum_i \sum_j ER_{y,i,j}$$

Where,

i = Indices for the situation where more than one type/model of improved cookstove is introduced to replace three-stone fire.

J = Indices for the situation where there is more than one batch of improved cookstoves of type i

ER_y = Emission reduction during year y in tCO₂e

ER_{y,i,j} = Emission reduction by improved cookstove of type i and batch j during year y in tCO₂e

Equation 2:

$$ER_{y,i,j} = B_{y,saving,i,j} \times NCV_{wood\ fuel} \times f_{NRB,y} \times (EF_{wf,CO2} + EF_{wf,non\ CO2}) \times N_{y,i,j} \times 0.95$$

Where,

B_{y,saving,i,j} = Quantitly of woody biomass that is saved in tonnes per improved cookstove of type i and batch j during year y

$f_{NRB,y}$ = Fraction of woody biomass saved by the project activity in year y that can be established as a non-renewable biomass

$NCV_{wood\ fuel}$ = Net calorific value of non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne)

EF_{wf,CO_2} = CO_2 emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 t CO_2 /TJ)

$EF_{wf,non\ CO_2}$ = Non- CO_2 emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 t CO_2 /TJ)

$N_{y,i,j}$ = Number of improved cookstoves of type i and batch j operating during year y

0.95 = Discount factor to account for leakage

Now, to calculate the $B_{y,saving,i,j}$, we will be using equation 4 of the applied methodology

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

Where,

$B_{y=1,new,i,survey}$ = Annual quantity of woody biomass used by improved cookstove in tonnes, determined in the first year of the implementation of the project through a sample survey.

η_{old} = Efficiency of baseline cookstove. A default value of 0.10 has been used as the replaced is a three stone fire, with no improved combustion.

$\eta_{new,i,j}$ = Efficiency of the improved cookstove determined using Equation 5 of the methodology.

$$\eta_{new,i,y} = \eta_p \times (DF_n)^{y-1} \times 0.94$$

η_p = efficiency of project stove (fraction) at the start of project activity

$(DF_n)^{y-1}$ = Discount factor to account for efficiency loss of project cook stoves per year of operation (fraction). Default value is 0.99 efficiency loss per year has considered.

0.94 = Adjustment factor to account for uncertainty related to project stove

Therefore,

For year 2021

Installation date: 01/09/2021

Vintage 1: 122 days (01/09/2021 to 31/12/2021)

Year Fraction: 122/365:033

$$B_{y=1,new,i,survey} = 0.9811$$

$$\eta_{new,i,y} = 0.345 \times (0.99)^{1-1} \times 0.94 = 0.3243$$

$$B_{y,saving,i,j} = 0.9811 \times ((0.3243/0.1) - 1) = 2.2007$$

$$ER_{y,i,j} = 2.2007 \times 0.0156 \times 0.72 \times (112 + 26.23) \times 0.90 \times 0.95 \times 0.33 = 0.9640 \text{ tCO}_2\text{e}$$

Similarly for the year 2022,

For year 2022, vintage for the stove: Vintage 1

No. of days for year 2022: 181 (from 01 January 2022 to 30 June 2022)

Year fraction: 181/365 = 0.50

$$B_{y=1,new,i,j,survey} = 0.9811$$

$$\eta_{new,y,i,j} = 0.3243$$

$$B_{y,saving,i,j} = 0.9811 \times ((0.3243/0.1) - 1) = 2.2007$$

$$ER_{y,i,j} = 2.8982 \times 0.0156 \times 0.72 \times (112 + 26.23) \times 0.90 \times 0.95 \times 0.50 = 1.460 \text{ tCO}_2\text{e}$$

Verification team confirms that all the parameters are correctly used in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and calculations are done in accordance with the pre-defined formulae from registered VCS PD. The total number of emission reductions for the monitoring period (01/09/2021 to 30/06/2022) is 38,028 tCO₂e.

