INSTALLATION OF HIGH EFFICIENCY WOOD BURNING COOKSTOVES IN TANZANIA – PROJECT 3

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Summary:

EcoLance Private Limited (hereafter referred to as EPL) appointed by C-Quest Capital CR Stoves Private Limited, has verified the greenhouse gas emission reductions for the project activity "Installation of High Efficiency Wood Burning Cookstoves in Tanzania – Project 3" in Tanzania (VCS 4157), covering monitoring period from 01 Jul 2022 to 30 June 2023 (both dates included) with regard to the relevant requirement for VCS activities.

The objective of the verification is to have an independent review of ex-post determination of the monitored reductions in GHG emission. Verification was conducted using EPL's procedures in line with the requirements specified in the VCS program guide version 4.3, VCS standard Version 4.4, VCS validation and verification manual version 3.2, ISO14064-3: 2019, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques. The verification consisted of desk review, on-site assessment and the resolution of outstanding issues and the issuance of the final verification report and certification. The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS requirements in order to be certified.

The GHG emission reductions were calculated on the basis of the approved methodology VMR0006- 'Methodology for Installation of High Efficiency Firewood Cookstoves' version 1.1 and the monitoring plan included in the registered joint PD&MR, version 2.2 of 14 July 2023.

During this verification, 5 Corrective Action Request (CARs) and 7 Clarification Requests (CLs) were raised related to operation, monitoring and GHG emission reduction calculation of the VCS project activity in relation to all relevant VCS requirements for the project activity and the applied baseline and monitoring methodology, and these CARs and CLs are successfully closed after necessary corrections/clarifications by the client. The same has been discussed in Appendix B of this verification report.

VVB found no uncertainties during this verification of the project activity.

In conclusion, it is EPL's opinion that the project activity "Installation of High Efficiency Wood Burning Cookstoves in Tanzania – Project 3" (VCS 4157) meets all relevant requirements for VCS standard and guidelines and correctly applies the baseline and monitoring methodology VMR0006- 'Methodology for Installation of High Efficiency Firewood Cookstoves' version 1.1. The monitoring system is in place and the emission reductions are calculated without material misstatement. Hence, EPL is able to certify that the emission reductions from the project during the monitoring period from 01 Jul 2022 to 30 June 2023 (both dates included) amount to 78,324 tCO_2e.

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1 INTRODUCTION

1.1 Objective

C-Quest Capital CR Stoves Private Limited (CQC) has appointed EcoLance Private Limited (EPL) to carry out verification of the project "Installation of High Efficiency Wood Burning Cookstoves in Tanzania – Project 3" (VCS 4157) for the period from 01 July 2022 to 30 June 2023 (both dates included). This report summarizes the findings of the verification of the project, performed on the basis of VCS requirements & UNFCCC criteria of CDM, as well as criteria to provide for consistent project operations, monitoring and reporting.

The objective of the verification is to have an independent evaluation of a project activity by an accredited validation and verification body against the requirements of the VCS Version 4.3, VCS standard version 4.4 and GHG program applied, on the basis of the registered project design document. The verification is for the period from 01 July 2022 to 30 June 2023. The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the joint PD & MR and that all physical features (technology, project equipment and monitoring equipment's) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

To confirm that the monitoring system is implemented and fully functional to generate Verified Carbon Units (VCUs) without any double counting, and to establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

1.2 Scope and Criteria

The verification scope is:

- to verify that 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 project is assessed against the of VCS program guide v4.3 VCS standard v4.4 EPL has, based on the recommendations in the latest version of VCS Validation and Verification Manual v 3.2, and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

1.3 Level of Assurance

The verification assessment was conducted to provide a reasonable level of assurance of compliance against the defined audit criteria and materiality threshold (defined as 5% as per VCS standard) within the audit scope. Based on the audit findings, the validation statement reasonably assures that the GHG assertion is materially correct and is a fair representation of the GHG data and information. The final verification report before being submitted to the client was subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent EPL's instructions, with a **reasonable level of assurance**.

The technical review was performed by a technical reviewer qualified in accordance with EPL's qualification procedure. The verification team and the technical reviewer consist of the following personnel.

Table 1: The verification team and the technical reviewer

Role/Qualification	Last Name	First Name
VCS Team Leader, verifier, technical expert	Buragohain	Champok

Verifier	Lahon	Biswajit
Verifier	Pokhrel	Prem Kumar
Local Expert	Kokushubila	Reinfrida
Technical Reviewer	Menon	Rekha

1.4 Summary Description of the Project

The group project is planned to distribute and use of improved cooking stoves (ICS) to replace conventional inefficient cooking system in Tanzania. The baseline stoves are conventional open fire or three stone fire with no improved combustion air supply or flue gas ventilation system as verified from on-site visit and interview. The project stoves are having better efficiency compared to baseline cooking system and therefore results in saving firewood compared to baseline scenario. The project, intend to distribute approximately 100,000 ICS; whereas so far only 19,751 TLC Stoves were distributed under the project until the end of second monitoring period (i.e. until 30/06/2023).

The project is implemented in phases. PP has considered each ICS distributed as a project activity instance. The start date for the project is 05-August-2021, which is the date of distribution/registration of the first stove in the project. Under this project activity, there are 9466 ICS were transitioned from the project VCS 2366. ERs for these stoves were already claimed for 2nd monitoring period of VCS verification (2nd MP end-date: 15th Oct 2021) and later all the 9466 ICS excluded from the MP 03 onward /12/. This has been confirmed by previous VVB and during this verification VVB assessment, VVB team interviews with representatives of the PP and crosscheck all the related documents and confirm the same. To avoid double counting PP has maintained transparency of those stoves. During the 1st monitoring period (05/08/2021 to 30/06/2022) a total of 19,570 ICSs distributed under the project activity which also includes the transitioned 9466 ICS. However, post first monitoring period as part of periodic surveillance by PP, it was noted 417 ICS has errors in terms of end user's details such as name, address etc. which were permanently removed from the total database. VVB checked stock and dispatch records for the project and could confirm the implementation was done in terms of stove deployment and usage during first MP. However, to avoid corrections in database and partial removal (for those who relocated) of users, on conservative side PP removed entire users from database. During this 2nd monitoring period (01 July 2022 – 30 June 2023) another 598 stoves model (TLC-CQC Rocket Stove) was distributed in the project. Therefore, until 30/06/2023 a total 19,751 (TLC-CQC Rocket Stove) ICS were distributed and operated under the project. The verification team checked the project implementation database /18/, visited 3 random samples (serial number: CQCVTZ0272761, CQCVTZ0272177, CQCVTZ0272564) as part of onsite audit and cross checked another 11 users record to ascertain the correctness of newly added ICSs

during this MP and confirm the number of ICS considered for the second monitoring period to be correct. The implementation so far took place in project location is the geographical boundary of Republic of Tanzania.

The project stoves are having better efficiency compared to baseline cooking system and therefore results in saving firewood compared to baseline scenario (three stone fire or conventional cook stove as per registered PD). The project activity is implemented by C-Quest Capital CR Stoves Private Limited wherein project ICS are freely distributed to targeted households with the help of implementing partners. Each household included in the project activity has an end user agreement executed between the user and project developer (CQC) /9/. Thereby, the ownership rights of carbon credit lies with CQC /9/.

