DISTRIBUTION OF IMPROVED COOK STOVES IN SUB-SAHARAN AFRICA–MALAWI-CPA-006

Document Prepared by LGAI Technological Center, S.A.(Applus+ Certification)

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Client	C-Quest Capital Malaysia Global Stoves Limited

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Prepared By	LGAI Technological Center, S.A.(Applus+ Certification)
Contact	Campus UAB – Ronda de la Font del Carme, s/n 08193 Bellaterra – Barcelona (Spain) Tel.:+34 93 567 20 08 Fax.:+34 93 567 20 01 www.appluscertification.com agustin.calle@applus.com carla.debat@applus.com
Approved by	LGAI Technological Center S.A. (Applus+ Certification) VVB Technical Manager – Mr. Agustín Calle de Miguel
Work carried out by	Vivek Kumar Ahirwar, Lead Auditor Simon Shen, as Technical Reviewer

Summary:

C-Quest Capital Malaysia Global Stoves Limited has contracted LGAI Technological Center, S.A. (Applus+ Certification) to perform the Gap validation of the CDM registered Component project activity (CPA): "Distribution of Improved Cook Stoves in Sub-Saharan Africa–MALAWI-CPA-006" having UNFCCC Ref. No. 9007-P1-0006-CP1 and VCS ID 2712, against the relevant VCS requirements of VCS Standard version 4.2.

This CPA involves Improved cook stove called "TLC-CQC Rocket Stove", which is a single pot improved cookstove made of clay bricks baked to high standards and supported with metal parts, which are procured from within the Host Country. It will result in reduction of greenhouse gases through efficient use of firewood, thereby to contribute to the conservation of forests and woodlands. The specified efficiency of the ICS is 34.5% (based on independent stove efficiency tests performed by Aprovecho Research Centre). The CPA involves the several villages located across Malawi.

A risk-based approach has been followed to perform this validation. In the course of the validation 06 Corrective Action Requests (CAR) and 01 Clarification Requests (CR) were raised and successfully closed.

The validation is based on the VCS-PD, proof of title, proof of right, UNFCCC website for the CDM registered programme of activity.

https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/XFNYUSZ7QV3L28649RPEJKWMT05HB1/view?cp=1

; the subsequent background investigation, follow-up interviews and supporting documents made available to the validation team by project proponent.

As a result of the validation, the validation team confirms that:

- The project fulfils criteria of VCS Standard Version 4.2.

- The project is in line with all relevant VCS requirements.

- The project baseline is sufficiently justified in the VCS-PD.

- The calculation of the baseline and project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 8,235,625 tCO_2e is most likely to be achieved within the 10 years of fixed crediting period.

- No restrictions or uncertainties were identified related to the validation

CONTENTS

1 INTRODUCTION 5
1.1 Objective 5
1.2 Scope and Criteria 5
1.3 Level of Assurance 6
1.4 Summary Description of the Project 6
2 VALIDATION PROCESS 7
2.1 Method and Criteria 7
2.2 Document Review 8
2.3 Interviews 8
2.4 Site Inspections 9
2.5 Resolution of Findings 9
3 VALIDATION FINDINGS 10
3.1 Project Details 10
3.2 Safeguards 19
3.3 Application of Methodology 19
3.4 Non-Permanence Risk Analysis 29
4 VALIDATION CONCLUSION 29
APPENDIX 1: < REFERENCES > 31
APPENDIX 2:<COMPETENCYSTATEMENT> 31
APPENDIX 3: <FINDINGS OVERVIEW > 33

1 INTRODUCTION

1.1 Objective

C-Quest Capital Malaysia Global Stoves Limited has contracted LGAI Technological Center, S.A. (Applus+ Certification) to perform the Gap validation of the CDM registered Component project activity (CPA): "Distribution of Improved Cook Stoves in Sub-Saharan Africa–MALAWI-CPA-006" having UNFCCC Ref. No. 9007-P1-0006-CP1 and VCS ID 2712; to attain real, measurable, additional and permanent emission reductions.

The purpose of validation is to ensure a thorough, independent assessment of the project description (PD), in particular the project's description eligibility, ownership, crediting period and details regarding its compliance with the law statutes and other regulatory frameworks

- The requirements of VCS Program guide Version 4.1 /15/

- The requirements of VCS Standard Version 4.2 /16/

- To assess the project's compliance with other relevant rules, including the project country (Malawi) legislation and

- Other relevant rules are validated in order to confirm that the project description as documented is sound and reasonable and meet the stated requirements and identified criteria.

The validation is seen as necessary to provide assurance about the quality of the project and its intended generation of emission reductions over the project's crediting period without any double counting.

1.2 Scope and Criteria

The scope of the gap validation is defined as an independent and objective review of the Project description document, where methodological deviations and the project's compliance in section 1 (i.e. Project Details) is reviewed against the requirements of VCS Standard. Applus+ certification has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of Emission Reductions.

The items covered in the validation are described below:

- VCS Criteria

- VCS Project Description

- Background investigation and follow up interviews

- Draft validation reporting with CARs & CRs, if any

- Final validation reporting

The gap validation is based on the information made available to Applus+ certification and on the contract conditions.

The validation is not meant to provide any consulting to the project proponent. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project description. The work carried out by Applus+ certification is free from any conflict of interest.

