



**Verified Carbon
Standard**

VALIDATION REPORT FOR “INSTALLATION OF HIGH EFFICIENCY WOOD BURNING COOKSTOVES IN ZIMBABWE – PROJECT 2”



Document Prepared by Earthood Services Private Limited

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Summary:

- A brief description of the validation and the project**

Earthood Services Private Limited (hereafter referred to as ESPL) has been contracted by C-Quest Capital SGM ZM Stoves Private Limited to conduct the validation of the project – “Installation of high efficiency wood burning cookstoves in Zimbabwe – Project 2” (VCS ID 2890) regarding the relevant requirements of VCS program guidelines and standard (VCS Standard Version 4.3/01/, & VCS Program Guide Version 4.2/02/).

The validation includes complete and independent review of the proposed grouped project activity against applicable VCS requirements, including the baseline, monitoring plan, and compliance with the relevant VCS and host party criteria and the methodology as per VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1/08/.

The group project activity is about distribution and installation of high efficiency wood burning TLC-CQC stoves for household purpose in Zimbabwe. The installed stoves are called TLC-CQC Rocket Stove. These high efficiency TLC-CQC Rocket Stoves (ICS) replace the existing inefficient, conventional open fire stoves. These improved cookstoves will burn wood 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 group project activity also reduces deforestation in the host country and minimizes the health risks associated with indoor smoke pollution. Further, the Group project activity also reduces the time for collection of firewood for women and children.

- The purpose and scope of validation**

Purpose: The objective of validation is to perform a complete and independent review of the proposed grouped project activity against the applicable VCS requirements, including the baseline, monitoring plan and compliance with the relevant VCS and host party criteria. These are validated to ensure that the project design, as documented, is sound and reasonable, and that it fits the established standards. Validation is a prerequisite for all VCS projects, and it is viewed as vital to give stakeholders assurance about the project's quality and expected emission reductions. The VVB's aim is to perform a complete, independent evaluation of the project activity's validation.

Scope: The scope of validation is described as an objective and independent review of the Project Description (PD)/07/. The PD is compared to the relevant criteria and guidance documents provided by VCS, including the VCS Program Guide, v4.2/02/, VCS Standard, v4.3/01/, Program Definitions, v4.2/03/ and the Registration & Issuance Process, v4.2/04/ in order to ensure that the project meets the applicability conditions of the chosen baseline and monitoring methodology, applied VMR0006 Methodology for Installation of High Efficiency Firewood Cookstove, v1.1/08/.

- **The method and criteria used for validation**

The validation process which was conducted following ESPL's internal quality procedures, consisted of the following phases:

- i. Document review, involving:
 - a) Review of data and information
 - b) Cross-checks between information provided in the PD/06/ and information from sources using all available resources without regard to the project proponent's information.
- ii. Follow-up actions (e.g., remote audit and telephone or video interviews), including:
 - a) Remote Interviews/33/ with relevant stakeholders in the host country via phone, video calls with individuals having expertise of the project development.
 - b) Cross-checking the information provided by interviewed people with the information provided by the project proponent using all available means.
- iii. Reference to publicly available information about projects or technologies that are similar to the group project under validation and review, depending on the approved methodology being used to ensure that formulae are acceptable, and calculations are accurate.
- iv. The final validation report and opinion, as well as the resolution of lingering difficulties.

- **The number of findings raised during validation**

A risk-based approach has been followed to perform this validation. During the validation process, a total of 9 findings were raised, which includes 5 Corrective Action Requests (CARs), 3 Clarification Requests (CLs) and 0 Forward Action Requests (FARs).

The Project Proponent has successfully closed all raised issues.

- **Any uncertainties associated with the validation**

The PD/07/, emissions reduction calculations/11/, and accompanying documents provided are all in compliance with VCS criteria. The validation was completed with a reasonable level of assurance and no uncertainties were found related with the project activity validation.

- **Summary of the validation conclusion**

Earthood Services Private Limited (hereafter referred to as ESPL) certifies that the project meets the requirements of the VCS PD template Project Description, v4.1/40/, the VCS Standard, v4.3/01/, and the VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves v1.1/08/. The estimated annual average and total emission reductions from the project activity, for the crediting period 14/10/2021 to 13/10/2031 are expected to be 868,550 tCO_{2e} annually and 8,685,508 tCO_{2e}. ESPL issues a positive validation opinion, certifying that the project meets the applicable VCS standards and thereby proposing that it be registered.

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1 INTRODUCTION

1.1 Objective

Earthood Services Private Limited has been contracted by C-Quest Capital SGM ZM Stoves Private Limited to conduct the validation of the project – “Installation of high efficiency wood burning cookstoves in Zimbabwe – Project 2”, VCS ID 2890 regarding the relevant requirements of VCS programme guidelines and standard (VCS Standard Version 4.3/01/, & VCS Program Guide Version 4.2/02/).

The purpose of this validation is to have an independent third-party assessment of whether the project activity conforms to the qualification criteria set out in the VCS Standard, version 4.3/01/ to attain real, measurable, additional, and permanent emission reductions. The validation statement opinion is a written assurance that:

- The project complies with all the applicable VCS requirements and can generate the emission reductions stated over the project's crediting period.
- The validation followed the requirements of the current version of the VCS Standard, version 4.3/01/ and VCS Program Guide, version 4.2/02/ to ensure the quality and consistency of the validation work and the report.
- The project shall result in emission reductions as declared by the organisation or GHG project's GHG assertion.
- The data reported is accurate, complete, consistent, transparent, and free of material error or omission.

1.2 Scope and Criteria

The scope of the validation is carried out in to establish/verify that:

- The project activity is in accordance with rules and legislation of the host country/17/ (Zimbabwe).
- The project activity is in accordance with all relevant VCS rules and requirements, which includes the following: VCS Program Guide v.4.2/02/ and VCS Standard v.4.3/01/, Program Definitions v.4.2/03/, Registration and Issuance Process v.4.2/04/ and VCS Validation and Verification Manual v.3.2/05/, including additionality, proof of title and compliance with local laws.
- The project activity is in accordance with the conditions of the applied VCS Methodology: VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves v1.1/08/.

The validation is based on the data provided to ESPL as well as the contract terms. The validation is not intended to provide any consulting towards the Client. However, indicated requests for forward and/or corrective actions may provide information for improving project monitoring to reduce GHG emissions.

The validation process is divided into four stages:

- I. Desk review of Project Description (PD)

- Evaluation of data and information
 - Cross-checks between information provided in the PD/06,07/ and information obtained from other sources using all available resources without regard to the project proponent's information.
- II. Remote audit and follow-up interviews with project stakeholders
- Telephone, email, or video interviews with relevant stakeholders in the host country with professionals with expertise of the project development.
 - Cross-checking the information provided by interviewed people with the information provided by the project proponent using all available means.
- III. Reference to publicly available information about projects or technologies that are similar to the project under validation and review, using the accepted methodology for formulae and calculation accuracy.
- IV. The final validation report and opinion, as well as the resolution of remaining concerns.

1.3 Level of Assurance

☒ Reasonable level of assurance

☐ Limited level of assurance

The approach used by ESPL for validation of the crediting period is built on a thorough understanding of the risks associated with reporting data on GHG emissions and the controls used to mitigate them. ESPL conducted the validation by reviewing substantiating evidence and other relevant information and explanations from sources to provide reasonable assurance that estimated GHG emission reductions are fairly reported.

The validation is planned and performed by obtaining evidence and other information and explanations that validation team considers necessary to give reasonable assurance that reported estimated GHG emission reductions are fairly stated and in compliance with the standards and guidelines of VERRA. Reasonable level of assurance is met in spite of no site visit being conducted by using credible and reliable alternate means of validation (explained in detail in section 2.4 below). All documentary evidence were checked, and remote audit was conducted with PP representatives, site personnel and end-users to arrive at a validation conclusion by the assessment team.

Additionally, validation is carried out with in conformity of all above mentioned details and it is confirmed that information provided by project developer is accurate and estimated GHG emissions reductions are calculated appropriately on the basis of the approved baseline and monitoring methodology/08/ and VCS standard version 4.3/01/.

1.4 Summary Description of the Project

The group project activity, "Installation of High Efficiency Wood Burning cookstoves in Zimbabwe – Project 2' entails distribution and installation of approximately 375,000 fuel-efficient improved cookstoves (ICS) for the household purpose in Zimbabwe and each household will receive 2 improved cookstove in order to

meet their cooking requirements. The same has also been verified during the remote audit/33/ conducted with the beneficiaries where implementation has already started.

The project activity's objective is to increase accessibility of single pot, TLC-CQC Rocket Stove which is more efficient in wood burning and replaces the existing inefficient, conventional open fire stoves. The project stove improves thermal transfer to pots which results in less fuel consumption. Under this project, two Total Land Care Rocket Stoves, henceforth referred as TLC-CQC Rocket Stoves, each with single pot will be installed per household in Zimbabwe. The implementation of the project will reduce greenhouse gas emissions, forest conservation leading to long-term climate change mitigation, as well as improved health conditions for ICS users due to increased interior air quality and reducing time consumption in everyday cooking. Furthermore, women and children will spend less time collecting firewood. The usage of ICS creates carbon finance, which is then utilised to recover the cost of ICS and project implementation costs. This fact will be made clear to the end user in advance. Each ICS is considered as a Project Activity Instance, by the PP.

The technology installed under the project activity shall be thermally efficient (in accordance with the methodological requirements) and have an average lifespan of 10 years, as proven by the remote interview/33/ and the technical specification/20/. The validation team has verified that the technology distributed under the Group project activity is TLC-CQC rocket stove with technical specification/20/ as following:

SPECIFICATION	VALUE
Efficiency	34.5%
Average Life Span	10 Years
Stove Size	Depth: 34.5 cm Width: 34.5 cm Height: 28 cm

TLC-CQC Rocket Stoves have been verified by the third party Aprovecho Research Center for the thermal efficiency of 34.5% as per water boiling test (WBT 4.2.3)/14/. The efficiency test report/14/ submitted to the assessment team was evaluated, and it was determined that the efficiency test was carried out according to the technique specified in the applied methodology VMR0006 v.1.1/08/.