The project ICSs are TLC-CQC Rocket Stoves with efficiency of 34.5% as certified by Manufacturers and consistent with registered joint PD&MR /10/. During Second year of the monitoring period the Efficiency for vintage 1 (01/07/2022 to 04-08-2022) is 32.43% and for vintage 2 (05-08-2022 to 30-06-2023) is 32.11% (This efficiency has been calculated using equation 5 of the applied methodology) The ICS are single stoves with natural draft. The "TLC-CQC Rocket Stoves" are manufactured locally by contracted Manufacturers /22/. The supply, distribution and aftersales services are being done by PP with the help of implementing partners. The project technology was witnessed by the audit team during on-site audit and confirm to be correct. TLC-CQC Rocket Stoves has a technical life of more than 10 years as confirmed from manufacturer's ICS lifetime certificate in consistent with the registered joint PD&MR /22/. The total project cookstoves i.e. 19,751 so far implemented are between 05-August-2021 to 30-June-2022 which is till this 2nd Monitoring period.

This grouped project is expected to achieve a total emission reduction of 2,853,391 tCO_2e in the 10-year crediting period and an average of 285,339 tCO_2e per year as per registered joint PD&MR /10/. The project's fixed crediting period is from 5th August 2021 to 4th August 2031 (inclusive of both the dates). Emission reductions from 5th August 2021 to 30th June 2022 have already been verified and VCUs are issued. This verification pertains to the 2nd consecutive monitoring period for the project.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification was conducted using EPL's procedures in line with the requirements specified in the VCS Requirements, i.e. VCS Program Guide, VCS Version 4.3, VCS standard document version 4.4. The GHG emission reductions are on the basis of the approved Baseline and monitoring methodology VMR0006 version 1.1.

The verification consisted of the following three phases

- Document review;
- On-site assessment on including Interviews and actual project scenario done on 29th Sept 2023 to 30th Sep 2023
- Resolution of any Material Discrepancy and the issuance of the final verification report and certification.

The following sections outline each step in more detail.

2.2 Document Review

The monitoring report (MR) version 1 of 05/09/2023, version 1.1 of 18/10/2023, version 1.2 of 29/10/2023 /**01/** and the emission reduction calculations spreadsheets with version 1 dated 05/09/2023 & version 1.1 of 18/10/2023 **/02/** received from the CQC were assessed as part of the verification. In addition, the registered joint PD&MR Documents (VCS-PDs) /**10**/ in particular the baseline estimations and the monitoring plan for the project was reviewed. The following table lists the documentation that was reviewed during the verification.

Table 2: List of documents reviewed:

/1/	CQC: VCS monitoring report for "Installation of High Efficiency Wood Burning Cookstoves in Tanzania – Project 3", covering monitoring period from 01 July 2022 to 30 June 2023, version 1 of 05/09/2023, version 1.1 of 18/10/2023, version 1.2 of 29/10/2023
/2/	CQC: Emission Reduction Calculation Spreadsheet for "Installation of High Efficiency Wood Burning Cookstoves in Tanzania – Project 3" covering monitoring period from 01 July 2022 to 30 June 2023, version 1 of 05/09/2023 & version 1.1 of 18/10/2023
/3/	VCS: VCS Program Guide, version 4.3 of 17/01/2023
/4/	VCS: VCS Standard, version 4.4 of 17/01/2023
/5/	VCS: Monitoring report Template ,VCS Version 4.2

/6/	VCS: Baseline and Monitoring Methodology "VMR0006", 'Methodology for Installation of High Efficiency Firewood Cookstoves' version 1.1
/7/	UNFCCC: Project search: https://cdm.unfccc.int/Projects/projsearch.html
/8/	Gold Standard Foundation: https://registry.goldstandard.org/projects?q=&page=1
/9/	CQC: Sample copies of end user agreement between project developer and end user
/10/	CQC: Registered joint PD&MR for the project "Installation of High Efficiency Wood Burning Cookstoves in Tanzania – Project 3", VCS 4157 version 2.2 dated 14th July 2023
/11/	CQC: Excel sheet with detailed calculation of ex-ante estimation Vs actual emission reductions achieved.
/12/	Carbon Check: Joint Validation & Verification report for the project "Installation of High Efficiency Wood Burning Cookstoves in Tanzania – Project 3", VCS 4157 covering monitoring period from 05 August 2021 to 30 June 2022, version 4.0 of 24th July 2023.
/13/	VERRA: https://registry.verra.org/app/projectDetail/VCS/2409
/14/	UNFCCC: guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities, Ver. 4.0 (EB86, Annex 4)
/15/	UNFCCC: Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 09.0
/16/	CQC: MP02_Sampling_Sheet_4157_Tanzania_Project_3.xlsx
/17/	VERRA: Project review report-VCS 2409, dated 02 May 2023
/18/	CQC: Project implementation database
/19/	CQC: Grievance register and relevant records.
/20/	CQC: Monitoring survey - Copies of actual user survey form - Survey photo taken during survey - Attendance sheet and presentation for data collection training for survey
/21/	CQC: Declaration to avoid double counting, non-inclusion of the project in the other standards.
/22/	Technical specifications of the "TLC Rocket Stove" cookstove, including the life span, provided by manufacturer.
/23/	CQC: Agreement between CQC and CIVITAS Consulting, dated 18 November 2021
/24/	CQC: Sanpshot of random number generator
/25/	CQC: Ex-ante ER spreadsheet (considering 0% stove loss rate)

2.3 Interviews

The audit team conducted on-site assessment from 29th September 2023 to 30th September 2023. During the on-site assessment of the project, the audit team visited each of the project site, Interviewed the end user of the improved cookstoves to confirm the operational status and cross checked between information provided in the monitoring report. Also, local stakeholder was interviewed to confirm the SDG outcome reported by PP.

Table 3: List of personnel interviewed.

SN	Date	Name and Role	Organization	Topic
/a/	29th September 2023 to 30th September 2023	Ghritimanjari Deka Trainee Associate	CQC	Description of the project activity, ownership, avoidance of double counting, Emission reductions calculations Monitoring plan and monitoring arrangements Monitoring, recording, QA/QC procedures.
/b/	29th September 2023 to 30th September 2023	Maria Samson Program Support Officer	CQC	
/c/	29th September 2023 to 30th September 2023	Emilia Challe Program Support Officer	CQC	
/d/	29th September 2023 to 30th September 2023	Saimon Venanoe K CSAT Officer	CQC	
/e/	29th September 2023 to 30th September 2023	Stanley Mveyange Stove Champion Supervisor	CQC	
/f/	30th September 2023	Hamis Patrick Nzunda Environmental Management Officer (Local Stakeholder)	Mbozi Dsitrict Council, Tanzania	Project implementation, socio-economic impact, other benefits etc.
/g/	30th September 2023	Zakayo Frank Mwaitosya Regional Natural Resources Officer (Local Stakeholder)	Songewe Region, Tanzania	

/h/	29th September 2023	1.Estar Mkisi (CQCVTZ0012765) 2.Merina Iyela (CQCVTZ0029317) 3.Elastic Chomo (CQCVTZ0011047) 4.Nuru Kandongo (CQCVTZ0028513) 5.Charles Mwasenga (CQCVTZ0019078)	End-User	ICS operational status, commissioning details, Carbon right transfer, project investment etc.
/i/	30th September 2023	1. Jeli Mbembela (CQCVTZ0013392) 2.Sinefer Kayange (CQCVTZ0013219) 3.Anna Mwasakanile (CQCVTZ0029565) 4.Nasta Mwamengo (CQCVTZ0010184) 5.Maria Kabuje (CQCVTZ0010880) 6.Isabella Shiuga (CQCVTZ00128886)	End-User	ICS operational status, commissioning details, Carbon right transfer, project investment etc.

2.4 Site Visits

EPL audit team conducted on-site inspection from 29 Sept 2023 to 30 Sept 2023 following sampling approach as explained below:

PP's sampling approach:

PP has proposed simple random sampling plan using 90/10 as confidence/precision. This is in line with the applied methodology /6/. The sample size for each parameter is determined following guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 9.0 /15/. The monitoring parameters monitored through the sampling plan are:

a) Number of operating unit (ICS) under the project activity ($N_{y,i,j}$)

b) Quantity of woody biomass used by project devices in tones per device ($B_{y,new,survey}$)

Besides these parameters, PP has also monitored the other parameters that can help demonstrating the contribution of socio-economic impacts and user's satisfactions.