1.3 Level of Assurance

The gap validation report is based on VCS-PD, supporting documents made available to the validator and information collected through performing interviews. Based on the process and procedures conducted, Applus+ certification states whether the information in the PD:

- is materially correct and is a fair representation of the actual project details, and

- is prepared in accordance with VCS requirements and the applied CDM methodology for information pertaining to description, methodological deviations and reporting.

The gap validation work is carried out as per this requirement and the validation opinion is assured provided the credibility of all above. Details are presented in the Validation statement in section 4 below.

1.4 Summary Description of the Project

The main purpose of this CPA is dissemination of the efficient improved cooking stove woody biomass-based ICS to the rural household of Malawi. The ICS will burn wood more efficiently thereby improving thermal transfer to pots, which will result in reduced firewood consumption, hence saving fuel. This will not only halt the rapidly progressing deforestation in Malawi but will also reduce health hazards from indoor smoke pollution and women and children will have to spend less time collecting firewood. Therefore, this will lead to climate change mitigation in a sustainable manner. Overall objectives are reduction of greenhouse gases, conservation of forests and woodlands as well as improved health conditions of ICS users due to improved indoor air quality.

The ICS is called “TLC-CQC Rocket Stove”, which is a single pot improved cookstove made of clay bricks baked to high standards and with some metal parts, which are procured from within the Host Country. The ICS improve the efficiency of combustion and thermal transfer to the pot compared with a traditional pot support or three-stone fire by incorporating a number of cutting-edge components, including one or more of; a ‘rocket elbow’; a highly insulated combustion chamber which provides a conducive environment for clean and efficient combustion of wood.

Improved cook stove (ICS) allows for significant savings of firewood compared to traditional stoves and is especially suitable for the cooking habits of the people in the target region. Its design ensures efficient combustion of fuel and cleaner fire and therefore uses considerably less fuel as compared to traditional stoves. This means speedy cooking, time and fuel savings, cleaner pans, kitchen walls and indoor atmosphere. Improved Cook stove has nominal power and delivers the same energy output as thermal energy supplied in the baseline scenario with traditional stone fire. Energy flows from conventional woody biomass to households are therefore maintained, but the same amount of energy as used in the baseline scenario is gained from a relatively smaller amount of biomass (wood fuel). The baseline scenario is equal to the current practice i.e. in absence of the proposed project the equivalent amount of thermal energy generated using more firewood to meet cooking energy demand. The details of the stove design and technicalities are discussed under the section 1.11 of VCS-PD.

The project targets households in rural communities with no previous access to Improved Cook stoves. The geographical boundary is the Country of Malawi. ICS are distributed free of cost to users. Ecoeye Co., Ltd. (henceforth referred as Ecoeye) and Korean Parties provide all implementation cost for all ICS under this CPA.

The scenario existing prior to the implementation of the project is the actual baseline scenario which is equal to the existing common practice in the region i.e. in absence of the project the equivalent amount of thermal energy generated using firewood in three stone open fires to meet the cooking energy demand.

The estimates of annual average and total GHG emission reductions for the chosen crediting period are 823,563 tCO_2e/annum and 8,235,625 tCO_2e respectively.

Validation team has checked the summary description of the project defined in the VCS-PD /1.1/ with VCS ID 2712 and found consistent with the registered CDM-PoA-DD/2/ CPA-DD/03/.

https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/XFNYUSZ7QV3L28649RPEJKWMTO5HB1/view?cp=1

2 VALIDATION PROCESS

2.1 Method and Criteria

The CPA applies approved VCS methodology VMR0006, Version 01.1/14// (instead of the AMS-II.G., version 04, which was applied at the time of CPA inclusion under CDM PoA 9007), categorized under sectoral scope 3 “Energy Demand”. The gap validation consisted of the following phases:

- Completeness check and desk review of the Project Description
- Interview with project representatives and issuance of findings.
- Resolution of findings followed by preparation of the final validation report and opinion.

2.2 Document Review

After the submission of the draft VCS-PD /1.1/ and supporting background documents related to the project design and baseline from the client, the completeness of information made available as per VCS standard version 4.2 /16/ requirements is reviewed. Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data available on public domain.

Validation team has checked the summary description of the project defined in the VCS-PD /1.2/ and found consistent with the registered CDM-PoA-DD/2/ CPA-DD/03/

https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/XFNYUSZ7QV3L28649RPEJKWMT05HB1/view?cp=1

The project has been listed in the VERRA with VCS ID 2712.

A desk review is carried out to assess the following:

- the project details as per VCS PD template

- the methodological deviations applied

- compliance with relevant law and regulations

- conditions prior to project initiation/ baseline.

The list of documents reviewed is included in the section 'References'.

2.3 Interviews

Due to the current situation with the global COVID-19 pandemic scenario and travel to site was not possible due to which on-site inspection has not been performed by the assessment team. However, the representatives of the PP and users were interviewed via Skype on 03-March-2022. The details of the people interviewed are mentioned in the table –

S. No.	Name	Role	Organization
1	Tridip Kumar Goswami	Chief-Carbon & Sustainability Accounting Team	Brightspark Energy Private Limited
2	Akhilesh Joshi	Senior Manager, Carbon & Sustainability Accounting Team	Brightspark Energy Private Limited

3	Neha Oli	Associate, Carbon & Sustainability Accounting Team	Brightspark Energy Private Limited

Refer to section 2.4 below for further information.