The verification team has checked and confirmed the calculations in the calculation sheet and found to be accurate. The monitoring report is supposed by emission reduction spreadsheet. The consistency and formula were verified and found to be accurate.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The assessment team confirms that the calculation and data is authentic. The quality of supporting documents submitted for verification are adequate. The assessment team has checked the quality and maintenance of the supporting documents during the onsite visit to confirm the authenticity of the documents and to check the appropriate calculations. The assessment team confirms that the proper evidence is available for the entire monitoring period and the same is verifiable and the data collection system meets the requirement of the monitoring plan and the applied methodology according to the assessment carried out.

The assessment team confirms the quality of evidence to determine the GHG reductions are satisfactory and the detailed information regarding the roles and responsibilities have been provided in the monitoring report.

4.6 Non-Permanence Risk Analysis

Not applicable for the project activity.

5 VERIFICATION OPINION

Earthood Services Private Limited (Earthood) was contracted by C- Quest Capital SG Angola Stoves Private Limited and has performed the independent verification of the emission reductions for the VCS project activity (VCS ID- 2981) “Installation of High Efficiency Wood Burning Cookstoves in Angola - Project 2” in Angola for the monitoring period 01/09/2021 to 30/06/2022 as reported in MR version 2.2 dated 09/09/2024. The C-Quest Capital SG Angola Stoves Private Limited is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emission reductions from the project activity.

It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity. Earthood commenced the verification based on the baseline, monitoring methodology VMR0006 version 1.1 and, the monitoring plan mentioned in the registered VCS PD.

Earthood’s verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned and performed the verification by obtaining evidence and other information and explanations that Earthood considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emission reductions reported for the project activity for the period 01/09/2021 to 30/06/2022 are fairly stated in the Monitoring report version 2.2 dated 09/09/2024. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology VMR0006., Version 1.1 and the VCS standard, version 4.3 and ISO 14064-3.

Verification period: From 01-09-2021 to 30-06-2022

Verified GHG emission reductions and removals in the above verification period, broken down by calendar year:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 1 (01-09-2021 – 31-12-2021)	6,101	0	0	6,101
Year 2 (01-01-2022 – 30-06-2022)	31,927	0	0	31,927
Total	38,028	0	0	38,028

Year	Ex-ante emissions reductions/removals	Achieved emissions reductions/removals	Percent difference	Justification for the difference
MP 1 (303 days) (01-09-2021 – 30-06-2022)	60,161	38,028	-36.79%	The actual achieved emission reductions are lower than the ex-ante emission reductions due to the assumption that all cookstoves would be operational for 365 days starting from the project's initiation. However, the operational duration of the cookstoves depends on their installation date.

2022)				
Total	60,161	38,028	- 36.79%	The stoves were distributed towards the end of 2021, and the ex-ante emission reductions were calculated assuming that all stoves were operational from day one. However, due to variations in the actual operational days of the stoves, the achieved emission reductions (ERs) were lower than anticipated. Additionally, the lower-than-estimated value of the parameter $B_{y,new,I,survey}$ further contributed to the reduction in ERs, as verified through survey results. Therefore, the explanation provided by the PP is considered valid and appropriate.

Approved by



Dr. Kaviraj Singh

Managing Director

Earthood Services Private Limited

Date: 04/10/2024

Place: Gurgaon, Haryana

APPENDIX 1: DOCUMENT REFERENCES

S. No.	Title of Document	Version	Date
1.	Registered PD for the project activity Available at Verra registry for project activity page: https://registry.terra.org/app/projectDetail/VCS/2981	2.2	24/02/2023
2.1	Initial Monitoring report submitted for verification	1.0	25/01/2023
2.2	Final Monitoring Report verified for certification	2.2	09/09/2024
3.	Emission Reductions calculation sheet	2.0	10/04/2023
4.	Validation report for the project activity Available at Verra registry for project activity page: https://registry.terra.org/app/projectDetail/VCS/2981	2.0	28/02/2023
5.	VCS Standard	4.3	-
6.	VCS program Guide	4.2	-
7.	Approved methodology VMR0006 https://verra.org/methodology/vmr0006-methodology-for-installation-of-high-efficiency-firewood-cookstoves/	1.1	-
8.	Onsite visit and interviews conducted by assessment team	-	14/02/2023- 16/02/2023
9.	Declaration/Confirmation from PP regarding not having created or sought any other form of environmental credits for the same period	-	-
10.	Sampling and surveys for CDM project activities and programmes of activities https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20210531160756223/Meth_Stan05.pdf	09.0 EB50, A30	-
11.	Calibration details: 1. Calibration data 2. KD-800 Scale Manual 3. Scale manual back	-	-