VVB's verification of sampling approach:

As per §25 of the Standard: Sampling and surveys for CDM project activities and programmes of activities (version 09.0) /15/, the verification team has to verify whether the project participant have implemented the sampling and surveys according to the sampling plan in the registered monitoring plan. The verification includes determining:

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

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

In line with §26 of the Sampling Standard (version 09.0) /15/, the verification team has applied a sampling approach for on-site survey as part of verification. Since PP had applied a sampling approach, the verification team has chosen acceptance sampling for monitoring parameters in accordance with §28 of the sampling standard (version 09.0) /15/.

The following table illustrates the agenda covered during the acceptance sampling by the VVB in accordance with Table 1, § 37 of "Standard: Sampling and surveys for CDM project activities and programmes of activities (version 09.0)

Table 4: Agenda covered as part of acceptance sampling:

Parameter	How the PP conducted sampling surveys	How the VVB could obtain records for verification	Criteria for deciding what ultimately constitutes a discrepancy
Number of operating unit (ICS) under the project activity-proportionate parameter	Sampling based survey (questionnaire survey/interviews)	Cross-check of a sample of PP's samples (Questionnaire, operation surveys/interviews) including but not limited to following: ● Consistency between the information as contained in Survey sheet and revealed from on-site inspection interviews ● Baseline scenario	VVB results, accounting for duly justified differences.

		• Enquire/observe whether ICS systems are in use or not?	
Quantity of woody biomass used by project devices in tonnes per device ($B_{y,new,survey}$)	Sampling based survey (questionnaire survey/interview)	As per the registered joint PD&MR & applied methodology, this value was determined within the first year of the introduction of the devices through sample surveys. The project involves only one type of ICS which was installed from 05/08/2021. During the first year of project implementation this parameter was monitored and value was validated and checked by verifying entity during first MP. Hence, this value is not required to be monitored during this MP and remains fixed for the entire crediting period.	

VVB has considered para 39 (a) of "Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 09.0" for determining the sample size to be visited by VVB during on-site visit /15/. Tanzania is a least developed country and hence, paragraph 39 (c) of UNFCCC sampling standard version 09 is applicable. In this verification, the estimated emission reduction is 78,324 tCO_2e per year. So, the verification team determined the sample size for acceptance sampling by using its own professional judgment and guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities' version 09.0 /15/. Considering Acceptable Quality Level (AQL) as 0.5%, Unacceptable Quality Level (UQL) as 20%, producer risk of 10% and consumer risk of 10%; a sample size of 11 was required as per Table 2 in the referred Standard /15/. Acceptance number (c) thus determined for the sample size is 0. To comply with this, EPL verified 11 samples from PP's sample record to verify the project activity. In addition, the audit team visited 3 random samples (serial number: CQCVTZ0272761, CQCVTZ0272177, CQCVTZ0272564) from newly implemented ICS survey list.

The verification team selected random samples from PP's sample list and has assessed 11 samples on-site to ascertain the monitoring results. The stoves details (unique serial number, date of installation, type of ICS, name of user and address) were checked and found to be consistent with that reported in the installation database and PP's survey result. No inconsistency was observed for any of the 14 samples with respect to on-site inspection & document review. This assessment of the selected samples was done to ascertain the implementation status of the project activity w.r.t. the stove types, serial number, location etc. of ICS. The onsite assessment and the document review has complied with the required acceptance number (c).

2.5 Resolution of Findings

The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for EPL's positive conclusion on the project description. To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three tables; the different columns in these tables are described below.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;

- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met. In summary, 7 CLs and 5 CARs were raised during this verification which were closed successfully and details are given under Appendix B of this report.

2.5.1 Forward Action Requests

Based on the review of the joint validation & verification report /12/, VERRA review report /17/ no FAR found raised which needs to be assessed during this verification.

2.6 Eligibility for Validation Activities

The project is a registered VCS project and already validated. This is a verification activity and EPL is accredited for validation and verification of GHG emission reduction project activities falling under sectoral scope 3.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The MR confirms regarding no participation in any other GHG mechanism. The same was confirmed during the site visit by interacting with the PP and written declaration received from PP /21/. The project is not included in any emissions trading program or any other mechanism that includes GHG allowance trading. Neither the project has sought any other environmental credits. The VVB confirms that PP is not participating in any other GHG mechanism during current monitoring period from 01 July 2022 to 30 June 2023. Furthermore, VVB has checked the websites of other program such as UNFCCC, VERRA, Gold Standard /7/ /8/ and confirms that the project has not availed ERs for the current monitoring period (01 July 2022 to 30 June 2023) under any of these programs.

3.2 Methodology Deviations

No methodology deviation has not been applied.

3.3 Project Description Deviations

No project deviation has been applied.

3.4 Grouped Project

This project is a grouped project and targets to disseminate energy efficient cooking stoves in Tanzania. A total of 19,751 ICS were disseminated by the end of this 2nd monitoring period. During the 1st monitoring period (05/08/2021 to 30/06/2022) a total of 19,570 ICSs distributed under the project activity. However, post first monitoring period as part of periodic surveillance by PP, it was noted 417 ICS has errors in terms of end user details such as name, address etc. which was permanently removed from the total database. During this monitoring period (2nd monitoring period) (01 July 2022 – 30 June 2023) another 598 stoves model (TLC-CQC Rocket Stove) was distributed in the project. The number of ICS units distributed during this period is lower than the estimated ex-ante number in the registered document, resulting in lower emission reductions than the anticipated value. Therefore, as described in the registered project document, for each new instance (installed ICS) the eligibility criteria of new project activity instances are assessed below:

PP has considered each ICS as a project activity instance which is deemed acceptable as per the VCS Program Definitions and VCS Standard /3//4/. The eligibility criteria of the Project Activity Instance was established at the group project joint validation & Verification in the VCS joint PD&MR.

The assessment team has reviewed the evidences /9/, /18/, /20/,/23/ provided by PP for new PAIs (598 ICS) included in this verification and confirmed the following;

- Implementation and operational status of the PAI
- Monitoring and data collection
- Flow of information; generating, aggregating and reporting of the monitoring parameters
- Conformance of the new project activity instances with the eligibility criteria set out in the project description:

The verification team assessed the appropriateness of new project activity instances (added to the grouped project) against the requirements set in the registered joint PD & MR:

Table 5: Assessment of Inclusion criteria for new PIs

SL No.	Criterion	Requirements	VVB Assessment
1	Methodology	New project activity instances shall use approved methodology – VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1 and shall meet the applicability condition set out in the methodology.	In line with the registered PD, the new cookstoves (PAs) TLC-CQC which are already justified in the registered PD. Hence, the new PAs meet the applied methodology requirements. VVB checked the same during on-site inspection and sales record database.

2	Technology	The project activity instance shall implement improved cookstoves having minimum efficiency of 25% below which it shall not be eligible under this grouped project.	In line with the registered PD, the project included one type of the ICS (TLC Rockets Stoves) which is 34.5% efficiency. During joint Validation & Verification 19,570 ICS were implemented and during this 2nd MP, 598 ICS are newly added. Although, 417 ICS from earlier installations were removed due to errors in database. The type of the newly added ICS was checked during on-site audit and cross checked with installation records. Therefore, the new cookstoves which are already justified in the registered PD with efficiency more than 25%. Hence, the new PAs meet the technology requirements. VVB checked the same during on-site inspection and sales record database

3	Capacity Limit	Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit. Further, no single cluster of project activity instances shall exceed the capacity limit, determined as follows: 1) Each project activity instance that exceeds one percent of the capacity limit shall be identified. 2) 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. 3) None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any	The expected annual energy saving for each project activity instance (single ICS) is approximately 0.02 GWh_{th}/y or 0.01% of the limit (180 GWhth/y). As the annual energy saving of single project activity instance is below 1% of the limit, therefore no project activity instance is identified and divided into clusters. VVB checked the newly added ICS list and installation records and confirm the same ICS model TLC-CQC Rocket Stoves are only added. Hence, the criteria is justified.

		of the clusters to exceed the capacity limit.	