2.4 Site Inspections

Applus+ certification has not conducted site inspection for the gap validation process since the on-site CDM verification for the CDM CPA was done on 25-August-2021 to 27-August-2021 by the team leader and the technical expert for monitoring period 01-August-2020 to 31-December-2020 (both dates inclusive) under CDM. Since the CPA is distributed in the same area where the verification team conducted site visit and no further distribution of ICS happened since last site visit, therefore same site visit considered deemed applicable for this gap validation.

2.5 Resolution of Findings

Applus+ certification applies the risk-based approach aimed at focusing on high-risk issues to the validation results whilst not omitting any part of the mandatory processes. A few discrepancies were found during the validation and the validation report was submitted to the project proponent, indicated under the titles corrective action requests (CARs) and clarification requests (CRs). CARs and CRs require the PP to take relevant actions. Criteria for judging items as CAR or CR are as follows:

Corrective action request (CAR):

- the project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions

- the Voluntary Carbon Standard's requirements have not been met, or

- there is a risk that emission reductions cannot be monitored or calculated.

Clarification request (CR):

- Information is insufficient or not sufficiently clear to determine whether the applicable VCS requirements have been met.

FARs is to be raised to highlight issues related to project implementation that require review during the first verification of the project activity. FARs does not relate to VCS requirements for registration.

CARs and CRs are to be resolved or closed out if the PP modifies the project description, rectifies the PD or provides adequate additional explanations or evidence that satisfies the concerns. If this is not completed, the project activity cannot be recommended for registration under VCS registry.

06 CARs and 01 CRs were found during validation stated in Appendix below.

2.5.1 Forward Action Requests

No FARs raised during the validation.

3 VALIDATION FINDINGS

3.1 Project Details

Project scope, activity, type, technologies and measures implemented, and eligibility of the project.

The main objective of this CPA is dissemination of the efficient improved woody biomass-based ICS to the rural household of Malawi, which will result in reduced firewood consumption leading to climate change mitigation in a sustainable manner. Overall objectives are reduction of greenhouse gases, conservation of forests and woodlands as well as improved health conditions of ICS users due to improved indoor air quality.

TLC-CQC Rocket Stove proposed under these CPAs is a type of single pot fixed cook stoves. The TLC-CQC Rocket Stove is a simple design with basic features. The design uses a total of 16 readily available building bricks that are made by the household using locally available clay. The average size of the brick used on the TLC-CQC Rocket Stove which is produced using a standard mould is 22.5cm x 11cm x 6.5cm. The bricks are mortared together using locally available material (clay soil, cow dung, and sand) for better insulation and heat loss reduction. The mud mortar is a mix of 5 liters clay, 5 liters sand, 5 liters manure with 5 liters of water.

Metal components have been added to optimize combustion and heat transfer.

1) Stove Top - A metal stove top that allows the pot to sit higher improving the flow of air into the combustion chamber and out the top of the stove.

2) Pot Skirt - An adjustable metal pot skirt that improves the transfer of heat from the fire into the pot, increasing energy efficiency and also helping to block wind.

3) Stick Support - To aid the combustion chamber a metal stick support is placed in front of and slightly into the opening of the stove and acts as a firewood feeding platform and ensures airflow while feeding the fuel into the combustion chamber.

The scenario existing prior to the implementation of the project is the actual baseline scenario which is equal to the existing common practice in the region i.e. in absence of the project the equivalent amount of thermal energy generated using more firewood in three stone open fires to meet the cooking energy demand.

The individual households using ICS will sign an agreement with the PP acknowledging the inclusion of their stove into CPAs under this PoA. The sample agreements were validated by the assessment team for the cook stoves and found in line with the PoA-DD/02/. ICS will be distributed free of cost to targeted households in rural communities with no previous ICS access users. Ecoeye Co., Ltd. and Korean Parties financing the implementation of the CPA in full. The ICS numbers to be

distributed under this CPA is 250,000, which estimates an annual average and total GHG emission reductions of 823,563 tCO_2e/annum and 8,235,625 tCO_2e respectively for the chosen fixed crediting period of 10 years.

The project allows for significant savings of firewood compared to traditional stoves and is especially suitable for the cooking habits of the people in the target region. Its design ensures efficient combustion of fuel and cleaner fire and therefore uses considerably less fuel as compared to traditional stoves. This means speedy cooking, time and fuel savings, cleaner pans, kitchen walls and indoor atmosphere. Improved Cook stove has nominal power and delivers the same energy output as thermal energy supplied in the baseline scenario with traditional stone fire. Energy flows from conventional woody biomass to households are therefore maintained, but the same amount of energy as used in the baseline scenario is gained from a relatively smaller amount of biomass. The baseline scenario is equal to the current practice i.e. in absence of the proposed project the equivalent amount of thermal energy generated using firewood to meet cooking energy demand.

Validation team has checked the summary description of the project defined in the VCS-PD /01/ and found consistent with the registered CDM-PoA-DD/CPA-DD //02/03//.