	4. Scale manual front		
12.	Grievance Redressal Policy	-	-
13.	Mail to IP for Scope 3 emissions	-	13/03/2023
14.	MoUs with IPs	-	27/05/2022
15.	Screenshot of VOGIS app	-	-
16.	Monitoring Survey results for the samples selected by the PP	-	-
17.	Process flow for random selection of Sample including screenshots of the selection process	-	-
18.	Manufacturers / Technical specification of the ICS	-	-
19.	ICS installation records as verified from the server of the PP, including date of First and last ICS installed during MP	-	-
20.	Records for Beneficiary during the monitoring period	-	-
21.	End user agreements	-	-
22.	Details of the Regular Spot Check Activities conducted during the current monitoring period	-	-
23.	Stakeholder feedback record: 1. Recordings 2. SFR report 3. List of Participants	-	13/08/2021 & 17/08/2021
24.	Project Database	-	-
25.	Training Evidence	-	-
26.	Spot Audit Report	-	
27.	Secondary database- stoves in operation – Other projects		
28.	Reliability calculation sheet		

APPENDIX 2: ABBRREVIATIONS

Abbreviations	Full texts
BEF	Baseline Emission Factor
CO ₂	Carbon dioxide
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CMS	Central Monitoring System
CL	Clarification Request
CMP	Conference of Parties Serving as Meeting of Parties
CAR	Corrective Action Request
EB	Executive Board
FAR	Forward Action Request
GHG	Green House Gas
ICS	Improved cookstoves
MR	Monitoring Report
O&M	Operation and Maintenance
PD	Project Description
PP	Project Proponent
QA/QC	Quality Assurance and Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VCS PD	VCS Project Description
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCUs	Verified Carbon Units

APPENDIX 3: FINDINGS OVERVIEW

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

FAR ID	Section no.	Date : DD/MM/YYYY
Description of FAR		
NA		
Project participant response		Date : DD/MM/YYYY
NA		
Documentation provided by project participant		
NA		
VVB assessment		Date: DD/MM/YYYY
NA		

Table 2. CAR from this verification

CAR ID	Section no.	Date : DD/MM/YYYY
01	1.1, 1.10	23/02/2023
Description of CAR		
- In accordance with section 1.1 of monitoring report, kindly provide evidence of first and last stove installed for this project. - Section 1.10 of MR states, "The project has not sought or received another form of GHG-related environmental credit." PP is requested to provide a declaration in view of same. - The description provided under section 1.10 for scope 3 emissions is not in line with the description provided in the MR template v4.2. Clarify.		
Project participant response		Date : 13/03/2023
- PP submitted the End User Agreement (registration form cum consent deed signed by each household/stove owner at the time of installation of ICS) for the stove installed on 1-September-2021 (stove ID- CQCVAN0020960) and stove installed on 29-June-2022 (stove ID- CQCVAN0028237) - PP submitted the Declaration that the project has not claimed or will not claim carbon credits under any other scheme after registration of the project under VCS. - As per Section 3.23.9 of the VCS Standard, v4.4, the <i>"producer(s) or retailer(s) of the impacted good or service are known but not involved in the project or do not have a website, the project proponent shall notify them of the project and potential risk of Scope 3 emissions double claiming via email."</i> Email has been sent to stove manufacturers and implementation partners involved in this project. Copies of the email is being submitted to the VVB.		
Documentation provided by project participant		