The start date of the project is 14/10/2021 which is which is the date of installation of first ICS under the group project. The duration of the crediting period is fixed at 10 years, beginning on 14/10/2021 to 13/10/2031

The C- Quest Capital SGM ZM Stoves Private Limited, the project proponent owns the right to VERs, declaration/15/ for the same has been submitted by the PP to the assessment team. Individual houses using ICS will sign a contract with the PP, under which the end user will certify use of the cook stove and transfer the VCU right to the Project Participant. The average estimated amount of annual emission reduction is 868,550 tCO_{2e} and a total of 8,685,508 tCO_{2e} for the entire crediting period.

2 VALIDATION PROCESS

2.1 Method and Criteria

The Validation of the Group project activity is conducted as per internal ESPL Quality Manual and in accordance with criteria laid down by VCS. It includes the following steps:

- Contract with PP for the scope and appointment of validation team and technical review team.
- Completeness check of VCS PD/07/.
- Desk review of VCS PD and estimated GHG emission reduction calculation sheet/11/.
- Remote audit by validation team.
- Remote Interview with project representatives and project owner/33/.
- Reporting and closure of findings (CARs/CLs/FARs) and preparation of draft validation report.
- Independent technical review of the draft validation report and final/revised documentation (e.g., VCS PD/07/, corresponding estimated ER calculations sheet/11/ and evidence).
- Issuance of the final validation report to the contracted PP.

2.2 Document Review

According to the VCS standard requirements/01/, the VCS project description/06,07/, emission reduction calculation spread sheet/10,11/, and supporting documents related to the project design and baseline were reviewed. The desk review included:

- Evaluation of the data and information given to ensure that it is complete and consistent with the VCS standards/01/.
- A review of the project description and monitoring technique/07/, with special emphasis to the methodology's application conditions and baseline and additionality criteria.
- Review of the monitoring plan/07/ and the project's adherence to key VCS standards/01/.

In addition, the validation team employed third-party material such as host-party legislation, technical reports pertaining to the project design or basic conditions, and technical data available on the public domain. A complete list of documents/ evidence reviewed is included as Appendix III.

2.3 Interviews

In accordance with VCS standard v4.3/01/, para 4.1.2, 'The validation/verification body shall select samples of data and information to be validated or verified to provide a reasonable level of assurance and to meet the materiality requirements of the specific project.' The assessment team has carried out remote interviews in order to verify the information included in the project documentation and to gain additional information regarding the compliance of the project with the VCS requirement and requirement of the applied methodology.

However, alternative means were selected to verify the project implementation. Along with alternative approach, remote interviews were conducted by the assessment team with the end users, PP representatives and implementation partners to check the information contained in the project documentation and to obtain further information on the project's compliance with the VCS requirements.

The remote site audit and interviews by the assessment team was conducted from 16/09/2022 to 17/09/2022/33/. Section 2.4 contains information on the interviews. The details of the remote video interview are as follows –

S.No.	Interview	Affiliation	Date	Subject	Team Member
1.	Mohit Narvariya	CQC	16/09/2022	Project Design	Harsh Raval and Charu Patwal
2.	Wimbiso Simbi	Compliance Coordinator Zimbabwe		Start Date of project and project boundary Monitoring system, roles, and responsibility QA/QC procedures, Baseline scenario Criteria and compliance of new instances added LSC process Compliance with relevant laws Predicted Social and Environmental impacts of the project Project stove distribution mechanism	
3.	Maureen Tsodzo	CQC Country Manager	16/09/2022	Project stove implementation process	Harsh Raval and Charu Patwal
4.	Sarah Stever	Country Director		Procedure for data collection	
5.	Rudo Soda	Implementation partner		Record keeping procedure	
6.	Ruth Kilner			Robustness and accuracy of data	

7.	Elector Soda			collection and transfer Integrity of Data	
8.	Taurai Mashongera	LSC Attendee	16/09/2022	Mode of LSC	Harsh Raval and Charu Patwal
9.	Nieyes Musekiwa			Procedures or methods used for engaging local stakeholders	
10.	Virginia Muswakala			Procedures or methods used for documenting the outcomes of LSC	
11.	Claris Mahachi			The mechanism for on-going communication with local stakeholders Feedbacks about the project	
12.	Ezeria Phiri	End Users	17/09/2022	Project stove Installation (at zero cost)	Harsh Raval, Charu Patwal and Munatsi Chuma
13.	Enert Rusibe			Baseline stove and baseline fuel	
14.	Chodula Washaya			Fuel used in project stove	
15.	Connie Charama			Training and ongoing support by the PP for operation of the project stove	
16.	Poshia Kadembera			Project stove usage patterns	
17.	Alice Mudimu			Grievances	
18.	Tendai Ngondoma				
19.	Monalisa Kambarami				
20.	Manyara Chazika				
21.	Catherine Mkala				

Though the interviews conducted and comparing them with the evidence provided by the PP and with the registered monitoring plan in the PD/07/, the assessment team confirms the project is implemented in line

with registered PD/07/. Thus, the assessment team achieved a reasonable level of assurance without conducting a remote site visit and physical site-visit by the Local Expert.

2.4 Site Inspections

As discussed in the above section, physical site inspection was not done for validation. However, the evaluation team has used alternative methods to support the validation criteria to reach a reasonable level of assurance.

The assessment team has carried out remote interviews by video calls and also the local expert was sent on the site with a checklist provided by the assessment team, in order to assess the information included in the PD/07/, conditions on site and crosschecking the information reviewed through document review.

Alternative means applied:

- Document review (As mentioned under Annex 1)
- Comparing the relevant evidence
- Video interviews with the PP representatives,
- Video interviews with the beneficiaries and
- Video interview with Country manager and Local stakeholders
- On-site audit by Local expert with approved checklist from validation team

Earthood is able to confirm that the project is implemented in line with the description in the VCS PD/07/. Therefore, assessment team believes it has achieved a reasonable level of assurance through remote site visit and onsite audit by Local expert with approved checklist from validation team, this is in conformance with the VCS standard V4.3/01/, and no request for an exemption or pre-approval from Verra is required.

A remote audit/33/ was undertaken by the Earthood via video call and an on-site visit was undertaken by the local expert (with approved checklist from validation team) on 16/09/2022 and 17/09/2022 to carry out the following:

- Interview with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PD/07/.
- A review of calculation and assumptions made in determining the GHG data and emission reduction.
- Relevant QA/QC procedure were checked to prevent, identify, and correct, any error in the reported monitoring parameters.
- Assessment of baseline scenario and project boundaries
- Authentication of the applied methodology and monitoring plan.

VVB Sampling Approach:

Installation Database of the proposed project was provided by the PP on which 90/30 confidence and precision was applied to derive a sample size of 10 samples in line with para 26 and 27 of Standard of

sampling and survey of CDM Project activities and programme of activities, version 9.0/18/. 10 end-users were remotely interviewed by the validation team and physically visited by the local expert (with approved checklist from validation team) to confirm that implementation has been done in line with proposed description in the VCS PD/07/.

All the households interviewed were found to have inefficient three stone stove as baseline stove using firewood which were replaced by the project stove. The ICSs disseminated had unique serial number and the end users confirmed that they have stopped using the old stove. Therefore, no inconsistencies were observed. The end user's details were also confirmed and found to be same as the information provided in the installation database provided by the PP/34/.

2.5 Resolution of Findings

This section summarises the results of the project's validation process. The results of the document review, site visit/remote evaluations, and interviews are presented in this section. CARs, CLs, and FARs are used to correct material inconsistencies discovered during validation.

Corrective Action Request (CAR)

Participants in the project have committed mistakes that will affect the project's capacity to deliver meaningful, measurable further emission reductions.

- i. Specific methodological standards that are applicable have not been met, or
- ii. There's a chance that emission reductions won't be able to be measured or tracked.

Clarification Request (CL)

It's used when more information is needed to properly understand an issue or when the data isn't clear enough to determine whether a condition has been satisfied.

Forward Action Request (FR)

- i. For the next verification period, the actual project monitoring and reporting processes demand attention and/or correction, or
- ii. It is recommended that the MP be adjusted.

CARs and CLs will be resolved or closed if the PP changes the project description, corrects the PD, or provides sufficient further explanations or proof to address the concerns. If this is not done, the project activity will not be recommended for VCS registry registration.

06 CARs and 03 CLs were found during verification. The summary of the findings is provided in Appendix IV.

2.5.1 Forward Action Requests

The project activity is undergoing Validation. There is no open FAR from VERRA and also no FAR has been raised during the validation process.

Details of which can be checked from appendix 3 of the validation report.

3 VALIDATION FINDINGS

3.1 Project Details

The characteristics of the project activity as validated are described below:

- Project type, technologies and measures implemented

The project activity “Installation of high efficiency wood burning cookstoves in Zimbabwe – Project 2” is a Grouped Project (GP) with the aim of distributing fuel efficient improved cookstoves (ICS) to households in Zimbabwe which rely on traditional (open fire or three stone fire) stoves. ICSs are more efficient than traditional stoves as they reduce heat loss and improve heat transfer and combustion efficiency.

The project activity involves construction of TLC stoves using locally available clay and 15 bricks. The standard size of the bricks used will be 22cm x 11cm x 6.5cm. A mixture of 3 litres clay, sand, manure/cow dung, and water were used to join the bricks together. This will ensure less heat loss and better insulation.

The technical parameters of TLC-CQC Rocket Stoves are shown in the table below:

Technical Specifications	
Stove Size	Depth: 34.5 cm
	Width: 34.5 cm
	Height: 28 cm
Efficiency	34.5%
Average Life Span	10 years

The technology to be distributed under this project is TLC-CQC Rocket Stove having an average lifespan of 10 years. Efficiency of 34.5% as per water boiling test has been tested by the third party (Aprovecho Research Center)/14/. The assessment team reviewed the efficiency test report/14/ and concluded that the efficiency test was carried out in accordance with the procedure specified in the applied methodology VMR0006, version 1.1/08/.