(https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/XFNYUSZ7QV3L28649RPEJKWMTO5HB1/view?cp=1)

The project has been listed in the VERRA with VCS ID 2712.

The validation team has checked all the above-mentioned details with the supportive documents/02//03//04//07//08//09//10/ and confirms that all the information provided is accurate. CARs and CRs have been raised and successfully closed (Refer to Appendix 3 for further details).

Project proponent and Ownership

The CPA has been developed by C-Quest Capital Malaysia Global Stoves Limited.

As per the registered CDM-CPA-DD /03/ and as per section 1.5 of the VCS-PD /1.2/, C-Quest Capital Malaysia Global Stoves Limited is the Coordinating & Managing Entity (CME). Validation team has checked the letter of approval (LoA)/04/ to confirm that the managing directors/authorized signatory are same for both the companies.

During the remote interviews and document review it is understood that, C-Quest Capital Malaysia Global Stoves Limited is the sole entity. Moreover, in section 1.7 of the revised PD it is clearly mentioned about ownership and right transfer. Validation team reviewed the declaration mentions about the right transfer from the end users, this is in line with the section 3.6.1 of the VCS standard version 4.2.

Project start date

04-June-2019

The date prescribed as 04-June-2019 is the date of first cook stove distributed under the project (i.e. under the CPA 9007-P1-0006-CP1 of the PoA 9007) which can be further verified from records of end user agreement /registration details/ installation report etc. Therefore, 04-June-2019 is

considered as the start date as it owes to the real implementation in accordance to start date definition of VCS Standard Version 04.2. CR-01 has been raised in this context and resolved successfully (Refer to Appendix 3 for further details).

Project crediting period

Start date: 04-June-2019

End date: 03-June-2029

The VCS Standard version 4.2 /16/ 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 project was commissioned/started its implementation on 04-June-2019 and fixed crediting period of 10 years has been chosen for this project under VCS. Hence crediting period of the project becomes the first date of ICS Distribution 04-June-2019 and end date is 03-June-2029 (including both days) which is in accordance with 3.8.7 of VCS Standard v 4.2 .

Para, 3.8.7 of VCS standard (v 4.2), states that "Projects registered under other GHG programs are not eligible for VCU issuance beyond the end of the total project crediting period under those programs. For example, a CDM project with a seven year twice renewable project crediting period is not eligible for VCU issuance beyond the end of those 21 years. Where projects have been registered under more than one other GHG program, they are not eligible for VCU issuance after the date that is the earliest end date of all applicable project crediting periods."

The crediting period for the CDM-CPA is 21 years (7 years renewable crediting period, renewable twice). Therefore, the crediting period for the project under VCS needs to be limited within 03-June-2040. The project decided to follow 10 years fixed crediting period (as per para 3.8.1 of VCS standard), the end date is prescribed as 03-June-2029 which is before the expiry date of CDM crediting period i.e., 03-June-2040. Hence, VCS crediting period is not breaching the CDM crediting period.

The validation team has confirmed that the same has been correctly mentioned in the VCS-PD /1.2/. CAR-01 has been raised in this context and resolved successfully (Refer to Appendix 3 for further details).

Project scale and estimated GHG emission reductions or removal

The estimated volume of emission reduction from the project is more than 300,000 tons of CO_2e per year. The validation team confirms that the project falls under the category 2 'Large Project' as per para 3.9.1 of the VCS standard version 4.2/16/, as it does not have the potential to reduce GHG emission more than 300,000 tCO_2e/year.

The estimated annual average and the total CO_2e emission reduction by the project over the fixed crediting period of 10 years are expected to be 823,563 tCO_2e/annum and 8,235,625 tCO_2e respectively for the chosen fixed 10 years crediting period. The validation team confirmed that emission reduction forecast is reasonable if the underlying assumptions do not change. CAR-01 has been raised in this context and resolved successfully (Refer to Appendix 3 for further details).

Project location

The project under the CPA has been proposed to be implemented in several villages located across Malawi. The location of the project was confirmed by the validation team with the use of Google earth software and during last CDM verification remote on-site visit .

No non- conformity was found during validation (Refer to Appendix 3 for further details).

Conditions Prior to Project Initiation

In the absence of the project, the existing common practice in the region i.e. using firewood in three stone open fires to meet the cooking energy demand exists. Validation team has checked this scenario with the registered CDM-CPA-DD /03/ and found consistent. No non- conformity was found during validation (Refer to Appendix 3 for further details).

Compliance with Laws, Statutes and Other Regulatory Frameworks

The validation team confirms that the project activities under the PoA are voluntarily coordinated by C-Quest Capital Malaysia Global Stoves Limited and there are no specific laws/policies available for cook stove projects or any domestic household energy related projects in Malawi. The validation team has also confirmed that the baseline scenario presented in the VCS-PD/1.2/ is also in compliance with the laws and regulations of Malawi. Validation team has checked the letter of approval (LoA) /04/ to confirm that the project is a voluntary initiative and is not under any mandatory/compliance scheme of the host country. No non-conformity was found during validation(Refer to Appendix 3 for further details).