1. End user agreements (registration form cum consent deed signed by each household/stove owner) 2. Declaration that the project has not claimed or will not claim carbon credits under any other scheme after registration of the project under VCS. 3. Screen shots of E mail sent to stove manufacturers and implementation partners involved in this project.
VVB assessment
Date: 15/04/2023
The following have been observed by the VVB: • End-user agreements of first and last ICS of this monitoring period which are in line with monitoring period dates mentioned in MR and the details mentioned in the database. • The PP has now submitted the declaration that the project has not claimed or will not claim carbon credits under any other scheme after registration of the project under VCS which has been verified by the VVB and found to be OK. • The screenshots of the e-mail sent to stove manufacturers and implementation partners involved in this project for preventing double claiming under scope 3 emissions which have been assessed by the VVB and it is evident that nobody other than PP can claim scope 3 emissions linked with this project. Hence, CAR 01 is closed.

CAR ID	02	Section no.	2.2	Date : 23/02/2023
Description of CAR				
Section 2.2 of the MR mentions about the implementation partners (IPs) of the PP for the project. PP is requested to provide details of the implementation partners for this project under section 1.1 along with the signed contracts with the IPs.				
Project participant response				Date : 13/03/2023
PP submitted the MOU signed with implementation partner in Angola for the project VCS 2981				
Documentation provided by project participant				
1. MOU signed with implementation partner for the Project VCS 2981				
VVB assessment				Date: 15/04/2023
The PP has submitted the MoU signed with Implementation Partner 'Choose Water' for the project implementation in Angola for this monitoring period which has been verified by the VVB during the on- site visit and also with the database provided by the PP and found to be consistent. Hence, CAR 02 is closed.				

CAR ID	03	Section no.	4.1, 4.2	Date : 23/02/2023
Description of CAR				
The description of various parameters (ex-ante and monitored) provided under sections 4.1 and 4.2 of MR are not in line with the description of the parameters provided under section 5.1 and 5.2 of VCS PD.				
Project participant response				Date : 13/03/2023

PP has revised the MR as per the registered PD.	
Documentation provided by project participant	
1. Monitoring report v1.1	
VVB assessment	Date: 15/04/2023
The PP has now updated the descriptions of various parameters (ex- ante and monitored) under sections 4.1 and 4.2 of MR which have been assessed by the VVB and found to be in line with the description of the parameters provided in the registered VCS PD. Hence, CAR 03 is closed.	

CAR ID	04	Section no.	5.4, ER sheet	Date : 23/02/2023
Description of CAR				
Under worksheet 'ER sheet_2021' of 'VCS_ER sheet_2981 Angola_MP 01_10_01_23.xls' document, variation has been observed in columns L and P (ERs achieved in Vintage 1 for stove 1 and stove 2). PP is requested to review and update accordingly.				
Project participant response				Date : 13/03/2023
PP has revised the ER spreadsheet and is being submitted to VVB.				
Documentation provided by project participant				
1.ER Spread sheet v2				
VVB assessment				Date: 15/04/2023
The VVB has now assessed the updated columns L and P (ERs achieved in Vintage 1 for stove 1 and stove 2) of the ER sheet and found the calculations to be appropriate. Hence, CAR 04 is closed.				

CAR ID	05	Section no.	Monitoring survey	Date : 23/02/2023
Description of CAR				
In worksheet 'Survey result' of '2981_Angola_sampling Calculation_survey result.xls' document, inconsistency has been observed under columns Z and AD. PP is requested to clarify.				
Project participant response				Date : 13/03/2023

PP would like to clarify that, average use of firewood used in each household is measured in following way, column AA - Stove 1(with the weight of binding rope) column AB - stove 2 (with the weight of binding rope) column AC - baseline stove (with the weight of binding rope) column AD - Average firewood usage of each stove (excluding the weight of binding rope).	
Documentation provided by project participant	
Monitoring survey	
VVB assessment	Date: 15/04/2023
The VVB has assessed the Monitoring survey results in accordance with the explanation provided by the PP for the various columns and found it to be appropriate. Hence, CAR 05 is closed.	