4	Project Location	Each project activity instance shall be located within the geographic boundary of Tanzania.	The verification team reviewed the distribution record database and interviewed representatives of PP to confirm that all new project activity instances are located within the geographical area identified in the registered VCS PD. All new project activity instances are located within the host country of Tanzania. The implementation database and user registry forms include the geo-coordinates which confirm the project location within Tanzania. Thus, the requirement is met.
5	Start date	The start date of project activity instance shall be same as or later than the grouped project start date.	All new ICS are installed after the start date of the group project i.e. 05/08/2021. This is evident in the database and consistent with installation records. Hence, criteria is met.

6	Additionality	All new project activity instances will use the activity method for demonstration of additionality.	a. Regulatory Surplus There is no law, statute or government programme or policy in host country 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. b. Positive List From registration details and interview with end users verification team confirms the project ICS were distributed free of charge. Hence, additionality is demonstrated.

7	Target Population	End user for each project activity instance shall be households with non-renewable biomass on inefficient wood or charcoal stoves. Each ICS will be assigned a unique serial number with name of ICS user, address, GPS coordinates, stove model, distribution date etc.	All new ICS are installed targeting households primarily. Each ICS is assigned a unique serial number with name of ICS user, address, GPS coordinates, stove model, distribution date. This is evident in the database and consistent with installation records. The audit team checked the same during on-site audit and confirm the details to be available on site. Hence, criteria is met.
8	Baseline Scenario: Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	In accordance with the requirements of applied methodology, baseline scenario has been defined as the continued use of non-renewable woody biomass by the target population to meet similar thermal energy needs as provided by project cookstoves. The same can be confirmed from Section 3.4 of this VCS-PD.	VVB, through document review and on-site interviews confirms that the baseline is the three stone fire or conventional device (without a grate or a chimney). Thus, the eligibility criterion has been met for the new project activity instances under this group project.

9	Double Counting	The ICS distributed under this project shall be uniquely identifiable based on the distribution records.	All ICS distributed under this project (PAs) has unique user details such as serial number with name of ICS user, address, GPS coordinates, stove model, distribution date. This is evident in the database and consistent with installation records checked during on-site audit. Hence, criteria is met.
10	Ownership	All default beneficiary Agreement for end user 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 instances.	Project proponents provide a copy of consent letter/record given by the end user regarding emission reduction claims /9/,/18/,/20/. In addition, audit team during on-site interview confirmed the awareness of transferring carbon credit rights to project proponent by end users.

11	Crediting *period*	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 1.9 of the registered joint PD-MR.	The crediting period for the grouped project starts on 05-August-2021 that is the project start date as stated in the Joint VCS PD and MR /10/. PP has considered the start date of commissioning of first ICS as project start date and hence the start date of crediting period. The same has been confirmed by the validation team through document review. Also, the VVB confirms that the crediting period of the project activity instances lies within the lifetime of the grouped project activity. Based on the above assessment, validation team concludes, that the eligibility criterion has been met for the new project activity instances under this grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

As verified from the on-site assessment, registration records and supply chain assessment the audit team confirms the project implementation and operation complies with the project design document. The purpose of the project is to disseminate efficient, improved cooking stoves (ICS) in geographic boundary of Tanzania. The ICS are natural draft single pot stoves. The improvement in thermal efficiency is achieved by properly designing the dimension of the combustion chamber and ensuring effective air flow during cooking. The baseline cooking practice is the use of “Three-stone” cooking stove, popularly known as traditional stoves using firewood. There is no material misstatement between project implementation and project description.

The grouped project, is registered under VERRA as a VCS project (VCS Project ID 4157) applying the VCS methodology VMR0006 version 1.1 /6/ "Methodology for Installation of High Efficiency Firewood Cookstoves". The project has been successfully in operation, monitored and verified during the first monitoring period from 05 August 2021 to 30 June 2022. There is no material misstatement between actual monitoring system and monitoring plan set out in the project description.

The project participant declared that the project has not participated or rejected in any other GHG program except its participation in VCS. Thus, emission reductions generated by the project will be solely claimed by PP and PP has the right of use. Net GHG emission reductions or removals generated by this project will not be used for compliance with an emissions trading programme or to meet binding limits on GHG emissions as the host country i.e. Tanzania. The host country is not a participant in any emission trading programme or nor does it have any binding limits.

PP will not claim the carbon credits under any other GHG emission reduction scheme from the project for the crediting period under VCS and PP has provided declaration on the same during the validation. Hence, there is no possibility of double counting. Apart from VCS, it has neither applied not been rejected under any other GHG program.

The project thus reduces Greenhouse Gas (GHG) emission by replacing traditional wood-fuel three stone stoves with wood fuel ICS. The replacement of traditional stoves by ICS improves heat transfer to the cooking utensil thereby reducing the amount of fuel (non-renewable cooking) required for cooking. A reduction in consumption of non- renewable biomass contributes towards reduction of GHG emission into the atmosphere. Thus, ICS reduce GHG emissions through their improved thermal efficiency as compared to traditional/baseline stoves.

This project is implemented by C-Quest Capital CR Stoves Private Limited (CQC). Users transfer the ownership of carbon credit via end user agreement to CQC. One type of ICS is only deployed so far under the project activity. CQC has local implementing partners to distribution and support in monitoring. The operation and management structured are verified form document review and on-site interview. The project so far distributed 19,751 ICS (TLC-CQC Rocket Stove) between 5th August 2021 to 30th June 2023. TLC-CQC Rocket Stove has a technical life of 10 years as confirmed from manufacturer's ICS lifetime certificate in consistent with the registered joint PD&MR. During this 2nd monitoring period, operational status of the ICS was taken into consideration and monitoring survey confirmed a 100% operational rate.

EPL verification team verified 11 random ICS from PP's sample record of monitoring survey as explained in section 2.4 above to ascertain accuracy of information. EPL confirms the project cook-stoves are operating in all samples visited, each cook-stove has unique identification number which has been provided in the end user agreement and are correct as per project

database. Along with the serial number, end username, address, installation date etc. had also been noted which were found to be consistent on ground.

It is noted that no changes have been observed or identified which may impact the additionality, no addition of component nor extension of technology, no addition nor removal of project sites. No change of value of the actual operational parameter relevant to determination of emission reduction which are within the control of the PP; no change has been observed or identified that may impact the scale of the project or applicability of baseline and monitoring methodology VMR0006, version 1.1.

EPL verification team confirms that all the emission sources within the project boundary have been considered appropriately. Monitoring of all parameters during the monitoring period is followed as per registered monitoring plan. Below table describes the data parameters relevant to the monitoring plan. Data parameters fixed ex-ante and available at validation and the data/parameters that are monitored are given below.