The Group project activity aims at distribution of 375,000 ICS. The project involves the distribution of energy-efficient cookstoves, which falls under the category of efficiency improvements in thermal applications, and thus it is eligible under the scope of the VCS Program/02,03/. The project's start date is 14/10/2021, which is also the date of installation of first ICS under the group project/15/. The start date of the Group project activity is identified in accordance VCS standard/01/. The crediting period is fixed for ten years, beginning on 14/10/2021 and ending on 13/10/2031

An agreement/15/ with the PP has been signed by the individual households using ICS confirming the use of cookstoves as well as transfer the VCU right to the PP. The sample agreement for the cookstoves was validated by the assessment team and found to be in accordance with the VCS PD/07/. The user's information collected through the User Agreement/15/ and compiled in distribution records will be used to create a record keeping system and unique identification of the ICS, as specified in the "distribution and data sharing agreement" between PP and distributor. This will include the user's username, identification

number, address/location of residence, stove's unique serial code, and distribution date. To avoid double counting, the record keeping system will ensure that each ICS can be traced back to the project. The average estimated amount of annual emission reduction is 868,550 tCO₂e and a total of 8,685,508 tCO₂e for the 10-year fixed crediting period. The project activity falls under large-scale since the annual average GHG emission reductions are more than 300,000 tCO₂.

The Validation team has reviewed all the above details and confirms that all the information provided is correct. CL 01 and CAR 02 has been raised and resolved (Refer to Appendix IV for further details).

- Eligibility criteria of the project activity

The Group project activity is a group project. It is about distribution of energy efficient stoves for household cooking purpose in Zimbabwe. Eligibility criteria for all new Group project activity instances to be added during the crediting period is specified in the section 3.5.15 of VCS standard Version 4.3/01/ and accordingly incorporated in the PD/07/. The eligibility of the Group project activity instances is verified below:

S.No.	Eligibility criteria for the inclusion of new project activity instances	Applicability	Assessment by the validation team
1.	Methodology	The project activity instances shall use VCS approved methodology – VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1 and shall comply with its requirements.	The validation team reviewed the VCS approved methodology – VMR0006 and its applicability conditions of the new project activity instances which can be confirmed in Section 3.3.2 and Section 3.3 of this Validation Report. Therefore, the requirements for the new project activity instances under this group project have been satisfied.
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.	The validation team examined the manufacturer's specification/20/ and WBT Report/14/ to determine that the minimum efficiency is 25%. During conducting interviews with the project beneficiaries/33/ it is confirmed that all the ICS installed till now are TLC-CQC Rocket stoves. As a result, the requirements for the new project activity instances under

			this group project have been satisfied.
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 of the clusters to exceed the capacity limit.	The PD/07/ considers the one single ICS as a Group project activity instance. The design efficiency of the project activity cook stove is confirmed from the manufacture's specification/20/. In view of above the expected annual energy saving for each PAI comes to approximately 0.01 GWhth/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. As none of the Group project activity instance is crossing the limit of 1% energy capacity, there is no requirement of cluster wise determination.

4.	Project Location	Each project activity instance shall be located within the geographic boundary of Zimbabwe.	The group project activity includes distribution of TLC-CQC Rocket stoves, which will be distributed within the boundary of Zimbabwe. It was assessed during the remote audit/33/ and on-site visit by the Local Expert with approved checklist by the validation team that installed project stoves lie within the boundary of Zimbabwe. Thus, the criteria are found to be appropriate.
5.	Start date	The start date of project activity instances shall be same as or later than the grouped project activity start date.	The assessment team reviewed the registration certificate of the first stove distributed under the grouped project activity/15/ containing date of installation of each ICS. It was confirmed that the start date of the group project activity is 14/10/2021. Thus, the eligibility criteria are found to be met.
6.	Baseline Scenario: Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	All new project activity instances will be installed within Zimbabwe 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 project cookstoves in absence of project activity. This also conforms to the applied methodology.	The validation team determines that the baseline is demonstrated in section 3.4 of the PD through document review and remote interviews/33/. Within the Zimbabwe project boundary, PP will only replace the baseline cookstoves with TLC CQC Rocket stoves. As a result, the requirements for the new project activity instances under this group project have been satisfied.
7.	Additionality	Each project activity instance shall demonstrate its compliance with	The applied methodology uses activity method for the demonstration of additionality, where it can be approved as

		a. 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 b. Positive List The inclusion of new project activity instances 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.	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 country of Zimbabwe. The are no laws and regulations, related to cookstove distribution, applicable in the host country Zimbabwe. The assessment team has searched the publicly available information and it is verified that there are no laws pertaining the mandate of distribution of cookstoves in Zimbabwe/17/. It was confirmed that the distribution of the household cook stoves in the Zimbabwe is a surplus activity. There are no regulations of guidelines which mandates the project proponent to distribute the ICS. Further during the interviews/33/, it was checked and confirmed with each stove beneficiary that the ICS are given to them free of cost and they are not being charged anything at the time of installation or ongoing operation. All the PAI installed till now comply with the additionality requirement as defined in the applied methodology/08/ and in PD/07/.
8.	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,	The validation team has confirmed during remote audit/33/ that beneficiaries of TLC- CQC Rocket stove are households. During remote audit and from stove installation database/34/, for the already installed project stoves, it was confirmed that all the stoves distributed had a unique ID. Also, a

		GPS of household, stove model, distribution date, etc	declaration/15/ was submitted confirming the same. The eligibility is found to be appropriate.
9.	Double Counting	The Improved Cookstove distributed under this project shall be uniquely identifiable based on the distribution records. Project will not claim carbon credits under two different mechanisms for the same monitoring period.	The assessment team has examined the copy of consent letters/, End user agreement/15/ given by end users to project participant regarding emission reduction claims containing corresponding end user details (i.e., name, geographical coordinates, unique serial number) and the Project Activity Instance Database/34/ containing unique serial number of each ICS. The eligibility is found to be appropriate.
10.	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.	The assessment team has examined the copy of consent letters/ and End user agreement/15/ given by end users to project participant regarding emission reduction claims. The eligibility is found to be appropriate.
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 (as set out in Section 3.4.4) and new instances are	The group project activity involves distribution of TLC- rocket stoves in the republic of Zimbabwe. The start of the 14/10/2021 as confirmed through the registration certificate for the first end user/15/. The same has been taken as the start date of the crediting period. The crediting period for the project activity will be from 14/10/2021 to 13/10/2031 (ten years, fixed) The eligibility is found to be appropriate.

		eligible for crediting from the start of the next verification period.	
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- Project proponent and other entities involved in the project

C-Quest Capital SGM ZM Stoves Private Limited is the project proponent. An end user agreement/15/ has been signed by each participating household confirming the ownership rights of the carbon credits generated from this project belong solely to the project proponent. ESPL has checked the End User Agreement/15/ and verified the same.

CL 01 has been raised and resolved (Refer to Appendix IV for further details).

- Project start date

As per the VCS PD provided, the project start date is 14/10/2021 which is in accordance with the date of sale of first cookstove under the project. The validation team examined the same using the project database/34/ provided by the PP and certified that it complies with section 3.7 of the VCS standard v.4.3/01/ and is thus accepted.

CL 02 has been raised and resolved (Refer to Appendix IV for further details).

- Project crediting period

According to the VCS Standard version 4.3/01/ section 3.8.1 state that, "For non-AFOLU projects, the project crediting period shall be either seven years, twice renewable for a total of 21 years, or ten years fixed". The crediting period selected by the PP is of 10 years for the project activity from 14/10/2021 to 13/10/2031 (including both days) which is of fixed type and acceptable to the validation team.

CAR 03 has been raised and resolved (Refer to Appendix IV for further details).

- Project scale and estimated GHG emission reductions or removals

The group project activity is expected to reduce emissions by more than 300,000 tonnes of CO₂e per year. The validation team confirms that the project activity falls under category 2 'Large Project' according to paragraph 3.9.1 of the VCS standard v.4.3/01/, as it has the potential to reduce GHG emissions by more than 300,000 tCO₂ e/year.

The average estimated amount of annual emission reduction is 868,550 tCO₂e and a total of 8,685,508 tCO₂e for the entire fixed crediting period of 10 years. If the underlying assumptions do not change, the emission reduction projection is reasonable, according to the validation team.

- Project location

The location of this project activity is the geographical boundary of Republic of Zimbabwe with coordinates 19°0'55.6" S latitude and 29°09'17.5" E longitude. It has been verified using the Google Earth software/16/. The first project instance is confirmed to be located in Zimbabwe/15/. This has been also verified during the remote audit/33/.

Conditions prior to project initiation

Prior to project initiation, traditional cookstoves were used in the households. The Traditional cookstove consumes firewood which goes through an inefficient combustion, resulting in higher fuel requirement and more smoke generation in comparison to project stoves.

- Project compliance with applicable laws, statutes, and other regulatory frameworks

The validation team has verified that there are no laws or regulations in Zimbabwe that restrict the use of improved cookstoves (ICS) in households. The project is a voluntary effort by the project proponent. The same was verified from the environmental laws and regulation of Zimbabwe/17/.

- Participation under other GHG programs:
 - Projects registered (or seeking registration) under other GHG program(s)

The validation team has verified that the project has not been registered, and it has no plans to register under any other GHG program by reviewing the declaration from the PP that the project has not claimed or will not claim carbon credits under any other scheme after registration of the project under VCS/23/. The declaration/23/ was provided by the PP PP that the project has not claimed or will not claim carbon credits under any other scheme after registration of the project under VCS.

- Rejection by other GHG programs

The project has not been rejected by any other GHG programs.

CL 01 has been raised and resolved (Refer to Appendix IV for further details).

- Additional information relevant to the project
 - Leakage management for AFOLU projects

As the project adopts a net gross adjustment factor of 95% to account for leakage, this is not applicable.

- Commercially sensitive information

No commercially sensitive information has been excluded from the public version of the project description.

- Sustainable development contributions

The project contributes to long-term development in several ways:

a) Environmental Sustainability

- Reduce GHG emissions
- Reduce the use of non-renewable biomass from forests to help conserve existing forest stock and protect natural forest eco-systems and wildlife habitats

b) Social Sustainability

- Time saved on wood harvesting thereby reducing the workload on families and as well as presenting alternative economic development opportunities
- Health benefits from reduced exposure to air pollution caused by biomass combustion

- Reduce accidental burn risk
- c) Economic Sustainability
 - Employment of local people throughout the project's manufacturing, distribution, and monitoring.
 - The use of the ICS will minimise household expenses on cooking fuel.
 - Household labour can be redeployed to more profitable economic endeavours.
 - Local employment will be created in operational and management roles, as well as potential assembly and/or manufacturing activities, because of the project.

The validation team concludes that the project description is accurate, complete, and provides an understanding of the nature of the project.

3.2 Safeguards

3.2.1 No Net Harm

The project has no possible negative environmental or socio-economic impacts, which has been confirmed through the study of project technology.