CAR ID	06	Section no.	2.2	Date : 04/09/2023
Description of CAR				
Based on the 'Grievance received for the monitoring period' mentioned on page 13 under section 2.2 of the MR, it is evident that some of the project beneficiaries faced challenges during the usage of the project ICS. PP shall clearly demonstrate the time required to resolve such issues including the field visits by the enumerators till final resolution of the problem under columns K and O in 'Year_ER 2021' and 'Year_ER 2021' worksheets of 'VCS_ER sheet_2981 Angola 2_MP 01' document.				
Project participant response				Date : 26/09/2023
PP would like to clarify that the grievances mentioned on page 13 of the Monitoring Report were received during the spot check conducted by PP. PP promptly informed the local coordinator of IP to address the challenges faced by end users regarding fuelwood preparation. The local coordinator visited the households on the same day and successfully resolved the concerns of stove owners. The dates when the grievances were received and when they were resolved have now been incorporated into the Monitoring Report. PP would also like to explain that IP/PP has a local coordinator in every village. This local support staff is selected from the local community and is familiar with the region, which enables end users to easily contact them over the phone or in person. They are committed to providing assistance to stove owners on the same day or at the latest, by the next day. If a PP/IP representative identifies a non-operational stove or observes that the end user is not utilizing the ICS, they must report this to the responsible management. PP will then take action to remove these households from the database. During the monitoring period, the IP/PP representative did not report any such cases..				
Documentation provided by project participant				
-				

VVB assessment	Date: 27/09/2023
The VVB has assessed section 2.2 of the updated MR and found that the dates for receiving, and resolution of grievances are now incorporated. It has been observed that the grievances found during the spot check conducted by the PP and were resolved the same day which results in 'No' change in the ERs claimed for the grouped project activity. Hence, CAR 06 is closed.	

CAR ID	07	Section no.	ER sheet	Date : 04/09/2023
Description of CAR				
According to section 9.3 of the applied methodology VMR0006 v1.1, 'Description of the Monitoring Plan' the monitoring survey conducted by the PP shall contain at minimum the following details: 1. The cookstoves distributed under the project are being used. 2. The project stoves are operational and in good condition. 3. Baseline stoves, if any are being used along with the project stoves. As evident from column U and V of 'Survey result' worksheet in the 'sampling Calculation sheet_VCS 2981_MP01' document (monitoring survey) some households are also using the baseline stoves along with the project ICS during the project scenario. However, the MR and ER sheet submitted by the PP does not reflect any information on the same. Correction is requested.				
Project participant response				Date : 26/09/2023
PP would like to clarify that PP has captured the following information during the monitoring survey, and mentioned the same in the 'Survey result' worksheet in the 'sampling Calculation sheet_VCS 2981_MP01'. 1. The cookstoves distributed under the project are being used. 2. The project stoves are operational and in good condition 3. Baseline stoves, if any are being used along with project stoves. During the monitoring survey PP found that one end user was using baseline stove also which is mentioned in the survey form (Stove ID- CQCVAN0047830). The same information now has been incorporated the section 4.3 of MR v2.0, page number 33. PP would also like to clarify that using the baseline stove would not have an impact on the ER calculation because as per VMR0006-"Methodology for Installation of High Efficiency Firewood Cookstoves" Version 1.1, section 9.2, Page number 19 "For Projects that opt for By=1,new,I,j,survey, i.e., direct measurement of biomass used in project stoves, then μ_y is not required to be computed." PP has used the following equation (4) from the applied methodology for the calculation of By savings, so any baseline stove usage factor(μ_y) is not accountable. <i>By ,savings,i,j= By=1,new,i,survey*($\eta_{new,y,i,j} / \eta_{old} - 1$)</i>				
Documentation provided by project participant				

VVB assessment	Date: 27/09/2023
he VVB has assessed section 4.3 of the updated MR and found that the details of the end- user using the baseline stove along with the project ICS are now incorporated. However, since the PP is using equation 4 of the applied methodology 'VMR0006 v1.1' to determine the parameter By,savings,i,j the baseline stove usage factor (μ_y) is not required as according to section 9.2 of the applied methodology which states, 'the projects that opt for equation 4 measure the fuel consumption in the project ICS directly and not the overall consumption by the households'. Hence, CAR 07 is closed.	