Table 6: Data parameter fixed ex-ante and available at validation:

SN	Data/parameter	Unit	Value applied	Assessment
1	Fraction of woody biomass saved by the project activity during year *y* that can be established as non-renewable biomass ($f_{NRB,y}$)	Fraction	0.89	The value is calculated by third party C4 EcoSolutions in line with the applicable methodological CDM Tool 30, version 3.0 and fixed ex-ante for the entire crediting period.
2	Net calorific value of the non-renewable woody biomass that is substituted or reduced ($NCV_{wood\ fuel}$)	TJ/Tonne	0.0156	As per applied methodology and fixed ex-ante for the entire crediting period. Available in the registered joint PD-MR /10/.
3	CO_2 emission factor for the use of wood fuel in baseline scenario ($EF_{wf,CO2}$)	tCO_2/TJ	112	Default values from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2

				Energy, Chapter 2 Stationary Combustion have been used and fixed ex-ante for the entire crediting period.
4	Non-CO_2 emission factor for the use of wood fuel in baseline scenario ($EF_{wf,non\ CO2}$)	tCO_2/TJ	26.23	Default values from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion have been used and fixed ex-ante for the entire crediting period.
5	Efficiency of baseline cookstove (η_{old})	Fraction	0.1	Default value as per the applied methodology has been taken.
6	Efficiency of project stove at the start of project activity. (η_p)	Fraction	0.345	Default value as per the applied methodology has been taken.

Table 7: Data and parameters monitored:

Parameter	Value	Description
Number of project devices of type i and batch j operating during year y ($N_{y,i,j}$)	19,751 ICS	From the total commissioned ICS, PP conducted the sample survey as per registered monitoring plan in 48 random samples and found 100% surveyed samples were in operational. The survey is done following sampling procedure with 90/10 confidence precision. During the site visit, EPL verified 14 random samples (*TLC- Rocket stove*) from PP's sample list through acceptance

		sampling and all samples were found operational. Hence reported results are accepted.
Efficiency of the improved cookstove type *i* and batch *j* during year *y* ($\eta_{new,y,i,j}$)	Vintage 1= 32.43% and vintage 2= 32.11%	Efficiency of the improved cookstoves to be estimated using equation 5 of VMR0006, version 1.1 where loss in efficiency per year is calculated. For 2nd year of operation considering the calculated value is correct as per the methodology and provided transparently in the emission reduction worksheet.
Annual quantity of woody biomass used by improved cookstoves in tonnes per device of type i and batch j ($B_{y=1,new,i,j,survey}$)	TLC-Rocket Stoves – 0.9819 tons/year/stove	As per the registered joint PD&MR & applied methodology, this value was determined within the first year of the introduction of the devices through sample surveys. The project involves only one type of ICS which was installed from 05/08/2021. During the first year of project implementation this parameter was monitored and value was validated and checked by verifying entity during first MP. Hence, this value is not required to be monitored during this MP and remains fixed for the entire crediting period.
The operating lifetime of the project device. (Life Span)	10 years for TLC-Rocket stove	As per manufacturer specification /22/. Consistent in the registered joint PD&MR. This has been validated during registration as well.

Table 8: The project contributes to the SDGs as discussed below:

SDG target	Project's contribution	VVB's assessment
3.9 Project specific indicator: Reduction in $PM_{2.5}$ emissions	Annual emission of PM2.5 is reduced by 47% in 19,751 project households. The same is evidenced from survey results which show that 100% of the respondents felt reduction in smoke, ~58% felt reductions in	Use of ICS compared to baseline system leads to reduced firewood consumption which reduces indoor air pollutions. PP's survey result shows 100% positive response from users on smoke reductions. The same

	soot levels near the cooking area and ~79% of respondents experienced reduced levels of itchiness of eye associated with cooking on open fire.	was also checked during interview with end users and audit team could confirm the reported results to be correct.
4.3 Project specific indicator: Number of individuals who received any informal training	Vocational training and project related training with respect to successful implementation of a programme, appropriate methods of conducting surveys, carrying out maintenance activities etc. in addition to issues related to climate change was provided to 5 individuals associated with the project.	PP engages inhouse and local resource for monitoring and survey. Appropriate trainings are found provided to those individuals. Hence, during the monitoring period, the audit team noted 5 individuals are given adequate training helping them to get engagement for jobs /20/. Hence, PP's claim is correct.
5.4 Project specific indicator: Proportion of women/female population reporting reduction in time spent in collecting fuelwood and cooking.	Contribute to reducing drudgery and reducing gender inequality, especially for women and children by saving time spent in collecting fuel wood and cooking, in all 19,751 households translating to equal number of women as they are primary cooks and fuel wood collectors in most of the households. The women can use the time saved for doing more productive activities or personal care.	Use of ICS reduces fuel consumption which is evident from monitoring records and interview with end users. This has also reduced the time to collect firewood. As per survey by PP, the positive response is noted in this regard. The audit team also noted positive feedback by users during interview.
7.1 7.1.2 Proportion of population with primary	Increasing access to clean cooking technology by distributing a set of project	A total of 19,751 households are distributed under the project until the end of this monitoring period.

reliance on clean fuels and technology	stoves in 19,751 households	This directly contributes to SDG 7.
8.3 8.3.1 Proportion of informal employment in total employment, by sector and sex	A total of 5 individuals were directly and indirectly employed under the project activity during the current monitoring period in Country for various activities related to project implementation, maintenance, and monitoring.	The audit team checked the employment record of project proponent and also other entities with number of resources deployed for the project activity so far. It is noted at least 5 individuals are directly or indirectly employed under the project.
13 Project Specific indicator: Reduction in emissions as compared to baseline scenario (open fire)	Total emission reduction in the current monitoring period is 78,324 tCO_2 eq.	This report certifies the emission reductions from this project activity during this monitoring period. Reported value is correct.
15.2 15.2.1 Progress towards sustainable forest management by increasing above ground biomass in forests	The project has resulted in saving ~2.17 tons of non-renewable biomass per stove during this MP.	The saving in fuel is as per monitored results calculated as per approved methodology. Hence, the value is correct.

Sampling plan and results:

The sampling plan implemented by the PP is in accordance with the applied approved monitoring methodology /6/ and the registered VCS Joint PD&MR. The PP has appropriately performed Simple random Sampling procedure, reliability levels were set at 90% confidence and 10% precision in line with the applied methodology VMR0006 version 1.1 /6/. As the VCS Joint PD&MR mentions the option for Simple random Sampling procedure, it is acceptable to the verification team.

The sampling surveys have been carried out by the well-trained personnel /20/. Monitoring parameter 'number of stove in operation' ($N_{y,i,j}$) and $B_{y=1,new,i,j,survey}$ were monitored through monitoring sample surveys. Monitoring of the parameters ensures compliance with the applied methodology VMR0006, version 1.1 /6/. Verification team has checked the survey records /20/ and sample size calculation /16/.

In accordance with the §14 of the sampling standard version 09 /15/, PP has calculated the required sample size for the parameters of interest, i.e., proportion- $N_{y,i,j}$. and mean- $B_{y=1,new,i,j,survey}$.

For proportion parameter ($N_{y,i,j}$), the equation used is:

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

Table 9: Sample size calculation

Input	Value	References
Confidence level	90%	As per methodology
Relative precision	10%	As per methodology
z multiplier	1.645	For 90/10 confidence precision
Population size, N	19,751	As per actual implementation records.
The expected proportion p	0.85	calculated
Sample size, n	48	Calculated

Sample stoves were selected using the random number generator technique (https://stattrek.com/statistics/random-number-generator) /24/ after assigning sample number against each ICS. To account for non-responses due to non-availability of HH, 30% non-

response rate was considered for providing samples to the monitoring survey team /16/. VVB checked the screen-shot of random number generator and confirm the samples are randomly selected and representative of the population.

The sample survey found conducted from 04/07/2023 to 22/07/2023 physically visiting the random samples identified. An app based electronic form was used to capture survey results. The electronic form captures accurate details such as date and time of survey, the geo-coordinates of household where ICS is in use and stores in recorded data in safe drive. With limited access and secure storage and no option to alter recorded data the survey records found highly reliable. The verification team found no discrepancy in reported data when cross checked at user's place.