3.2.2 Local Stakeholder Consultation

In view of COVID-19 pandemic/36/, PP requested the feedback from the local stakeholders for the proposed project between 26/10/2020 and 25/11/2020 majorly through electronic mode, and sometimes through small gatherings.

The stakeholders received invitation for the feedback/30/ via multiple means viz., an announcement posted on PP's website on 26/10/2020 along with an electronic feedback form/25,29/, project description presentation/27/ and non- technical summary/28/. Other than this advertisement/26/ was posted in an English newspaper, "The Herald" on 12/11/2020 and email invitations/26/ were also sent to 48 people from various organizations (government, NGOs, stove manufacturers, project developers, academia and private and public- sector entities involved with cookstoves and/or sustainable energy on 04/11/2020.

With the easing of COVID-19 travel restrictions in the host country, PP conducted a follow-up physical LSC meeting in 2021. In Zimbabwe, three local stakeholder consultation meetings were held in the last quarter of 2021. In Dema and Seke districts, the first local stakeholder consultation meeting took place on 20/11/2021. On 22/11/2021, the following meeting took place in Mhangura and Makonde districts. In the district of Bindura and Madziwa, the last meeting was hosted on 26/11/2021. Local leadership members, such as councillors and village chiefs, improved cook stove recipients, enumerators, health promoters, and district coordinators were among the community stakeholders who attended these numerous sessions.

The feedbacks received from the stakeholders during the meeting were documented by the PP in the Local stakeholder consultation meeting report/24/. The same has been confirmed during the remote interviews with the stakeholders conducted on 16/09/2022 by the validation team /33/ and through filled stakeholder feedback forms/46/. The validation team concluded that overall, there was a considerable

amount of positive feedback, and the benefits of the project were acknowledged by the local stakeholders including less smoke, installation of project stove at zero cost, community members building their own cookstoves, less wood consumption and others.

Moreover, it was established during the remote evaluation that the stakeholders had been given access to the project participant's contact information.

In addition, stakeholders are aware of the grievance redressal method announced during the stakeholder engagement and can contact the project participant or their local representatives if they have any concerns. VVB has assessed the Grievance Redress Policy and Procedure Manual, v 1.2/41/ provided by the PP which also includes the form for end-users to record complaints and complaint redressal form for PP, thus establishing a continuous grievance mechanism in conformance to the VCS guidelines. As a result, it is confirmed that the project participant has built a structure for ongoing contact with the stakeholders, in accordance with the requirements defined by section 3.17.4 of VCS standard, version 4.3/01/.

CL 03 has been raised and resolved (Refer to Appendix IV for further details).

3.2.3 Environmental Impact

No negative environmental impacts, as the project involves the distribution of upgraded cookstoves, hence environmental impact assessment (EIA) is not required.

3.2.4 Public Comments

The project was open from 03/06/2022 to 03/07/2022. During this time, no public comments were submitted for the group project.

CL 03 has been raised and resolved (Refer to Appendix IV for further details).

3.2.5 AFOLU-Specific Safeguards

AFOLU activity is not implemented in this project. As a result, this section is not applicable.

3.3 Application of Methodology

3.3.1 Title and Reference

Following approved baseline & monitoring methodology is applied:

- VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1/08/.

The associated tools and guidelines include:

- "TOOL30: Calculation of the fraction of non-renewable biomass"; Version-03, EB 108, Annex-11/09/

CAR 04 has been raised and resolved (Refer to Appendix IV for further details).

3.3.2 Applicability

The latest version of the methodology (VMR0006 v.1.1/08/) meets all the applicability conditions. As a result, the methodology is considered fully applicable for the crediting period, and no request for deviation in terms of methodology applicability is required. The VCS PD/07/ includes all applicable conditions entirely and appropriately. The following table shows the results of the application conditions assessment:

Methodology Criterion	Applicability	Project Justification	Means of Validation
Project activities shall be implemented in domestic premises or in community-based kitchens.		The proposed proposal involves deployment of ICS only in in households.	Replacement of traditional firewood stoves with higher efficiency ICS models was carried out in the targeted families or community-based kitchens, as confirmed by remote interviews/33/.
The project stove shall have specified high-power thermal efficiency of at least 25% per the manufacturer's specifications and shall exclusively use woody biomass and can be single pot or multi-pot.		TLC-CQC Rocket stoves planned to be installed under this project are single pot wood cookstoves that have an efficiency of 34.5% as per the manufacturer's specifications.	VVB confirms that the TLC-CQC Rocket stove has been tested for thermal efficiency of 34.5% as per water boiling test (WBT 4.2.3) and certified by third party (Aprovecho Research Center) based on remote interviews/33/ and study of efficiency test report/14/. As a result, in accordance with methodological standards, all distributed cookstove types must have a stipulated high power thermal efficiency of at least 25% as per the manufacturer's specifications.
Both 'Projects' and 'Large Projects' can use the methodology.		The proposed project is expected to generate 868,550 tonnes CO2 per year which is greater than 300,000 tonnes CO2 per year and thus qualifies as a "large project" as per section 3.9.1 of the VCS Standard version 4.3	The validation team has been able to validate through document analysis and remote interviews/33/ that only households will receive the ICS TLC CQC Rocket stoves, and that each ICS given as part of this grouped project will be treated as an instance of a project activity. According to VCS, the aggregated project's average annual GHG emission reduction is greater than 300,000 tCO2e, making it a large project.

Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports, or statistics.	Non-renewable biomass has been used since 31 December 1989 in Zimbabwe as demonstrated at below.	Based on the review of FAO report/35/ provided, VVB confirms that non-renewable biomass was being used in the project region since 31 December 1989. The information provided by the PP was validated through the latest available Global Forest Resources Assessment (FAO)/35/, Zimbabwe published in 2020 to establish the rate of annual deforestation and thereby the loss of forest cover. Zimbabwe lost 7.34% of its forest cover between 1990 and 2020/35/. The latest Demographic and Health Survey of Zimbabwe, 2015/42/ further reveals that 92.6% of the rural households in the country uses firewood as fuel for cooking purposes, therefore highlighting the use of non-renewable biomass in the host country. The applicability criterion is thus met.
For the specific case of biomass residues processed as a fuel (e.g. briquettes, wood chips) it shall be demonstrated that: (a) It is produced using exclusively renewable biomass (more than one type of biomass may be used). (b) The consumption of the fuel should be monitored during the crediting period and (c) Energy use for renewable biomass processing (e.g. shredding and compacting in the case of briquetting) may be considered as equivalent to the upstream emissions associated with the processing of the displaced fossil fuel and hence disregarded.	Not Applicable. The ICS is introduced as energy efficiency measure designed to replace baseline stoves and reduce the usage of non-renewable biomass for combustion.	As the distribution of the project stove is for increasing the efficiency of the stoves and also reducing the use of non-renewable biomass. Therefore, the criteria is not applicable.
The project design shall explain the proposed method for distribution of project devices including the	Each ICS in this project will be identified by a unique combination of customer name and geographical location, as well as a	The validation team has confirmed through remote audit interviews/33/ that the suggested method for project device

method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo).	serial number. The serial number will be a unique number which will allow for a clear distinction between the stoves. No individual serial number can be repeated within the project, thus ensuring that each stove is counted only once in the proposed project. In addition, the project has been cross-checked against other CDM project activity operating in the country using the UNFCCC, the Gold Standard, and other relevant voluntary carbon schemes to ensure that the ICS is not included in any other CDM project activity or voluntary project activity.	distribution includes measures to prevent double counting of emission reductions, such as unique product identification, end user information (name, address, etc.), and unique GPS referenced location (if available). The validation team has thus verified that the record-keeping system will prevent double counting.
The project design shall also explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	The stove manufacturers/ wholesale providers/ end users shall sign an undertaking stating clearly that the PP or an entity authorized by it shall be the sole owner of the VCUs arising from the project.	The validation team has confirmed that the proposed methods prevent double counting of emission reductions through remote audit interviews/33/ and the assessment of a sample beneficiary (end user) undertaking/15/.

TOOL30: CDM Tool 30: Calculation of the fraction of non-renewable biomass

TOOL Applicability Criterion	Means of Validation
DNAs to submit region- or country-specific default f_{NRB} values, following the procedures for development, revision, clarification, and update of standardized baselines (SB procedures)	Not Applicable
Project participants to calculate project- or PoA-specific f_{NRB} values	The tool is used to calculate f_{NRB} values unique to each GP Instance. The f_{NRB} project instance TLC-CQC Rocket Stove is calculated using the tool.

CAR 04 has been raised and resolved (Refer to Appendix IV for further details).

3.3.3 Project Boundary

According to VMR0006, "Methodology for Installation of High Efficiency Firewood Cookstoves," Version 1.1/08/, the Grouped Project Boundary is established following the procedure provided in CDM methodology AMS-II.G. v.11.1/38/.

The greenhouse gas sources identified in the PD/07/ are deemed appropriate and evaluated below:

The physical, geographical locations of the distributed ICS inside Zimbabwe form the project boundary for the aggregated Project. This includes the project's cooking method makes use of non-renewable biomass.

The validation team was able to ensure that the approved methodology/08/ addresses all the identified emission sources that are impacted by the project activity, as shown in Table below.

Source	Gas	Included?	Justification/Explanation
Baseline	CO ₂	Yes	Major source
	CH ₄	Yes	Major source
	N ₂ O	Yes	Major source
	Other	No	No other source identified
Project	CO ₂	Yes	Major source
	CH ₄	Yes	Major source
	N ₂ O	Yes	Major source
	Other	No	No other source identified

The greenhouse gas sources indicated in the PD/07/ are transparently stated and deemed appropriate and consistent with the technique used. The validation team verifies that the project boundary, as well as the selected sources, sinks, and reservoirs, are all justified.

CAR 04 has been raised and resolved (Refer to Appendix IV for further details).

3.3.4 Baseline Scenario

In the absence of project activity, the baseline scenario is that the target population continues to consume non-renewable wood fuel (firewood) to meet similar thermal energy needs as provided by project ICS cookstoves. The same has been verified while interviewing the end users during the remote site visit/33/. With the help of high efficiency stoves that use woody biomass more efficiently, greenhouse gas emissions will be decreased by replacing baseline stoves, which are three stone fire stoves that burn a lot of non-renewable biomasses.