Table 3. CL from this verification

CL ID	01	Section no.	-	Date : 23/02/2023
Description of CL				
Project Proponent is requested to provide the following documents: 1. Grievance logbook 2. Stakeholder Feedback Round proof 3. WBT Report 4. Calibration Documents (Weighing scale, Moisture meter) 5. Monitoring survey training records 6. MoU with all Implementation partners for this project				
Project participant response				Date : 13/03/2023
1. PP submitted the grievance register forms to VVB. 2. PP submitted the stakeholder feedback round proof to VVB 3. WBT report of TLC-CQC-Rocket stove being submitted to VVB. 4. Calibration details of weighing scale. 5. PP submitted the photographs and attendance sheet of training conducted to enumerators. 6. PP submitted the MoU with implementation partner.				
Documentation provided by project participant				
1. Grievance register forms. 2. Stakeholder feedback 3. WBT report of TLC-CQC-Rocket stove. 4. Calibration details of weighing scale. 5. Photographs and attendance sheet of training conducted to enumerators. 6. PP submitted the MoU with implementation partner.				
VVB assessment				Date: 15/04/2023
The requested documents have been submitted by the PP. The VVB has assessed the documents and found them to be OK. Hence, CL 01 is closed.				

CL ID	02	Section no.	3.1	Date : 23/02/2023
Description of CL				

Page #20 of the VMR0006 methodology lists the “Life span” of project device as one of the data and parameters monitored. The project proponent is requested to provide the operating lifetime of the project device, that is, manufacturer specifications (certified by a national standards body or an appropriate certifying agent recognized by that body).	
Project participant response	Date : 13/03/2023
The operating life of TLC-CQC-Rocket stove is at least 10 years owing to it being a clay and brick stove which can be repaired using a mixture of clay and water on a regular basis. The metal parts used in the stoves can be easily replaced in case of rusting or breakage. Hence it can be safely assumed that these stoves can be used for extended periods of time with little maintenance. Further PP submitted the manufacturer specification to VVB.	
Documentation provided by project participant	
Manufacturer specifications	
VVB assessment	Date: 15/04/2023
The VVB has assessed the manufacturer specifications of the TLC-CQC RS stove and found that the operating life of the ICS is at least 10 years. Hence, CL 02 is closed.	

CL ID	03	Section no.	3.1	Date : 23/02/2023
Description of CL				
As per section 3.1 of monitoring report, PP is requested to provide evidence on the installation and any change in parts when not in working condition.				
Project participant response				Date : 13/03/2023
PP would like to clarify that PP replaces metal parts if it is not in working condition. Each stove owner is provided with contact number of implementation partner /PP, they can call and register if stove or parts are damaged. PP has not received any grievance/complaints regarding such incidents for current monitoring period.				
Documentation provided by project participant				
VVB assessment				Date: 15/04/2023
The VVB has verified that the PP has effectively implemented the Grievance Mechanism and that no grievances have been received during this monitoring period of the project through the grievance log-book during the current monitoring period. Hence, CL 03 is closed.				

CL ID	04	Section no.	4.2	Date : 23/02/2023
Description of CL				

In section 4.2 of monitoring report, PP is requested to submit the following documents:	
- Survey forms and survey result spreadsheets for parameters $N_{y,i,j}$ and $B_{y=1,new,i,j,survey}$ - Technical specifications and calibration/testing of weighing scales.	
Project participant response	Date : 13/03/2023
- PP submitted the survey forms and survey result spreadsheet to VVB. - PP submitted the calibration details and technical specification of weighing scale.	
Documentation provided by project participant	
- Survey forms and survey result spreadsheet. - Calibration details and weighing scale manual.	
VVB assessment	Date: 15/04/2023
The VVB has observed the following: - The survey forms and survey result spreadsheets submitted by the PP for parameters $N_{y,i,j}$ and $B_{y=1,new,i,j,survey}$ have been assessed by the VVB and found to be appropriate. - The technical specifications and calibration/testing of weighing scales documents shared by the PP have been assessed by the VVB and found to be inline with details mentioned in MR. Hence, CL 04 is closed.	