Since the survey result showed a 100% operational rate, the achieved precision is 0% which is anyway below the target 10% precision for proportional parameter i.e. $N_{y,i,j}$.

For ($\boldsymbol{B_{y=1,new,i,j,survey}}$), the registered joint PD&MR & applied methodology requires this value to be determined within the first year of the introduction of the devices through sample surveys. The project involves only one type of ICS which was installed from 05/08/2021. During the first year of project implementation this parameter was monitored, and value was validated and checked by verifying entity during first MP. Hence, this value is not required to be monitored during this MP and remains fixed for the entire crediting period.

Therefore, VVB confirms all monitoring parameters are correctly listed in the MR and monitoring is done as per provisions of registered monitoring plan. The reported values are consistent with monitored results and hence correct.

4.2 Safeguards

4.2.1 No Net Harm

The project involves use of improved cooking stove in households replacing traditional three stove cooking stoves. Therefore, the project results in avoidance of CO_2 emissions due to improvement in efficiency. Therefore, there is no negative environmental impact from the project activity. In addition, due to the project activity, jobs are created in local level as verified during on-site interview which has improved socio-economic impacts in the project area. Therefore, there is no net harm from the project activity.

4.2.2 Local Stakeholder Consultation

PP organized stakeholder consultation during validation of the project activity which was validated by the validation agency. The verification team has interacted local stakeholders during on-site assessment and details are summarized in section 2.3 of this report. A continuous complaint mechanism system is in place which is correctly outlined in section 2.2 of the MR. The user of ICS and other stakeholders can raise any comment/complaint/feedback either through the village head or directly calling the helpline number provided on the project stoves. The grievances are recorded as and when received at CQC country office and directly overseen by country manager. A report with such feedback/complaint is found maintained at country head office. Therefore, VVB confirms an effective grievance handling system is in place. During this monitoring period i.e. between July 2022 to June 2023, four grievance found recorded related to the use and minor defects in project stoves which were found resolved within short span of time and records found appropriately maintained /19/. VVB during the site verification confirmed that there was no negative comment or feedback from local stakeholders as recorded by the verification team and no outstanding grievances to be addressed during this monitoring period.

4.3 AFOLU-Specific Safeguards

The project is a non-AFOLU project, this section is not required.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The equations and choices provided in the methodology as well as all other methodological tools, are correctly quoted in the Monitoring report /1/. The emission reductions of the project instances of the grouped project and project activity instance are calculated using the formulae mentioned in the applied methodology; VMR0006 version 1.1 /6/. The verification team reviewed the emission reduction spread sheets (ER sheets) and checked all the formulae, concluding that they are correct and in accordance with the monitoring plan of the registered VCS PD and the applied monitoring methodology /6/.

According to applied methodology VMR0006 (version 1.1), the emissions are calculated as below:

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

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 cookstove of type i
ER_y	=	Emission reductions during year y in t CO_2e
$ER_{y,i,j}$	=	Emission reductions by improved cookstove of type i and batch j during year y in t CO_2e

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

Where:

$B_{y,savings,i,j}$	=	Quantity 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 that can be established as non-renewable biomass (f_{NRB})
$NCV_{wood\ fuel}$	=	Net calorific value of the non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne)[1]

[1] 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction

$EF_{wf,CO2}$	=	CO_2 emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO_2/TJ)[2]
$EF_{wf,non\ CO2}$	=	Non-CO_2 emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO_2/TJ)[3]
$N_{y,i,j}$	=	Number of improved cookstoves of type i and batch j operating during year y
0.95	=	Discount factor to account for leakage

To calculate $B_{y,savingsi,j}$, we use equation 4 of the applied methodology[4]

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

Where:

$B_{y=1,new,i,survey}$	Annual quantity of woody biomass used by improved cook stoves 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 system is a three stone fire, or a conventional system with no improved combustion air supply or flue gas ventilation system, i.e., without a grate or a chimney.
$\eta_{new,I,j}$	Efficiency of the improved cook stove determined using Equation 5 of the methodology.

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

Where,

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 cookstove per year of operation (fraction). default value of 0.99 efficiency loss per year has considered

[2] 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion

[3] 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion

[4] Equation 3 of methodology VMR0006, version 1.1

	for the project activity
0.94	Adjustment factor to account for uncertainty related to project cookstove efficiency test

Leakage Emissions: In accordance with methodology VMR0006 version 1.1, leakage is accounted applying a default factor of 0.95 in the computation formula /6/.

Accordingly, the emission reductions for the monitoring period from 01 July 2022 to 30 June 2023 is calculated to be 78,324 tCO_2e.

Verification team confirms that all parameters are used correctly 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 joint PD&MR. The verification team has checked and confirmed the calculations in the spreadsheet and found to be accurate. The monitoring report is supported 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

During the verification, all relevant documents were checked to assess the correctness and quality of data submitted by the project participants, which are used to determine emission reductions.

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan. No significant, lack of evidence and missing data were detected during verification. Hence, the verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures which includes period (at least six monthly) visit to each installation site, cross check of records, application of digital survey tool and electronic storage to avoid data temper. The system was witnessed during site visit and users confirm regular site visit by the monitoring team from PP's side.

The operational status of project ICS is monitored through sample survey following UNFCCC sampling and survey guideline follows 90/10 confidence precision also recommended by the applied methodology. The survey forms, survey photographs etc. were checked to ascertain the monitoring results reported in survey. For enhancing the survey reliability and QA/QC, training was provided to the data collector during survey /20/. It is also noted that the achieved precision

is less than 10% i.e., it lies within the confidence interval of 10% and hence meets the desired confidence precision /16/. The monitored results are found consistent with on-site audits.

Also, project developer has set up grievance/repair/maintenance mechanisms and rectifies any issues for the operation of the project device. The continued use of pre-project devices in parallel to project ICS are also conservatively taken into account while calculating the achieved emission reductions.

Therefore, EPL is of the opinion that this method of calculation of emission reductions is accurate and results in conservative estimation of emission reduction and is line with the applicable VCS requirements.

4.6 Non-Permanence Risk Analysis

The project is not a forestry project. Hence, this section is not applicable.

5 VERIFICATION OPINION

EcoLance Pvt. Ltd. (EPL), appointed by C-Quest Capital CR Stoves Private Limited, has verified the greenhouse gas emission reductions reported for the project activity "Installation of High Efficiency Wood Burning Cookstoves in Tanzania – Project 3" VCS 4157 in Tanzania for the period from 01 July 2022 to 30 June 2023 with regard to the relevant requirements for VCS Version 4 activities.

The project participants of the project are responsible for:

- The preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the joint project description and monitoring report.
- The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.

It is the responsibility of EPL to express an independent verification opinion about the project's conformity with the requirements of VCS standard, ISO 14064-3: 2019 and on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment, EPL can confirm that:

- the project has been implemented and operated as per the design document;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS requirements;
- the monitoring is in place as per the applied baseline and monitoring methodology;

It is EPL's opinion that the GHG emission reduction stated in the monitoring report version 1.1 of 18/10/2023 for the project "Installation of High Efficiency Wood Burning Cookstoves in Tanzania – Project 3" VCS 4157 for the period from 01 July 2022 to 30 June 2023 (both days included) are fairly stated. The GHG emission reductions were calculated correctly on the basis of the approved monitoring methodology VMR0006, version 1.1 and the monitoring plan contained in the registered joint PD & MR, version 2.2 of 14th July 2023.

Hence, EPL is able to certify that the emission reductions from the project during the monitoring period from 01 July 2022 to 30 June 2023 amount to 78,324 tCO_2e with a reasonable level of assurance.