Participation under other GHG programs

The validation team confirms that the project has already been registered under Clean Development Mechanism (CDM) of UNFCCC, under Kyoto Protocol. This project is a Component Project Activity (CPA) under a registered Programme of Activities (CDM-PoA).The details are as follows:

CDM-PoA Registration number : 9007

Title: Distribution of Improved Cook Stoves in Sub-Saharan Africa

(https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/XFNYUSZ7QV3L28649RPEJKWMTO5HB1/view?cp=1)

CPA Reference number: 9007-P1-0006-CP1

Title: Distribution of Improved Cook Stoves in Sub-Saharan Africa-MALAWI-CPA-006
(https://cdm.unfccc.int/ProgrammeOfActivities/cpa_db/TVL5NWBF2HYQC78IGX6AMRPZ91U3KD/view)

The project is not rejected by any other GHG Programs.

Other forms of Credit

The validation teams confirms that the project has been registered as a CPA under a CDM-PoA 9007 and GHG emission reductions and removals generated by the project will not be used for any compliance under any programs or mechanisms, except CDM. The project has already received the 'Letter of Approval' (LoA) from Host Country Designated National Authority (DNA).

The project under VCS shall not claim emission reductions for the same period that has been/will be covered under CDM as a part of the registered PoA. Thus, there will not be any possibility of double accounting of emission reductions. Project Proponent has submitted undertaking for not availing other forms of environmental credit for the same crediting period under consideration. Project Participant is not taking REC benefits for the same emission reductions. No non-conformity was found during validation (Refer to Appendix 3 for further details).

Additional Information Relevant to the Project

Eligibility Criteria

This is a grouped project. Each ICS is considered as a project activity instance and eligibility criteria of project activity instance is adequately covered under section 1.4 of the VCS-PD /1.2/.

S. No.	Eligibility criteria for the inclusion of new project activity instances	Applicability	Assessment by the validation team
1.	**Methodology**: Meet the applicability conditions set out in the methodology applied to the project.	The project activity instance shall use VCS approved methodology-VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1 and shall meet the applicability conditions set out in the methodology.	Details of how the new project activity instances (TLC-CQC Rocket Stoves) meet the applicability conditions can be confirmed in Section 3.2 of this VCS-PD. The Validation team through document review and remote interviews confirms that the eligibility criteria have been met for the new project activity instances under this group project.
2.	Use the technologies or measures specified in the project description.	The project activity instance shall implement TLC-CQC Rocket stoves having minimum efficiency of 25%; below which it shall not be eligible under this grouped project.	The Validation team through document review and remote interviews analyze that PP will be using only TLC-CQC Rocket stoves under this grouped project. Moreover, the validation team reviewed the WBT test performed by Aprovecho Research Institute, which confirms that the TLC-CQC Rocket has 34.5%, thermal efficiency that is more than the minimum efficiency of 25% . This has also been mentioned in the VCS-PD.

			Therefore, the eligibility criteria have been met for the new project activity instances under this group project.
3.	**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 Malawi 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 through document review and remote interviews analyze that the baseline is demonstrated in the section 3.4 of the VCS-PD. PP will install one ICS every household TLC-CQC Rocket Stove within the project boundary of Malawi and will replace the baseline cookstoves. Therefore, the eligibility criteria have been met for the new project activity instances under this group project.
4.	**Additionality**: Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	All new project activity instances will use the activity method for demonstration of additionality. **Step 1: Regulatory Surplus** The project should not be mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework. **Step 2: Positive List** The inclusion of new project activity instances shall have to comply with positive list that is the ICS are installed/ distributed at zero cost to end user and the project activity instance has no other source of revenue but GHG credits.	The Validation team through document review and remote interviews analyze that PP has demonstrated additionality as per the methodology VMR0006 version 1.1 section 7 which states that activity method to demonstrate the additionality. This has also been mentioned in the VCS-PD. PP has demonstrated regulatory surplus in accordance with the rules and requirements regarding regulatory surplus set out in the latest version of the VCS Standard and it can be confirmed that the project is not 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. Furthermore, the project activity meets all the applicability conditions of the applied methodology VMR0006, version 1.1 and distributes stoves at zero cost to the end-users and has no other source of revenue other than the sale of GHG credits. Self- Declaration/

			individual ICS registration form or any other documentary evidence mentioning that end users were not charged for the ICS has been reviewed on sample basis. Hence, the project qualifies under positive list and deemed additional. Therefore, the eligibility criteria has been met for the new project activity instances under this group project.
5.	Occur within one of the designated geographic areas specified in the project description	All new project activity instances will be installed within Malawi only.	The Validation team through Project Activity Instance Database containing Geographical Coordinates of each household to which cookstoves are distributed , confirms that all ICS have been distributed within the project boundary of Malawi . Therefore, the eligibility criteria have been met for the new project activity instances under this group project.
6.	**Ownership:** Have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance	A default Beneficiary Agreement for end users including the provision that emission reductions generated by the project activity are owned by the Project Proponent will be provided for project activity instance.	Validation team during the remote interviews and review of copy of Consent Letter/ record of consent given from end user to Project Proponent regarding emission reduction claims on sample basis confirms that, C-Quest Capital Malaysia Global Stoves Limited is the sole entity. Moreover, in section 1.7 of the revised VCS-PD it is clearly mentioned about ownership and right transfer from the end users. This is in line with the section 3.6.1 of the VCS standard version 4.2. Therefore, the eligibility criteria have been met for the new project activity instances under this group project.
7.	Start Date	The start date of project activity instance shall be same as or later than the grouped project start date.	The start date for the project activity is 04-June-2019 as stated in the VCS-PD. PP has considered the start date as registration date of first ICS under this group project. The validation team reviewed the Project Activity Instance Database containing date of installation of each