CL ID	05	Section No.	1.1`	Date : 04/09/2023
Description of CL				
Under section 1.1 of the MR on page 4, the first monitoring survey dates are mentioned as ‘20 November-2021 to 15-December-2021’. However, as evident from the monitoring survey ‘sampling Calculation sheet_VCS 2981_MP01’ document submitted by the PP, the monitoring survey was conducted from 09-August-2022 to 11-September-2022. PP shall clarify about this inconsistency and reflect the corrections in the project documentation.				
Project participant response				Date : 26/09/2023
PP would like to clarify that the dates mentioned in Section 1.1 of MR v1.3 were a drafting error. The first monitoring survey was conducted between August 9, 2022, and September 11, 2022. PP had previously submitted a sampling calculation spreadsheet and stove registration database to VVB during verification, clearly indicating that PP had installed a total of 26,206 ICS during the first monitoring period, which spans from 1-September-2021, to 30-June - 2022 (inclusive of both dates). PP considered all 26,206 ICS for sampling selection. Additionally, PP had submitted survey results to VVB during the verification process, VVB can further verify the surveys dates from the same document.				
Documentation provided by project participant				
VVB assessment				Date: 27/09/2023

The VVB has assessed the updated MR submitted by the PP and found that the dates of the first monitoring survey are now consistent with the monitoring survey results submitted by the PP i.e., from 09 August 2022 to 11 September 2022.

Hence, CL 05 is closed.

CL ID	06	Section No.	4.3	Date : 04/09/2023
Description of CL				
As evident from section 4.3 (page 28) of the MR, the value of the parameter ‘By=1,new,i,j,survey’ is calculated based on the end users’ judgement of fuel consumption in a day. PP shall clarify how this method of fuel wood consumption considered reliable and quantitatively accurate for extrapolating on the entire population to determine the emission reduction calculations since it is based completely on end-users’ opinion which is a variable factor.				
Project participant response				Date : 26/09/2023
PP conducted a monitoring survey by examining the firewood normally used by end-users for daily cooking. The field staff instructed users to create distinct piles of firewood, meant for one day's cooking on all stoves in the household, including the baseline stove if in use. Each pile of firewood was individually weighed, and the quantities were recorded using the survey app. Recognizing that these measurements were a giving approximate firewood consumption, PP opted for more precise monitoring. PP carried out another fuel assessment survey (follow up survey) within the same households. This involved assessing one day’s fuel usage. The surveyor assembled two separate wood stocks from the household premises. Each stock was designated for exclusive use on one of the project stoves during the test day. The end-users were instructed to maintain their average cooking habits during the 24 hour interval of testing. After preparing the wood stocks, the surveyor revisited the household at approximately the same time as the previous visit. The surveyor then measured the weight of firewood remaining in both stocks and recorded these weights in the survey app. PP received the survey value of 3.89 kg/stove/day, which is higher than the value from the previous monitoring survey (summary is given below), and PP would like to use the value (3.54 Kg/stove/day) of the parameter “By=1,new,l,survey” conservatively in ER spreadsheet and monitoring report.				
	Follow up survey		First Survey	
By=1,new,l,survey	3.89 Kg/device/day (1.42 ton/device/year)		3.54Kg/device/day (1.29 ton/device/year)	
Further PP has submitted the survey result sheet of 68 households to VVB along with below mentioned documents.				
1.Follow-up Survey result spread sheet.				
2.Sample photos and attendance sheet of monitoring survey training conducted.				
Documentation provided by project participant				
VVB assessment				Date: 27/09/2023