3.3.5 Additionality

The activity method of applied methodology VMR0006 version 1.1/08/ was used by PP to demonstrate additionality, and the following steps were taken:

Step 1: Regulatory Surplus

The VVB determined and confirmed by the environmental laws and regulations/17/ that no government programme or policy in the host country mandates the distribution of household fuel-efficient cookstoves. As a result, the project is not mandated by any law, legislation, or regulatory framework, or by any systematically implemented law, statute, or other regulatory structure for UNFCCC non-Annex I countries.

As a result, the participation is entirely voluntarily. The VVB confirms that the proposed project is a voluntary coordinated action by C-Quest Capital SGM ZM Stoves Private Limited. The first step has been completed.

Step 2: Positive List

In accordance with section 3.3.2 of this DVR, the project fits all the applicability requirements of the methodology which represents the positive list.

As confirmed through the remote interview/33/, that each stove is built at individual end user household using brick models and hence constructed at the household free of cost. The project stove is therefore distributed to the end user at no cost. Further, the interviews with the PP representatives also confirmed that the only source of revenue is the selling of GHG credits.

CAR 04 has been raised and resolved (Refer to Appendix IV for further details).

3.3.6 Quantification of GHG Emission Reductions and Removals

Baseline Emissions

The improved cookstove is used as an energy efficiency measure in the project, the net GHG emission reductions will be calculated using equations 1 and 2 of the methodology/08/.

$$ER_y = \sum_i \sum_j ER_{y,i,j} \quad \text{Equation (1)}$$

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 ₂ e
ER _{y,i,j}	Emission reductions by improved cookstove of type i and batch j during year y in t CO ₂ e

$$ER_{y,i,j} = B_{y,savings,i,j} \times NCV_{wood\ fuel} \times f_{NRB,y} \times (EF_{wf,CO_2} + EF_{wf,non\ CO_2}) \times N_{y,i,j} \times 0.95 \quad \text{Equation (2)}$$

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
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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)
f _{NRB,y}	Fraction of woody biomass that can be established as non-renewable biomass (f _{NRB})
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)
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)
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

The amount of woody biomass saved due to implementation of improved cookstoves will be calculated using the equation below:

$$B_{y,savings,i,j} = B_{y=1,new,i,survey} \times \left(\frac{\eta_{new,i,y}}{\eta_{old}} - 1 \right) \quad \text{Equation (4)}$$

where,

η_{old}	Efficiency of baseline cookstove
$\eta_{new,i,y}$	Efficiency of the improved cookstove type i and batch j determined through water boiling test (WBT) Alternatively, efficiency may be determined using Equation 5.
B _{y=1,new,i,survey}	Annual quantity of woody biomass used by improved cookstoves in tonnes per device of type i and batch j, determined in the first year of the implementation of the project through a sample survey.

$$\eta_{new,i,y} = \eta_p \times (DF_n)^{y-1} \times 0.94 \quad \text{Equation (5)}$$

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). This value may be based on actual monitoring or based on manufacturer's declaration on expected loss in efficiency or through publicly available literature on

	relevant industry standards. Alternatively default value of 0.99 efficiency loss per year can be considered.
0.94	Adjustment factor to account for uncertainty related to project cookstove efficiency test.

A net to gross adjustment factor of 0.95 is applied to $ER_{y,i,j}$ to address the potential source of leakage that can be attributed to diversion of non-renewable biomass saved by project devices to non-project households that previously consumed renewable biomass.

The following assumptions are used for ex-ante calculations:

Up to 375,000 ICS will be installed as part of the project.

The life span of ICS is 10-years. The annual rate of stove loss is estimated to be 10% based on conservative estimate of ER.

$B_{y=1, new, i, j, survey}$ is assumed as 1.09 tonnes / device / year. (The value is sourced from survey conducted at the first year of implementation under VCS project 2341 as characteristics like distributed stove model, type of fuel used for cooking, target population, project boundary (Zimbabwe) are similar for both the projects (2890 and 2341).

To calculate the number of ICS operating during year y, following equation was used:

$$N_{y,i,j} = 375,000 \times [1 - (y-1) \times 10\%]$$

If $y=2$,

$$\begin{aligned} N_{y,i,j} &= 375,000 [1 - (2-1) \times 10\%] \\ &= 375,000 \times 90\% \\ &= 337,500 \end{aligned}$$

To calculate the efficiency of project stoves while also accounting for efficiency loss, Equation (4) was used for year 2.

$$\begin{aligned} \eta_{new,i,y} &= \eta_p \times (DF_n)^{y-1} \times 0.94 \\ &= 34.5\% \times (0.99)^{2-1} \times 0.94 \\ &= 32.11\% \end{aligned}$$

$B_{y,savings,i,j}$ (tonnes/ ICS/ annum) was then determined by Equation 3 for year 2:

$$\begin{aligned} B_{y,savings,i,j} &= B_{y=1,new,i,survey} \times \left(\frac{\eta_{new,i,y}}{\eta_{old}} - 1 \right) \\ &= 1.09 [(0.3211/0.1) - 1] \\ &= 2.4044 \text{ tonnes} \end{aligned}$$

$ER_{y,i,j}$ (tonnes/ ICS/ annum) was then determined by Equation 2 for year 2:

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

$$= 2.4044 \times 0.0156 \times 0.88 \times 138.23 \times 337,500 \times 0.95$$

$$= 1,462,919 \text{ tCO}_2$$

Results of ex-ante calculations of Emission Reductions

Year	Estimated baseline emissions or removals (tCO _{2e})	Estimated project emissions or removals (tCO _{2e})	Estimated leakage emissions (tCO _{2e})	Estimated net GHG emission reductions or removals (tCO _{2e})
Year 1	NA	NA	NA	1,649,312
Year 2	NA	NA	NA	1,462,919
Year 3	NA	NA	NA	1,281,486
Year 4	NA	NA	NA	1,104,940
Year 5	NA	NA	NA	933,208
Year 6	NA	NA	NA	766,220
Year 7	NA	NA	NA	603,905
Year 8	NA	NA	NA	446,193
Year 9	NA	NA	NA	293,017
Year 10	NA	NA	NA	144,308
Total	NA	NA	NA	8,685,508

CAR 02 and CAR 06 has been raised and resolved (Refer to Appendix IV for further details).

Project Emissions

Instead of accounting for project emissions independently, the methodology evaluates emission reductions as a function of the reduced amount of non-renewable biomass fuel use in the improved cookstoves relative to the baseline stoves. The equations are evaluated in Equation 1 and Equation 2.

Leakage

In accordance with Section 8.3 of the applied methodology VMR0006 v.1.1/08/ leakage is considered as 0.95.

3.3.7 Methodology Deviations

The VMR0006 v.1.1/08/ was adopted for the project activity, and the PP adhered to the VCS PD/07/ development process. The validation team has confirmed that the project activity has not been subjected to any methodology deviations.

3.3.8 Monitoring Plan

The project's monitoring plan is in compliance with the applied methodology, VMR0006, Version 1.1/08/. The monitoring plan will give an opportunity for real measurement of emission reductions achieved. The

monitoring plan for the same has been included in section 5 of the VCS PD/07/. Validation team confirms that the project participant is able to implement the monitoring plan.

Data and Parameters fixed ex-ante

Parameter	Description	Value	Assessment
$f_{NRB,y}$	Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass	0.88	The fraction of woody biomass saved is calculated by C4 Eco solutions in line with applicable methodological CDM Tool 30, version 3.0/09/. The value has been consistently reported in the VCS PD/07/. The detailed assessment has been included below.
$NCV_{wood\ fuel}$	Net calorific value of the non-renewable woody biomass that is substituted or reduced	0.0156 TJ/tonne	As per the applied methodology/08/, the net calorific value of non-renewable woody biomass that is substituted or reduced, is taken as the Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy/39/.
EF_{wf,CO_2}	CO ₂ emission factor for the use of wood fuel in baseline scenario	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/39/. The value has been consistently reported in the VCS PD/07/.
$EF_{wf,non-CO_2}$	Non-CO ₂ emission factor for the use of wood fuel in baseline scenario	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/39/. The value has been consistently reported in the VCS PD/07/.
η_{old}	Efficiency of baseline cookstove	0.1	The value for efficiency of baseline cookstove is taken from default methodology/08/ and is consistently reported in the VCS PD/07/.

η_p	Efficiency of project stove at the start of project activity	0.345	The value for this parameter is taken from the manufacturer's specification/ Third party Efficiency Test Report/14/ and is consistently reported in the VCS PD/07/.
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Data and Parameters monitored

Parameter	Description	Monitoring Frequency	Assessment
$N_{y,i,j}$ (Number)	Number of project devices of type i and batch j operating during year y	Atleast once every two years	The parameter will be verified using the stove distribution record during the remote audit/33/. This will be measured directly or will be based on a representative sample.
$\eta_{new,y,i,j}$ (Fraction)	Efficiency of the improved cookstove type i and batch j determined through water boiling test (WBT)	Annually	The Efficiency of cookstoves is defined as per the vintage year of operation as defined in the applied methodology/08/. The value for the first year is considered based on the manufacturer's specification. Thereafter, the efficiency of the improved cookstoves, considering the estimation of loss in efficiency per year, will be calculated using equation 5 of the applied methodology/08/.
$B_{y=1,new,i,j,survey}$	Annual quantity of woody biomass used by improved cookstoves in tonnes per device of type i and batch j, determined in the first year of the implementation of the project through a sample survey	Determined in the first year of project implementation	In accordance with the applied methodology, the parameter is determined during the first verification through sample surveys/34/. This was confirmed during the remote audit/33/.

Life Span	The operating lifetime of the project device.	Once at the time of project stove installation	The value used has been verified from the manufacturing specifications/20/ of the improved cookstoves.
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f_{NRB} Assessment:

PP submitted an f_{NRB} calculation sheet/43/ containing the sources of values used, which was reviewed by the assessment team.

The formula used for calculating the f_{NRB} was found to be in accordance with TOOL30, version 3.0/09/:

$$f_{NRB} = NRB / (NRB + RB)$$

Where,

f_{NRB} = Fraction of non-renewable biomass in the country/region or project area (fraction or %)

NRB = Quantity of non-renewable biomass (t/yr) in the country/region or project area.

RB=Quantity of renewable biomass in the country/region or project area.