			ICS and confirms that the start date is on or after the start date of the grouped project. Also, the validation team confirms that the crediting period of the project activity instances lies within the lifetime of the grouped project. Based on the above assessment, validation team concludes, that the eligibility criteria have been met for the new project activity instances under this group project.
8.	Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit. Each project activity instance that exceeds one percent of the capacity limit shall be identified.		PP has considered each ICS as a project activity instance which is deemed acceptable as per the VCS Program Definitions and VCS Standard. Since the annual energy saving per ICS is approximately 0.01 GWh_{th}/ ICS (as confirmed from the ER spreadsheet), the capacity of project activity instance is well below the 1% of the threshold limit. Therefore, it is not required to divide any project activity instance into clusters. This criterion is verified from the energy saving per ICS included in the grouped project.
9.	Double Counting	The Improved Cookstove distributed under this project shall be uniquely identifiable based on the distribution records. Project Activity Instance Database containing unique serial number of each ICS. Each ICS distributed will have corresponding end user details (i.e., name, geographical coordinates, address, unique serial number).	The validation team by means of remote audit interviews and PP also confirms that the ICS distributed under this project activity will have unique identification number with the combination of customer's name, address, geographical location clearly identifiable. Hence there will be no double counting of project device within the project, confirms that the proposed procedures prevent double counting of emission reductions. This criterion is deemed appropriate and it can be verified from the energy saving per ICS included in the grouped project.

Leakage Management

The project applies VCS Methodology: VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 01.1 (instead of the AMS-II.G., version 04 applied during CDM CPA inclusion under PoA 9007) as per which, the default leakage adjustment factor of 0.95 has been applied to account for leakage and therefore no surveys or no separate leakage management are required. This has been discussed during the interview and found the description (under section 1.17 of VCS-PD /1.2/).

Commercially Sensitive Information

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

Sustainable Development

The CPA helps in achieving following co-benefits, which will contribute in sustainable development in host country.

A) Environment well-being

- The programme will lead to the reduction in GHG emission due to reduction in use of non-renewable biomass and it will also ensure natural recovery of forests and/or reforestation.
- The project will help significantly reduce greenhouse gas emissions over its lifetime.
- The reduction in biomass consumption for cooking through efficient use leads to improved ecological balance.

B) Social well-being

- The programme will contribute to the less time spent in collecting wood fuel for the family thereby reducing the work burden on rural families and presenting alternative opportunities for economic development.
- The stove provides a safer method for combusting biomass for cooking, helping to reduce burn injuries, especially for children, in the family home.
- The amount of indoor pollutants from the burning of biomass in the family home will be reduced. Less carbon dioxide, carbon monoxide and particulates will be emitted due to the decrease in total biomass burned and complete combustion of fuel.

C) Economic well-being

- The project will help develop a section of the local economy, in the distribution, local assembly, maintenance and monitoring activities.

- The costs incurred in the purchase of firewood will be reduced through increased efficiency of the ICS thus leading to lesser firewood consumption that leads to fuel economy improvement in households.

3.2 Safeguards

3.2.1 No Net Harm

According to section 3.20.5 of the VCS Standard version 4.2 /16/, this section is not required for completion for the gap validation.

3.2.2 Local Stakeholder Consultation

According to section 3.20.5 of the VCS Standard version 4.2 /16/, this section is not required for completion for the gap validation. No potential negative environmental or socio-economic impacts have been identified for the project.

3.2.3 Environmental Impact

According to section 3.20.5 of the VCS Standard version 4.2 /16/, this section is not required for completion for the gap validation. No negative environmental impacts have been identified from the project and environmental impact assessment (EIA) is not required for the project.

3.2.4 Public Comments

This project was open for public comment from 29-December-2021 to 28-January-2022. No comments received from any stakeholder during this period.

3.2.5 AFOLU-Specific Safeguards

The project does not implement AFOLU activity. Thus, this section is not applicable.

3.3 Application of Methodology

3.3.1 Title and Reference

VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1 /14/.

The associated tools and guideline documents in the Grouped Project include:

• CDM Guideline “Sampling and surveys of CDM project activities and programmes of activities” version 04.0

• CDM Standard "Sampling and surveys for CDM project activities and programmes of activities" version 09.0

3.3.2 Applicability

The project applies VCS methodology; VMR0006, version 1.1/14/. Applicability criteria for the baseline line methodology are assessed by the validation team by means of document review and interview. Validation team confirms that the project activity meets the criteria of the applied methodology.