Verification period: From 01/07/2022 to 30/06/2023

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
01 July 2022 to 31 Dec 2022	39,547	0	0	39,547
01 Jan 2023 to 30 June 2023	38,777	0	0	38,777
Total	78,324	0	0	78,324

As per the registered joint PD&MR the annual estimated VER = 285,339 tCO_2/year for the total installation of ICSs are 100,000. However, till this monitoring period the total installation of ICSs are 19,751.

The annual estimated VERs from 19,751 ICSs project capacity = 56,357 tCO_2/year (10% annual loss rate assumed during ex-ante calculation)

Year	Ex-ante emissions reductions/removals	Achieved emissions reductions/removals	Percent difference	Justification for the difference
01-07-2022 to 30-06-2023	56,357	78,324	39%	This monitoring period the actual emission achieved is 39% which is higher than the estimated emission reductions because of 10% annual loss rate assumed during ex-ante calculation as per registered joint PD&MR.
Total	56,357	78,324	39%	

PP has provided the details justification against the percentage difference in emission reduction. During this monitoring period 100% ICSs were found operational with the result the Actual emission reductions achieved are higher than the value estimated in ex-ante calculation and the value compared to the 10% annual loss rate assumed during ex-ante calculation.

APPENDIX A: ABBREVIATIONS

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CL	Clarification Request
CO2	Carbon dioxide
CO2e	Carbon dioxide equivalent
CQC	C-Quest Capital
DNA	Designated National Authority
EF	Emission Factor
EPL	EcoLance Private Limited
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)

GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MoV	Means of Verification
MR	Monitoring Report
PD	Project Design
PP(s)	Project Participant(s)
Ref.	Document Reference
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VCU	Verified Carbon Unit
VVS	Validation and Verification Standard
VVB	Validation and verification body

APPENDIX B: CLARIFICATION REQUEST, CORRECTIVE ACTION REQUEST & FORWARD ACTION REQUESTS

Table 1. CL from this verification

CL ID	01	**Section no.**	General	**Date:** 09/10/2023
Description of CL				
PP is requested to provide following documents/evidence to substantiate the information provided in MR: 1. PP is to provide the Sample commissioning reports, End-user agreement of ICSs (During this monitoring period) 2. PP is to provide the raw input data of the survey. 3. In the ER-sheet, PP is to justify the Ex-ante (considering 0% loss rate) in ERR Comparison. 4. PP is to provide the Spot check audit report. 5. Official declaration that whether the project activity is included in other emission trading programs or under any emission reduction binding limits and net GHG emission reductions or removals generated during this monitoring period have not been used for compliance under such programs or mechanisms.				

Project participant response	Date: 18/10/2023
1. PP has submitted to VVB the sample copies of ICS commissioning reports and the End-user agreement as requested. 2. PP has provided all the monitoring survey reports to VVB. 3. PP has provided the requested justification for ERR comparison in the ER calculation spreadsheet and also submitted to VVB, the supporting Ex-Ante ER spreadsheet (considering 0% stove loss rate). 4. PP has provided the Spot check audit report for the current monitoring period to VVB for reference. 5. PP has provided the self-declaration to VVB as requested.	
Documentation provided by project participant	
1. ICS commissioning reports, End-user Agreement *2. Monitoring survey reports* *3. Supporting Ex-Ante ER spreadsheet (considering 0% stove loss rate)* *4. Spot-check audit reports* *5. PP self-declaration*	
VVB assessment	**Date:** 26/10/2023
The submitted documents and information is found appropriate and hence, CL is closed.	

CL ID	02	Section no.	General	Date: 09/10/2023
Description of CL				
1. As per the registered joint PD & MR PP mentioned that the 9466 ICS were transitioned from the project VCS 2366. This is not transparent in the MR. PP is to correct the same. 2. PP is to justify if any transitioned happened from any other project or VCS 2366 during this monitoring period. 3. PP is to clarify on the double counting of the ER and stoves distributed for the both the project.				
Project participant response				**Date:** 18/10/2023
PP has updated section 1.1 and section 3.1 in the revised VCS MR with all the details of the transitioned ICS that was made during its joint validation and verification. However, during the current monitoring period, no ICS are being transitioned from any project under this project activity. To avoid any double counting for those stoves and maintain transparency.				
Documentation provided by project participant				
Updated MR				
DOE assessment				**Date:** 26/10/2023
PP has updated the information in the revised MR. VVB team crosscheck the information and confirm the same. Hence, CL is closed.				

CL ID	03	Section no.	1.7	Date: 09/10/2023

Description of CL	
Section 1.7 of the MR. PP is to provide the KML file of the project activity instances.	
Project participant response	**Date:** 18/10/2023
PP has provided the KML file & the geo-coordinates of the first Project Activity Instance and has updated section 1.7 of the revised VCS MR. The same can also be verified from the project database, which has the details of each project activity instance installed during this monitoring period with the geo-coordinates.	
Documentation provided by project participant	
KML File	
DOE assessment	**Date:** 26/10/2023
Section 1.7 of the MR has been revised. VVB crosschecked the given geo-coordinate and confirm the same. Hence, CL is closed.	

CL ID	04	Section no.	2.2	Date: 09/10/2023
Description of CL				
In the section 2.2 of the MR, PP mention that the during this monitoring period some grievance received from the users. PP is requested to provide the documents/log books for recorded the grievance mechanism.				
Project participant response				**Date:** 18/10/2023
PP has updated section 2.2 of the revised highlighting the grievances received and actions being taken during this monitoring period. PP has also shared the grievance register records and CQC Grievance Redress Policy for reference.				
Documentation provided by project participant				
1. *Grievance register records* 2. *CQC Grievance Redress Policy*				
DOE assessment				**Date:** 26/10/2023
PP has included all the information regarding grievance mechanism in the revised MR. Also, VVB crosscheck the documents/records and found correct. Hence, CL is closed.				

CL ID	05	Section no.	3.1	Date: 09/10/2023
Description of CL				

PP is to clarify that if any ICSs repair/maintenance took place during this monitoring period.	
Project participant response	**Date:** 18/10/2023
PP during the construction/distribution of ICS, provides training to the end user on how to maintain and repair the stoves in case the need arises or they can communicate to the field staff if they fail to do so by themselves. However, during the current monitoring period, no such cases of field staff intervention were observed regarding the maintenance of any ICS.	
Documentation provided by project participant	
Updated MR	
DOE assessment	**Date:** 26/10/2023
The justification provided by the PP is found correct. PP has provided all the training related documents and VVB team crosschecked the documents and found correct. Hence, CL is closed.	

CL ID	06	**Section no.**	4.2	**Date:** 09/10/2023
Description of CL				
1. In section 4.2 of the MR under the first table, ICS user's survey through monitoring of the user 100% ICSs are operational. PP is requested to clarify how 100% operational are observed with the measurement methods and procedures applied, any protocols followed, and the person/entity responsible for the measurement. 2. PP is requested to clarify and provide the details whether annual monitoring frequently has been maintained.				
Project participant response				**Date:** 18/10/2023
1. During the monitoring survey for the current monitoring period, PP found the proportion of operational stoves to be 100% of the sample survey results. The same can be verified from the survey reports being shared with VVB for reference. Sampling standard "*Sampling and surveys for CDM project activities and programme of activities*, ver. 9" was used for determining the sample size, and a well-competent team was employed for conducting the monitoring survey. The training records and the surveyor details have been shared with VVB. 2. PP has maintained the monitoring frequency of conducting the sample survey at least once in every two years in line with the registered joint PD-MR. MP 01 survey was conducted between 13 July 2022- 15 Jul 2022 while for MP02 it was conducted between 04 July 2023 to 22 July 2023.				
Documentation provided by project participant				
Updated MR				

DOE assessment	Date: 26/10/2023
1. PP has described how the respective field person conducted the survey, training and checks the ICS and filled the survey forms and the response on 100% operational by inspection and survey is justifiable. Hence, CL is closed. 2. The information related to the annual monitoring is appropriately incorporated by PP. CL is closed.	