Since NRB is determined on a country specific basis by the PP, the following method was applied in line with paragraph 9 of TOOL 30, version 3.0/09/.

$$NRB = H - RB$$

Where,

H=Total annual consumption of wood in the absence of the project activity in the country/region/project area (t/yr).

The NRB was calculated by the PP in-line to equation 2 of the applied Tool 30 and was found to be acceptable as the f_{NRB} here is calculated for a specific country (i.e., Zimbabwe).

The consumption of woody biomass (H) was determined in accordance with paragraph 14, section 3.1 of TOOL30/09/, which provides two options to calculate this parameter. The parameter was determined using option (b) i.e., official statistics and reports. The calculations were checked from the calculation sheet/43/ and sources provided in that sheet as well as cross check against online resources wherever deemed necessary by the assessment team.

The total annual consumption of wood in the absence of project activity in the host country was calculated based on total domestic fuelwood consumption by rural and urban population. The values for all these variables were obtained from UN data/45/, World bank data/44/ and FAO/35/.

A summary of sources and assessment of all parameters in line with applied TOOL 30/09/ mentioned above used in calculation of f_{NRB,y} (for Zimbabwe) have been provided in table below:

Parameter Description	and	Value	Data Source	Assessment
-----------------------	-----	-------	-------------	------------

$f_{NRB,y}$ (Fraction of non-renewable biomass in the country/region or project area)	0.88	Calculated in line with TOOL 30	This parameter was found to be in line with equation (1) of TOOL 30/09/ as checked against f_{NRB} calculation sheet/43/.
NRB (Quantity of non-renewable biomass (t/yr) in the country/region or project area)	13,540,007	Calculated in line with TOOL 30	This parameter was found to be in line with equation (2) of TOOL 30/09/ as checked against f_{NRB} calculation sheet/43/.
RB (Quantity of renewable biomass in the country/region or project area)	1,929,668	Calculated in line with TOOL 30	The calculation of this parameter was found to be in line with equation (4) of TOOL 30/09/ as checked against f_{NRB} calculation sheet/43/. The weighted mean annual increment (MAI) values were calculated based on the MAI values taken from FAO document/35/, and forest extent covered under different ecological zone, the values of which were taken from Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories in accordance with section 3.2 para 19 of the TOOL30, v3.0/09/.
H (Total annual consumption of wood in the absence of the project activity in the country/region/project area) (ton/yr)	15,469,675	UN data, World bank data and FAO,2020 Zimbabwe	In line with TOOL30 para 14 under section 3.1 /09/, The value was calculated based on based on total domestic fuelwood consumption by rural and urban population, which was obtained from World bank data/44/.

All source links were assessed and discussed in detail against each input parameter in detail. These calculations were assessed and accepted by the assessment team. The total annual consumption of wood in absence of project activity was calculated to be 15,469,675 t/yr as verified from f_{NRB} calculation sheet/43/.

Estimation of renewable biomass (RB) is carried out in line with paragraph 19 of TOOL30/09/:

$$RB = \sum(MAI_{forest,i} \times (F_{forest,i} - P_{forest})) + \sum(MAI_{other,i} \times (F_{other,i} - P_{other}))$$

Where:

$MAI_{forest,i}$ = Mean Annual Increment of woody biomass growth per hectare in subcategory i of forest areas (t/ha/yr)

$MAI_{other,i}$ = Mean Annual Increment of woody biomass growth per hectare in subcategory i of other wooded land areas (t/ha/yr)

$F_{forest,i}$ = Extent of forest in sub-category i (ha)

$F_{other,i}$ = Extent of other wooded land in sub-category i (ha)

P_{forest} = Extent of non-accessible area (e.g., protected area where extraction of wood is prohibited, geographically remote area) within forest areas (ha)

P_{other} = Extent of non-accessible area (e.g., protected area where extraction of wood is prohibited, geographically remote area) within other wooded land areas (ha)

i = Sub-category i of forest areas and other wooded land areas

The total renewable biomass in the host country was calculated to be 1,929,668 t/yr.

f_{NRB} calculation:

$$NRB = H - RB$$

$$= 15,469,675 - 1,929,668 \text{ t/yr}$$

$$= 13,540,007 \text{ t/y}$$

$$f_{NRB} = NRB / (NRB + RB)$$

$$= 13,540,007 / (13,540,007 + 1,929,668)$$

$$= 0.88$$

The calculated f_{NRB} of 0.88 indicates that the consumption of woody biomass within the country is greater than its capacity to supply sustainably.

In line with para 13 of TOOL30, v.03.0/09/, since the f_{NRB} value is estimated at the national level, as a cross check, project proponent has also compared the value of estimated NRB with the product of: i) total average above ground biomass tonnage of the area of forest areas deforested in recent past (94.98 tonnes/ha), and ii) most recent available observed annual rate of deforestation (46,070 ha/yr) as sourced from FAO, Zimbabwe/35/. The resulting cross-check value was 4,375,729 t/year, which is less than NRB value (13,540,007 t/yr) calculated by the PP in line with equation (2) of TOOL 30, v.03.0/09/. The justification provided in the third party f_{NRB} report/47/ for the higher estimated value of NRB states that the cross-check estimate of biomass loss from deforestation only accounts the average biomass stocks from areas that are completely deforested and doesn't consider unsustainable wood harvesting practices which causes forest degradation and significant reductions in biomass stocks, not leading to complete deforestation. The approach was found sufficient as domestic per capita consumption rates were derived from reported rural and urban consumption estimates, and that non-domestic consumption of non-renewable biomass, fuelwood and charcoal (7,967,153 t/yr) was excluded while determining the value of f_{NRB} in line with TOOL30, v.03.0/09/. The third party f_{NRB} report/47/ has detailed the calculation which was found appropriate by the assessment team.

The approach and sources used for determination of parameter f_{NRB} were found to be compliant with applied methodology/08/ and TOOL30/09/. Therefore, the derived value of 0.88 for f_{NRB} has been accepted by the assessment team.

Through an independent desk review, it was confirmed that the data sources used for f_{NRB} calculation for Zimbabwe are the latest published for Zimbabwe and of equivalent vintage. Also, the calculated value of 88% was found conservative when compared with the 97% f_{NRB} default value issued by UNFCCC issued for Zimbabwe (https://cdm.unfccc.int/Panels/ssc_wg/meetings/037/ssc_37_an14.pdf) which has now expired. Furthermore, the calculated value of f_{NRB} at 0.88 represents a conservative value based on the fact that much higher values of the parameter has been used in other registered projects/48/ in the host country.

Thus, it can be stated that the f_{NRB} value for Zimbabwe, is acceptable, and have been calculated following applicable calculations, as defined by the applied methodology/08/.

All documentation and records must be retained safely and easily accessible for at least two years after the project crediting period ends, in line with section 3.23.1 of the VCS Standard (v.4.3)/01/. The validation team accepts the data collection and administration techniques described in section 5.3 of the VCS PD/07/. The validation team spoke with PP representatives, and it was determined that PP creates and maintains a database of all the project equipment it delivered. Additionally, samples of equipment invoices/21/ were examined, and it was discovered that they contained data that complied with the monitoring standards of the methodology VMR0006 v.1.1/08/.

According to the validation team, the monitoring plan's implementation tools, such as data management, monitoring tools, and quality assurance and quality control procedures, are adequate to ensure that the emission reductions achieved by or resulting from the grouped project proposal therein can be reported ex-post and verified. The sampling plan also complies with the monitoring methodology VMR0006 (v.1.1)/08/, the Standard of Sampling and Surveys of CDM Project Activities and Programme of Activities (v.09.0)/18/, and the Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities (v.04)/19/.

The validation team certifies that the overall monitoring plan complies with the methodology VMR0006 (v.1.1)/08/ requirements, that the monitoring arrangements described in the monitoring plan/07/ are practical within the project design, and that the project proponents will be able to carry out the described monitoring plan/07/.

CAR 06 has been raised and resolved (Refer to Appendix IV for further details).

3.4 Non-Permanence Risk Analysis

It is not an AFOLU project activity, hence it is not applicable.

4 VALIDATION CONCLUSION

Earthood Services Private Limited (hereafter referred to as ESPL) has been contracted by C-Quest Capital SGM ZM Stoves Private Limited to conduct the VCS validation of the project activity – “Installation of high efficiency wood burning cookstoves in Zimbabwe – Project 2”, with VCS ID 2890, in accordance with the

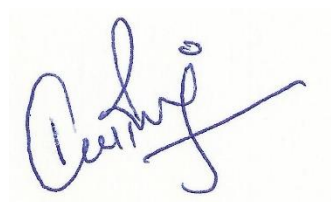
relevant requirements of VCS Standard v.4.3/01/; to achieve real, measurable, additional, and permanent emission reductions.

The proposed project aims to improve household and community access to improved cookstoves by distributing high thermal efficiency, low greenhouse gas emission cooking stoves known as Improved Cook Stoves (ICS) to households of Zimbabwe. The replacement of inefficient traditional cook stoves through ICS will help to reduce greenhouse gas emissions and firewood use, resulting in long-term climate change mitigation.

This validation was carried out using a risk-based approach. 06 Corrective Action Requests (CAR), 03 Clarification Requests (CL) and no Forward Action Requests (FAR) were raised and successfully closed during the validation.

The validation is based on the additional documents pertaining to baseline and monitoring methodology/08/, as well as follow-up interviews/33/ and supporting documents made available to the validation team by the PP.

The validation team confirms that the information provided in PD/07/ fulfils the criteria of VCS Standard v.4.3/01/ and is in line with all relevant VCS requirements. The validation has been performed using a risk-based approach as described above. The project emission reductions are calculated in a transparent and conservative manner, so that the expected average estimated amount of annual emission reduction is 868,550 tCO₂e and a total of 8,685,508 tCO₂e for 10 years of fixed crediting period.