No.	Relevant applicability condition	Compliance with project activity	Means of validation
1	Project activities shall be implemented in domestic premises or in community-based kitchen	The proposed project involves deployment of ICS only in households.	The Validation team through document review and remote interviews can confirm that the PP will install one ICS in every household within the project boundary of Malawi and will replace the baseline cookstoves (three stone fire). Therefore, it confirms to the methodology applicability condition.
2	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.	The Validation team through document review and remote interviews analyzed that PP will be using only TLC-CQC Rocket Stove. Moreover, the validation team reviewed the water boiling test report performed by Aprovecho Research Centre, which confirms that the cookstove has 34.5%, thermal efficiency that is more than the minimum efficiency of 25% . Therefore, it confirms to the methodology applicability condition.
3	Both 'Projects' and 'Large Projects' can use the methodology	Estimated average annual emission reductions for the grouped project activity are greater than 300,000 tonnes	The Validation team through document review and remote interviews can confirm that the annual average estimated

No.	Relevant applicability condition	Compliance with project activity	Means of validation
		CO2e per year. Therefore, proposed project qualifies the "Large Projects" criteria.	emission reductions for the grouped project is 823,563 tCO_2e . therefore, the pr Therefore, it confirms to the methodology applicability condition.
4	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 Malawi as demonstrated in the VCS-PD under section 3.2.	The validation team reviewed the FAO Global Forest Resources Assessment 2010 Country Reports, which demonstrates the use of Non-renewable biomass since 1989 in Malawi. This is deemed appropriate to the Validation team. Therefore, it confirms to the methodology applicability condition.
5	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	Not applicable. The ICS is introduced as energy efficiency measure to replace baseline stoves and reduce the use of non-renewable biomass for combustion.	Not applicable.

No.	Relevant applicability condition	Compliance with project activity	Means of validation
	processing of the displaced fossil fuel and hence disregarded.		
6	The CDM-PDD or CDM-PoA-DD/CPA-DD shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo).	Each ICS in this project will be identified by a unique combination of customer name and geographical location, as well as a 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.	The validation team by means of remote audit interviews confirms that the proposed method for distribution of project devices includes the method to avoid double counting of emission reductions such as unique identification number of ICS, end-user details (name, address etc.) and unique GPS referenced location (if available). Therefore, the validation team confirms that the record keeping system will eliminate double counting.
7	The CDM-PDD or CDM-PoA-DD/CPA-DD 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 by means of remote audit interviews and the review of the declaration confirms that the proposed procedures prevent double counting of emission reductions.

3.3.3 Project Boundary

The Grouped Project boundary is defined as per VMR0006. "Methodology for Installation of High Efficiency Firewood Cookstoves, (Version 1.1)".

The sources of greenhouse gas identified in the VCS-PD/1.2/ are deemed to be appropriate and assessed below:

The project boundary for the grouped Project consists of the physical, geographical locations of the distributed ICS limited to within Malawi. This includes:" The Non-renewable biomass used by the project cooking system".

3.3.4 Baseline Scenario

According to section 3.20.5 of the VCS Standard version 4.2 /16/, this section is not required for completion for the gap validation. Baseline Scenario will remain same like mentioned in the registered CDM CPA-DD.

"*The baseline scenario is the continued use of non-renewable wood fuel (firewood/charcoal) or fossil fuel (coal/kerosene) by the target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity*". The baseline described in the VCS-PD complies with the requirements of the methodology, as the energy baseline is the existing level of consumption of non-renewable biomass used by the cooking systems currently in use and which is used in the absence of the project activity. Validation team confirms that the baseline scenario opted by the project activity is in accordance with the requirements of the applied methodology and is justified.

3.3.5 Additionality

The additionality of the grouped project has been demonstrated by the PP as per the methodology section 7 /14/. The methodology uses activity method for the demonstration of additionality. As per the methodology, the grouped project activity falls under the positive list of technologies and project activity types that are defined as automatically additional. PP has demonstrated regulatory surplus in accordance with the rules and requirements regarding regulatory surplus set out in the latest version of the VCS Standard and it can be confirmed that the project is not 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.

Furthermore, the project activity meets all the applicability conditions of the applied methodology VMR0006, version 1.1 and distributes stoves at zero cost (confirmed from Copy of Consent Letter/ record of consent signed by end user mentioning that end users were not charged for the ICS) to the end-users and has no other source of revenue other than the sale of GHG credits. Hence the project qualifies under positive list and deemed additional.

The additionality has also been included in the eligibility criteria in the VCS-PD. Each project activity instance shall meet the requirements of eligibility criteria in order to be included in the grouped project. As per the program definitions of VCS, Grouped Project is defined as, "*A project to which additional instances of the project activity, which meet pre-established eligibility criteria, may be added subsequent to project validation*" and Project Activity Instance (Instance) is defined as, "*A*

particular set of implemented technologies and/or measures that constitute the minimum unit of activity necessary to comply with the criteria and procedures applicable to the project activity under the methodology applied to the project". Therefore, each ICS is considered as a project activity instance.

Therefore, the validation team confirms that the grouped project is additional and all the project activity instances that will be included in the grouped project shall be deemed additional.

3.3.6 Quantification of GHG Emission Reductions and Removals

The equations and choices provided in the methodology and all other methodological tools are correctly quoted in the VCS-PD/1.2/. The emission reductions of the project activity instances of the grouped project would be calculated using the formulae mentioned in the applied methodology; VMR0006 (version 1.1) /14/.