CL ID	07	Section no.	4.3	Date: 09/10/2023
Description of CL				
1. PP is requested to clarify if any trainings, capacity development activities were undertaken during the monitoring period and provide the evidence for the same. 2. The monitoring plan in registered joint PD & MR section 6.3 states 'regular audits conducted throughout the project lifetime ensures proper functioning of stoves and determination of the lifespan of the same'. The information has to be incorporated accordingly in section 4.3 of the MR. Also, PP is requested to clarify how the same has been followed during this monitoring period and provided supporting documents/results of the same. 3. Section 4.3 of the MR, for Sampling plan PP used simple random sampling for monitoring the parameter. Hence, PP is requested to provide the documents/evidences for the same.				
Project participant response				**Date:** 18/10/2023
1. PP has conducted several training and capacity development activities for each individual associated with the project activity during the current monitoring period. The details of the training records along with the agenda of training conducted till now for the project activity have been shared with VVB for reference. 2. To ensure the proper operation of the stoves delivered under the project activity for the entire lifetime of the project, PP conducted spot audits and ensured frequent visit of field staff to the villages (at least once every month). This, in addition to the post-installation maintenance services, ensures that the project stoves continue to operate at the manufacturer specification and follow the best practices. The spot audit report for the current monitoring period is being submitted to VVB for reference. 3. PP has submitted the PDF document of the randomizer being used to randomly select the samples for the monitoring survey to VVB.				
Documentation provided by project participant				
1. *Training records* 2. *Spot audit report* 3. *Sample randomizer (PDF)*				
DOE assessment				**Date:** 26/10/2023
1. PP has provided the attendance sheet and records for the training. CL is Closed. 2. It was confirmed by sample users during on-site audit PP conducts regular check after installation of cookstoves. PP did round of 100% check at least once every month on implemented ICSs. Records and response are consistent. Hence, CI is closed. 3. PP has provided the all the related documents of sample random sampling. VVB team crosschecked and confirm the same. Hence, CI is closed.				

Table 1. CAR from this verification

CAR ID	01	Section no.	2.2	Date: 09/10/2023
Description of CAR				
Section 2.2 of the MR in the local stakeholder consultation section of MR does not include the mechanism for on-going communication with local stakeholders.				
Project participant response				**Date:** 18/10/2023
PP has updated section 2.2 of the VCS MR providing all the necessary details of the mechanism being used for on-going communication with local stakeholders with a graphical flow chart for the flow of information/complaints/grievances from stakeholders to PP.				
Documentation provided by project participant				
Updated MR				
DOE assessment				**Date:** 26/10/2023
Information related to the ongoing communication is appropriately incorporated by PP in Section 2.2 of the MR. CAR is closed.				

CAR ID	02	Section no.	3.1	Date: 09/10/2023
Description of CAR				
PP is to provide the district/region wise implementation status during this monitoring period.				
Project participant response				**Date:** 18/10/2023
PP has updated section 3.1 in the revised VCS MR providing the district-wise implementation status of the project activity instances (PAIs) during the current monitoring period.				
Documentation provided by project participant				
Updated MR				
DOE assessment				**Date:** 26/10/2023
PP has updated the information in the revised MR. Hence, CAR is closed.				

CAR ID	03	Section no.	3.3	Date: 09/10/2023
Description of CAR				
Section 1.4 of the registered Joint PD & MR “Capacity Limits” is not transparent in the MR. PP is to correct the same.				

Project participant response	Date: 18/10/2023
There was a typo in section 3.3 of the MR and the same has been rectified keeping in line with the registered joint PD and MR.	
Documentation provided by project participant	
Updated MR	
DOE assessment	**Date:** 26/10/2023
In the revised MR the capacity limits are found transparent. CAR is closed.	

CAR ID	04	Section no.	4.1	Date: 09/10/2023
Description of CAR				
Section 4.1 of the MR is not transparent with the registered joint PD&MR. PP is to correct the same.				
Project participant response				**Date:** 18/10/2023
PP has made all the necessary corrections in section 4.1 of the VCS MR as requested.				
Documentation provided by project participant				
Updated MR				
DOE assessment				**Date:** 26/10/2023
In section 4.1 of the revised MR is transparent with the registered joint PD & MR. CAR is closed.				

CAR ID	05	Section no.	4.3	Date: 09/10/2023
Description of CAR				
Amplify the “ICTs” used in the section 4.3 of the MR. PP is request to correct the same.				
Project participant response				**Date:** 18/10/2023
PP has updated section 4.3 in the revised MR with all the necessary corrections as requested.				
Documentation provided by project participant				
Updated MR				
DOE assessment				**Date:** 26/10/2023
In Section 4.3, PP has updated the revised MR. CAR is closed.				

Table 3: FAR from this verification

FAR ID	00	Section no.		Date: xx/xx/xxxx
Description of CAR				
No FAR from this verification.				
Project participant response				Date: xx/xx/xxxx
Documentation provided by project participant				
DOE assessment				Date: xx/xx/xxxx

APPENDIX C: TEAM COMPETENCY

ECOLANCE

Champok Buragohain

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☒	☒	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert
	☒	☒	☒	☒	☒

Scopes Granted:

- *Power Generation and Electric Power Transactions (Fossil fuel thermal/ Renewable energy non thermal)*
- *Energy Industries (Renewable/Non renewable sources)*
- *Energy Demand*
- *Waste handling and disposal*

Version	***DATE OF APPROVAL***	***VALIDITY***
1	10 November 2021	09 November 2022
2	09 November 2022	08 November 2023

Authorized Signatory

Rekha Menon
Director- Technical

EPL/FR/5 **ECOLANCE PRIVATE LIMITED**

Version 1 Issued: 27-10-2021

Biswajit Lahan

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☐	☐	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert	Trainee Auditor
	☒	☒	☐	☐	☒	☐

***Scopes Granted**:*

- *Scope 1 -Energy Industries (Renewable/Non renewable sources)*

Version	***DATE OF APPROVAL***	***VALIDITY***
1	02 December 2022	01 December 2023
2	13 July 2023	12 July 2024

Authorized Signatory

Rekha Menon
Director- Technical

EPL/FR/5 ECOLANCE PRIVATE LIMITED

Version 1 Issued: 27-10-2021

Prem Kumar Pokhrel

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☐	☐	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert	Trainee Auditor
	☒	☒	☐	☐	☒	☐

Scopes Granted:

- *Energy Industries (Renewable/Non renewable sources)*
- *Energy Demand*

Version	***DATE OF APPROVAL***	***VALIDITY***
1	09 November 2022	08 November 2023
2	13 July 2023	12 July 2024

Authorized Signatory

Rekha Menon
Director- Technical

EPL/FR/5 ECOLANCE PRIVATE LIMITED

Version 1 Issued: 27-10-2021

Rekha Menon

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☒	☒	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert
	☒	☒	☒	☒	☒

***Scopes Granted**:*

- *Power Generation and Electric Power Transactions (Fossil fuel thermal/ Renewable energy non thermal)*
- *Energy Industries (Renewable/Non renewable sources)*
- *Energy Demand*
- *Waste handling and disposal*
- *Forestry and other land use*

Version	***DATE OF APPROVAL***	***VALIDITY***
1	10 November 2021	09 November 2022
2	09 November 2022	08 November 2023

Authorized Signatory

Rekha Menon
Director- Technical

EPL/FR/5 ECOLANCE PRIVATE LIMITED

Version 1 Issued: 27-10-2021