Approved by:

Kaviraj Singh

Managing Director

Earthood Services Private Limited

Date: 11/04/2023

Place:Gurgaon,Haryana

APPENDIX I: COMPETENCE STATEMENTS

Competence Statement			
Name	Harsh Raval		
Education	Bachelor of Engineering in Chemical Engineering Masters of Science in Environmental and Energy Engineering		
Experience	15 Years		
Field	Climate Change, Environment and Waste Management		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (AMS-I.D, ACM0002)		
Local expert	YES (INDIA)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert (1.2)	YES		
Reviewed by	Deepika Mahala (Quality Manager)	Date	08/12/2021
Approved by	Ashok Gautam (Technical Manager)	Date	08/12/2021

Competence Statement			
Name	Jahnabi Kalita		
Education	M.Sc. Environment Management		
Experience	1 year+		
Field	Environment, Climate change		
Approved Roles			
Team Leader	Yes (VM)		
Validator	Yes (VM)		
Verifier	Yes (VM)		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	Yes		
Reviewed by	Shifali Guleria, Quality Manager	Date	24/09/2022
Approved by	Deepika Mahala, Technical Manager	Date	24/09/2022

Competence Statement			
Name	Shreya Garg		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	6 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 1.2, TA 3.1)		
Reviewed by	Shifali Guleria	Date	26/04/2022
Approved by	Deepika Mahala	Date	26/04/2022

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)		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (1.2, 3.1)		
Reviewed by	Deepika Mahala	Date	16/02/2022
Approved by	Ashok Gautam	Date	18/02/2022

Competence Statement	
Name	Charu Patwal
Education	M.Sc. Environmental Science
Experience	2 years 4 months

Field	Research & Sustainability		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	YES		
Reviewed by	Shifali Guleria (Quality Manager)	Date	10/05/2022
Approved by	Deepika Mahala (Deepika Mahala)	Date	10/05/2022

Competence Statement			
Name	Munatsi Chuma		
Education	Bachelor’s degree in Industrial and Manufacturing Engineering		
Experience	2+ years		
Field	Power and Electricity		
Approved Roles			
Team Leader	No		
Validator	No		
Verifier	No		
Methodology Expert	No		
Local expert	Yes (Zimbabwe)		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	No		
Reviewed by	Shreya Garg	Date	15/06/2020
Approved by	Ashok Kumar Gautam	Date	15/06/2020

APPENDIX II: ABBREVIATIONS

Abbreviations	Full texts
AFOLU	Agriculture, Forestry and Other Land Use
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Action
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DOE	Designated Operational Entity
DVR	Draft Validation Report
EB	CDM Executive Board
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
ESPL	Earthood Services Private Limited
FAO	Food and Agriculture Organization
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GP	Grouped Project
ICS	Improved Cook Stoves
IPCCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MR	Monitoring Report
NA	Not Applicable
PA	Project Activity
PD	Project Description
PE	Project Emission
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
QMS	Quality Management System
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCS-PD	VCS – Project Description
VCU	Verified Carbon Unit
VVB	Validation/verification Body
XLS	Emission Reduction Calculation Spread Sheet

APPENDIX III: REFERENCES

S. No.	Title	References	Provider
1.	VCS Standard	Version 4.3 Dated: 22/06/2022	Others
2.	VCS Program Guide	Version 4.2 Dated: 22/06/2022	Others
3.	VCS Program Definitions	Version 4.2 Dated: 22/06/2022	Others
4.	Registration and Issuance Process	Version 4.2 Dated: 22/06/2022	Others
5.	VCS Validation and Verification Manual	Version 3.2 Dated: 19/10/2016	Others
6.	Initial VCS PD	Version 1.1 Dated: 20/04/2022	PP
7.	Final VCS PD	Version 2.3 Dated: 29/03/2023	PP
8.	VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves	Version 1.1 Dated: 22/07/2021	Others
9.	TOOL30: Calculation of the fraction of non-renewable biomass	Version 3.0	Others
10.	Initial Estimated ER Calculation Sheet	Version 1.1 Dated: 20/04/2022	PP
11.	Final Estimated ER Calculation Sheet	Version 2.2 Dated: 22/11/2022	PP
12.	VCS webpage for the project, https://registry.verra.org/app/projectDetail/VCS/28905	Last accessed on 28/09/2022	Others
13.	VCS Validation template	Version 4.1 Dated: 20/01/2022	Others
14.	Efficiency (34.5%) test report of ICS as per water boiling test (WBT) by third party (Aprovecho Research Center)	Dated: October 2015	PP
15.	End User Agreement and Proof of start date	Dated: 14/10/2021	PP
16.	Geocoordinates of the project location https://www.geodatos.net/en/coordinates/zimbabwe	-	Others
17.	Zimbabwe environmental laws and regulations: 1. http://extwprlegs1.fao.org/docs/pdf/zim47834.pdf 2. http://extwprlegs1.fao.org/docs/pdf/zim181644.pdf 3. http://extwprlegs1.fao.org/docs/pdf/zim181839.pdf	1. Environmental Management Act, 2003 2. EIA and Ecosystems Protection Regulations SI 7, 2007 3. Atmospheric Pollution Control Regulations SI 72, 2009	Others
18.	Standard for Sampling and Surveys for CDM Project Activities and Program of Activities	Version: 09.0	Others

19.	Guidelines for Sampling and Surveys for CDM Project Activities and Program of Activities	Version: 04.0	Others
20.	TLC Cookstove Construction Brochure/Manufacturer's Specifications	-	PP
21.	Purchase Order of TLC rocket stove parts	Dated: 11/07/2021	PP
22.	Report for 'Calculation of the fraction of non-renewable biomass (f _{NRB})' by C4 EcoSolutions	Dated: 20/01/2022	PP
23.	Declaration from the PP that the project has not claimed or will not claim carbon credits under any other scheme after registration of the project under VCS	Dated: 22/08/2022	PP
24.	Local Stakeholders Consultation Report	-	PP
25.	CQC Website announcement and Feedback Submission Form	Dated: 26/10/2020	PP
26.	Invitation Emails, Newspaper Advertisement, and Invitation List	-	PP
27.	Project Description Presentation by CQC	-	PP
28.	Non-Technical Summary	-	PP
29.	List of Attendees and list of electronic Feedback providers	-	PP
30.	Electronic Stakeholder Feedback	-	PP
31.	Supplementary photos of LSC Meeting	-	PP
32.	Training Manual	-	PP
33.	Remote site visit evidence	Meeting recordings and photographs with household and Local Stakeholder Committee	Others
34.	Project Database	-	PP
35.	FAO, Global Forest Resource Assessment Report 2020, Country Report, Zimbabwe https://www.fao.org/3/cb0093en/cb0093en.pdf	-	Others
36.	Africa Covid -19 Cases <u>Weekly epidemiological update on COVID-19 - 4 May 2022 (who.int)</u>	Dated: 04/05/2022	Others
37.	VCS Pipeline listing review findings	-	PP
38.	AMS-II.G. 'Energy efficiency measures in thermal applications of non-renewable biomass	Version: 13.0 Dated: 08/09/2020	Others
39.	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy	Chapter 1 Introduction Chapter 2 Stationary Combustion	Others
40.	VCS PD template	Version: 4.1 Dated: 20/01/2022	Others
41.	Grievance Redress Policy and Procedure Manual	Version 1.2	PP
42.	Demographic and Health Survey of Zimbabwe Report	2015	Others
43.	f _{NRB} calculation sheet	-	PP

44.	https://data.worldbank.org/indicator/SP.URB.TOTL?locations=ZW	-	PP
45.	https://data.un.org/Data.aspx?q=charcoal&d=EDATA&f=cmID%3aFW	-	PP
46.	Filled Stakeholder Evaluation Forms	-	PP
47.	fNRB calculation report by C4 EcoSolutions (Pty) Ltd.	-	PP
48.	https://registry.goldstandard.org/projects/details/3634 https://registry.goldstandard.org/projects/details/1124	-	Others

APPENDIX IV: FINDINGS

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

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

Table 2.CL from this validation

CL ID	01	Section no.	3.1	Date : 08/08/2022
Description of CL				
The PP is requested to submit the following documents: • Evidence for unique identification of each TLC-CQC stove. • End user agreement. • Purchase records of metal parts of stoves • Declaration from the project proponent that the project has not claimed or will not claim carbon credits under any other scheme after registration of the project under VCS.				
Project proponent response				Date : 05/09/2022

1. A unique ID comprising of a combination of customer name, geographical location as well as a serial number will be used to identify the ICS end users of this project activity. This identification mechanism will help the PP to differentiate VCUs specific to each project activity that will be undertaken in the project boundary. The PP will ensure that double accounting is not done for the projects and the ICS registered to the current project activity are used to claim VCUs. Registration certificate of the end user has been provided as evidence. 2. Registration cum consent deed signed by the end user at the time of stove installation includes the statutory clause “Acknowledgement and Carbon Rights Wavier” and hence the same is provided as evidence for end user agreement. 3. Stove metal parts purchase order has been provided. 4. Self-declaration is provided by the PP which clearly states that “the project is not creating any other form of environmental credit under a specific program” & “the project has not or shall not claim carbon credits under any other scheme after registration of the project under VCS.”	
Documentation provided by project proponent	
1. “2.0 2890_Registration certificate First End User” 2. “2.0 2890_Registration certificate First End User” 3. “15.0 TA-EGA Stove parts purchase order” 4. “11.0 VCS 2890 Zimbabwe-2 PP Declaration”	
VVB assessment	Date: 12/09/2022
The following documents have been submitted by the PP: 1. Evidence for unique identification of each TLC-CQC stove. 2. End user agreement. 3. Purchase records of metal parts of stoves 4. Declaration from the project proponent that the project has not claimed or will not claim carbon credits under any other scheme after registration of the project under VCS. Hence, CL 01 is closed.	

CL ID	02	Section no.	3.1	Date : 08/08/2022
Description of CL				
• The VCS Standard version 4.3, Para 3.6.1 outlines the several approaches the project proponent can use to demonstrate project ownership, none of which require Host Country Approval. However, in Section 1.7 of the PD, the PP specifies that they will use the Host Country Approval as proof of title for the project. A clarification is requested regarding the same. • According to Section 3.7 of the VCS standard, version 4.3, the project start date of a non-AFOLU project is the date on which the project began generating GHG emission reductions or removals. PP is requested to provide the evidence regarding the project activity’s start date.				
Project proponent response				Date : 05/09/2022
• PP has rephrased the statement and referred consent letter signed by the end user as the proof of ownership in section 1.7 of the revised PD. • The project activity start date is 14th October 2021 i.e., the date of commissioning of ICS batch 1. Registration certificate cum consent deed of the first household stove user is provided as evidence.				
Documentation provided by project proponent				
• “2.0 2890_Registration certificate First End User” • “2.0 2890_Registration certificate First End User”				
VVB assessment				Date: 12/09/2022

- PP has revised Section 1.7 stating that *‘the participating household will sign a declaration to transfer the ownership rights of the carbon assets generated from this project to the project proponent’*. The same has been confirmed from the Registration certificate cum consent deed by the end user provided as evidence by the PP.
- PP has provided the Registration certificate cum consent deed of the First End User as evidence for the project activity’s start date. From this, it has been confirmed that the start date of the project activity is 14th October 2021 which is the date of commissioning of ICS batch 1.