The VVB has assessed the follow-up survey results along with the supporting evidence of follow-up survey along with the trainings for follow-up survey and found them to be OK. Additionally, the VVB conducted a remote audit to verify the follow-up survey. The VVB is of the opinion that the methodology applied by the PP for the determination of the parameter By=1,new,i,survey is now reliable and quantitatively accurate for extrapolating on the entire population to determine the emission reduction calculations. However, since the PP is considering the value of the previous survey i.e., 3.54 kg/device/day for the parameter 'By=1,new,i,survey', the VVB finds this approach to be conservative since this value is lower than the value achieved after the follow-up survey i.e., 3.89 kg/device/day which will result in lower ERs claimed for this grouped project activity.

Hence, CL 06 is closed.

Table 4. FAR from this verification

FAR ID	-	Section No.	Date : DD/MM/YYYY
Description of FAR			
NA			
Project participant response			Date : DD/MM/YYYY
Documentation provided by project participant			
VVB assessment			Date: DD/MM/YYYY

e.g., there is no FAR from this verification.

APPENDIX 4: COMPETENCY STATEMENTS

Competence Statement			
Name	Arohi Jain		
Education	M. Sc. Environmental Sciences B.Sc. Biology		
Experience	3+ years		
Field	Environmental Sciences		
Approved Roles			
Team Leader	Yes (VM)		
Validator	Yes (VM)		
Verifier	Yes (VM)		
Methodology Expert	Yes (VMR0006, TPDDTEC)		
Local expert	Yes (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	Yes		
Reviewed by	Shifali Guleria, Quality Manager	Date	10/03/2023
Approved by	Deepika Mahala, Technical Manager	Date	10/03/2023

Competence Statement			
Name	N Premjit Singh		
Education	B.Tech (Mechanical Engineering) M.Tech (Energy Technology PhD (Mechanical Engineering)		
Experience	9+ Years		
Field	Climate Change, Energy		
Approved Roles			
Team Leader	Yes		
Validator	Yes		
Verifier	Yes		
Methodology Expert	AMS I.D, ACM0002		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES (VM)		
TA Expert (X.X)	YES (TA 1.2, 3.1)		
Reviewed by	Shifali Guleria, Quality Manager	Date	30/09/2022
Approved by	Deepika Mahala, Technical Manager	Date	30/09/2022

Competence Statement	
Name	Shifali Guleria
Education	M.Sc. (Environmental Studies and Resource Management), TERI University
Experience	3+ year
Field	Climate Change
Approved Roles	
Team Leader	YES
Validator	YES
Verifier	YES

Methodology Expert	YES (AMS-I.A., AMS-II.G., AMS-II.E., AMS-III.A.V., AMS-I.D, ACM0002, AM0025)		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (1.2, 3.1)		
Reviewed by	Deepika Mahala	Date	02/03/2023
Approved by	Ashok Gautam	Date	02/03/2023

Competence Statement			
Name	David Kaninda Kabengele		
Education	Diploma in Technical Engineer in Civil Aviation		
Experience	6 years		
Field	Network and security systems		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	YES (Angola)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Reviewed by	Shifali Guleria (Quality Manager)	Date	16/06/2022
Approved by	Deepika Mahala (Technical Manager)	Date	17/06/2022

Competence Statement			
Name	Shreya Garg		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	9 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., AMS.III.BL, ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1)		
Reviewed by	Shifali Guleria	Date	21/12/2022
Approved by	Deepika Mahala	Date	21/12/2022

Competence Statement	
Name	Rahul Dev Gautam
Education	B.Tech in Civil Engineering M.Tech in Environmental Engineering
Experience	1+ year
Field	Civil Engineering
Approved Roles	

Team Leader	YES (VM Only)		
Validator	YES (VM only)		
Verifier	YES (VM only)		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	Yes (TA 3.1)		
Reviewed by	Shifali Guleria (Quality Manager)	Date	05/07/2024
Approved by	Deepika Mahala (Technical Manager)	Date	05/07/2024