Hence, CL 02 is closed.

CL ID	03	Section no.	3.2.2, 3.2.4	Date : 08/08/2022
Description of CL				
According to latest VCS Standard version 4.3, Para (3.17.9), ‘The project proponent shall take due account of all comments received during the consultation, which means it will need to either update the project design or demonstrate the insignificance or irrelevance of the comment. The project proponent shall demonstrate to the validation/verification body what action it has taken.’				
Therefore, Project Proponent is requested to clarify why public comments (Section 2.4) has not been documented in PD.				
Project proponent response				Date : 05/09/2022
The project was open for public comments from 03/06/2022 to 03/07/2022. However, no comments were received during this period. The same has been updated in section 2.4 of the PD submitted to the VVB.				
Documentation provided by project proponent				
VVB assessment				Date: 12/09/2022
The updated sections 2.4 Public comments has been incorporated in latest version of PD v.2.0 by the PP and the same has been verified by the VVB from the Verra Registry.				
Hence, CL 03 is closed.				

Table 3.CAR from this validation

able to start from the validation

CAR ID	01	Section no.	Completeness of VCS PD	Date : 08/08/2022
Description of CAR				
The submitted PD is of version 4.0. Project Proponent is requested to revise the PD as per the latest available applicable template in accordance with the VCS Standards and Program Guide's latest version.				
Project proponent response				Date : 05/09/2022
PD has been revised as per the latest PD version 4.1.				
Documentation provided by project proponent				
"VCS_PD_2890_ver2.0_Zimbabwe-2"				
VVB assessment				Date: 12/09/2022
The PP has submitted the revised PD in accordance with the latest available template for Project Description, version 4.1.				
Hence, CAR 01 is closed.				

CAR ID	02	Section no.	3.1, 3.3.6	Date :	05/09/2022
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Description of CAR	
- Section 1.1 of the VCS Project Description Template v4.1 states “(provide) a summary description of the technologies/measures to be implemented by the project”. Furthermore, section 1.11 of the VCS Project Description Template v4.1 states “include a list and the arrangement of the main manufacturing/production technologies, systems and equipment involved. Include in the description information about the age and average lifetime of the equipment based on manufacturer’s specifications and industry standards, and existing and forecast installed capacities, load factors, and efficiencies.” Sections 1.1 and 1.11 of the PD do not provide the estimated life span of the improved cookstove. The PP is requested to indicate the life span of the improved cookstove in sections 1.1 and 1.11 of the PD. - Section 1.10 of the project description provides a table of the estimated GHG emissions reductions or removals (ERRs), which decline throughout the crediting period of the project. Given that this is a group project, the project proponent is requested to provide more information in Section 1.11 of the project description on the activities and any implementation plans that would result in a decline in GHG ERRs over the project’s crediting period.	
Project proponent response	Date : 30/09/2022
- The average life span of the TLC-CQC rocket stove is 10 years. The same has been updated in section 1.1 and 1.11 of the revised PD. - The ex-ante emission reductions have been calculated using the following assumptions: - The project will install up to 375,000 ICS, the annual stove loss rate is estimated at 10%. $B_{y=1,new,i,j,survey}$ is assumed as 1.09 tonnes/device/year. - Efficiency drop is calculated using equation 5 of the applied methodology. However, the actual emission reductions during the verification will depend on the values of $B_{y=1,new,i,j,survey}$ and $N_{y,i,j}$ obtained during the monitored surveys. Also, the projected stove installation might get extended over a year or maybe even two years depending on the rate of construction of the stoves on field and therefore for first few years the emission reduction could be lower than the ex-ante calculated values. The uncertainty in number of stoves installed and operational during the monitoring period will primarily result in the differences of the ex-ante and actual emission reductions achieved during the crediting period.	
Documentation provided by project proponent	
“TLC’s Manufacturer’s Specifications” “VCS_PD_2890_ver2.0_Zimbabwe-2”	
VVB assessment	Date: 03/10/2022
- PP has mentioned the average life span of the ICS as 10 years in Section 1.1 and 1.11 of the revised PD and the same was verified by the TLC’s Manufacturer’s Specification. - The justification provided by the PP for the implementation plans that would result in a decline in GHG ERRs over the project’s crediting period stating, that efficiency drop will be calculated using equation 5 of the applied methodology and that actual emission reductions depend on the values of $B_{y=1,new,i,j,survey}$ and $N_{y,i,j}$ obtained during the monitored surveys has been accepted and verified from section by the 1.11 of PD by the VVB. Hence, CAR 02 is closed.	

CAR ID	03	Section no.	3.1	Date : 08/08/2022
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Description of CAR	
In accordance with the requirement of 3.8.1 of VCS standard, version 4.2, <i>“the project crediting period shall be either seven years, twice renewable for a total of 21 years, or ten years fixed”</i> . In accordance with VCS website, the crediting period is taken from 21/01/2022 to 20/01/2032. PP is requested to revise the same.	
Project proponent response	Date : 30/09/2022
The start date of the project activity is 14 th October 2021 (i.e., date of commissioning of ICS batch 1). The same has been updated in section 1.8 of the revised PD. Registration certificate of the first end user is provided as the evidence for start date of the project activity. The crediting period is revised to “14 th October 2021 to 13 th October 2031”, same has been updated in section 1.9 of the revised PD. The crediting period on the VCS website will be updated on the final registration of the project activity.	
Documentation provided by project proponent	
VVB assessment	Date: 03/10/2022
PP has provided the registration certificate of the first end user which confirms the start date of the project activity i.e. 14/10/2022 which is also the date of commissioning of ICS batch 1. PP has corrected the start date of the project activity in section 1.8 and the crediting period in section 1.9 of the revised PD. Also, the date of the crediting period mentioned on the VCS website will be updated on the final registration of the project activity.	
Hence, CAR 03 is closed.	

CAR ID	04	Section no.	3.3.1, 3.3.2, 3.3.3, 3.3.5	Date : 08/08/2022
Description of CAR				
1. In section 3.1 of PD, title and version number of the tools applied in the project activity is not provided. 2. Some of the applicability and additionality criteria of the methodology VMR0006 version 1.0 is not included in Section 3.2 of VCS PD. Kindly revise. 3. In accordance with the VCS Standard V4. Section 3.4.1, <i>“The project proponent shall use the VCS project description template and adhere to all instructional text within the template”</i>. In Section 3.3 of the VCS PD, the project proponent has not included the diagram/map of the project boundary as stated in VCS template’s instructions.				
Project proponent response				Date : 30/09/2022
1. The applied tool title and version no. has been added in section 3.1 of the revised PD. 2. All the applicability conditions of the applied methodology have been incorporated in section 3.2 of the revised PD. 3. Project boundary map has been included in section 3.3 of the revised PD.				
Documentation provided by project proponent				
VVB assessment				Date: 03/10/2022
1. PP has now updated the title and version number of the tools applied in the revised PD. 2. The applicability and additionality criteria as per the methodology has been included by the PP. However, the applicability criterion point 5 statement mentioned is incomplete. Kindly correct the same accordingly. 3. PP has included the project boundary diagram/map of the equipment, systems and flows of mass and energy based on the description provided in Section 1.11 of the PD in accordance with VCS PD template’s instructions v.4.1.				
Hence, CAR 04 is closed.				

CAR ID	05	Section no.	3.3.6	Date : 08/08/2022
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Description of CAR	
- The equation numbers mentioned in Section 4.4 are not in line with the applied methodology VMR0006, v1.1. - The average annual GHG emission reductions mentioned in the PD is not in line with the value mentioned in ER sheet.	
Project proponent response	Date : 05/09/2022
- The equation numbers have been corrected in section 4.4 as per the applied methodology. - The average annual GHG emission reductions have been made consistent throughout the PD as per the values mentioned in the ER sheet.	
Documentation provided by project proponent	
Revised PD ver2.0 and revised ER sheet ver2.0	
VVB assessment	Date: 12/09/2022
- PP has updated the equation numbers mentioned in Section 4.4 with the applied methodology VMR0006, v1.1 and was found to be correct. - PP has revised the average annual GHG emission reductions mentioned in the PD and was found to be consistent with the values mentioned in the ER sheet. Hence, CAR 05 is closed.	

CAR ID	06	Section no.	3.3.8	Date : 08/08/2022
Description of CAR				
- In Section 5.1, the value of f_{NRBy} is not in line with the survey report provided. The PP is requested to update the value. - In Section 5.3, the version applied for Standard Sampling and surveys for CDM project activities and programme of activities, is not the latest one in accordance with CDM website. Kindly revise. Also, under Sampling frame, it is mentioned that '<i>The number of project devices operating may vary with ICS type</i>'. The PP is requested to provide a clarification regarding the types of ICS that will be installed during the project activity.				
Project proponent response				Date : 05/09/2022
- The f_{NRBy} value has been updated in section 5.1 of the PD. - The version number applied for "Standard Sampling and surveys for CDM project activities and programme of activities" has been updated to version 09.0. The project activity at present is intended to distribute only TLC-CQC rocket stoves, which has been made consistent throughout the revised PD submitted to the VVB. The PP will be distributing only one type of ICS, the proof of which, i.e., the database depicting the registered stoves has been provided to the VVB. However, it is at the sole discretion of PP to decide to distribute enhanced efficiency stoves in the future, inclusion of which will be done as per the capacity limits, eligibility criteria of the new project activity instances for the grouped project.				
Documentation provided by project proponent				
VVB assessment				Date: 12/09/2022
- PP has revised the value of f_{NRBy} as per the 'Calculation of the fraction of non-renewable biomass (f_{NRBy})' report and was found to be in line with the survey report. - PP has now updated with the latest applicable version of "Standard Sampling and Surveys for CDM project activities and programme of activities" in the revised PD. The PP has provided the explanation regarding the distribution of the TLC-CQC rocket stoves and the required changes regarding the distribution of only rocket stoves have also been made by the PP in the revised PD. Therefore, the explanation has found to be satisfactory. Hence, CAR 06 is closed.				

Table 3.FAR from this validation

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