Validation team based on the review of the VCS-PD /1.2/, confirms that the formulae are correctly presented for the determination of emissions reductions at project instance level. The parameters and equations presented in the VCS-PD /1.2/, as well as other applicable documents, have been compared with the information and requirements presented in the methodology respectively. An equation comparison has also been made to ensure consistency between all the formulae presented in the VCS-PD /1.2/ and ER spreadsheet/6/ and methodology VMR0006 (version 1.1) /14/.

According to applied methodology VMR0006 (version 1.1) /14/ the emissions are calculated as below:

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

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_2e
$ER_{y,i,j}$	=	Emission reductions by improved cookstove of type *i* and batch *j* during year *y* in t CO_2e

$$ER_{y,i,j} = B_{y,savings,i,j} \times NCV_{wood\ \ fuel} \times f_{NRB,y} \times \left(EF_{wf,CO2} + EF_{wf,non\ \ CO2}\right) \times N_{y,i,j} \times 0.95 \qquad \text{Equation (2)}$$

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*
$f_{NRB,y}$	=	Fraction of woody biomass that can be established as non-renewable biomass (f_{NRB})
$NCV_{wood\ fuel}$	=	Net calorific value of the non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne)[1]
$EF_{wf,CO2}$	=	CO_2 emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO_2/TJ)[2]
$EF_{wf,non\ CO2}$	=	Non-CO_2 emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO_2/TJ)[3]
$N_{y,i,j}$	=	Number of improved cookstoves of type *i* and batch *j* operating during year *y*
0.95	=	Discount factor to account for leakage

The quantify of woody biomass saved due to implementation of improved cookstoves to be estimated using equation below:

$$B_{y,savings,i,j} = B_{old} \times \left(1 - \frac{\eta_{old}}{\eta_{new,i,j}}\right) \qquad \text{Equation (3)}$$

where

η_{old}	=	Efficiency of baseline cookstove
$\eta_{new,y,i,j}$	=	Efficiency of the improved cookstove type *i* and batch *j* determined through water boiling test (WBT) during year *y* Alternatively, efficiency may be determined using Equation 5
B_{old}	=	Annual quantity of woody biomass that would have been used in the absence of the project activity (in tonnes per device) to generate useful thermal energy equivalent to that provided by the improved cook stove. The value of Bold can be sourced from historical data or baseline surveys. Alternatively, a default value of 0.5t/capita/year may be used.

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

[1] 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction
[2] 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion
[3] 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion

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.

Where the project households continue to use baseline cookstoves along with improved cookstoves, B_{old} shall be adjusted ex-post based on the percentage of project households found to continue such practice according to Equation 6. For such cases, the quantity of woody biomass saved due to implementation of improved cook stoves shall be calculated using an adjusted value to account for ex-post use of baseline stoves in addition to improved cookstove -

$$B_{old,adjusted} = B_{old} \times (1 - \mu y) \qquad \text{Equation (6)}$$

Where

$B_{old,adjusted}$	=	Adjusted B_{old} to account the ex post usage of firewood in baseline cookstove(s) by project households in addition to improved cookstove (in tonnes per device.
μ_y	=	Baseline stove usage factor to account for use of baseline cookstoves along with improved cookstoves

In conclusion, all values used in the VCS-PD/1.2/ to calculate emission reductions are considered reasonable in the context of the proposed grouped project and calculation approach is correct.

3.3.7 Methodology Deviations

The project did not apply any methodology deviations from the applied methodology VMR0006, version 1.1. However, PP shifted from old CDM methodology AMS-II.G., version 04 to VMR0006, version 1.1 during transition from CDM to VCS. The reason for shifting to VCS methodology during transition is elaborated in detail under section 3.6 of the VCS-PD/1.2/.

PP wish to switch to the methodology VMR0006, v1.1 due to following reasons:

1) The thermal efficiency of the project stoves has been estimated ex-ante using equation 5 in VMR0006, v1.1. The project proponent is thus not required to conduct Water Boiling Tests to monitor the thermal efficiency of project stoves throughout the crediting period. This will reduce the sampling effort and trained manpower deployed for conducting WBTs during each monitoring survey.

   The methodology switch has changed the default value for the emission factor applied, increasing from 81.6 tCO2/TJ to the CO2 emission factor of 112 tCO2/TJ plus the non-CO2 emission factor of 26.23 tCO2/TJ, which sums up to 138.23 tCO2/TJ. The default emission factor applied in the project under CDM considers a mix of present and future fuels used in households. Thus a 50% weight is assigned to coal as the alternative solid fossil fuel (96 tCO2/TJ) and a 25% weight is assigned to both liquid and gaseous fuels (71.5 tCO2/TJ for Kerosene and 63.0 tCO2/TJ for Liquefied Petroleum Gas (LPG) arriving at the 81.6 t CO2/TJ value.

   A considerable percentage of the rural population in Malawi depends on wood fuel for meeting their cooking needs. The number stood at a high of 91.4% according to the last Demographic and Health Survey conducted in the year 2015-16[4]. Over the years, several World Bank reports[5]have reported the dominance of wood in rural Malawian households (Hughes, N., Croxton, Simon, & Croneborg, L., 2019. Malawi Country Environmental Analysis, World Bank Group). As, the target population selected for the project activity is exclusively wood fuel using rural households, it is appropriate to consider the CO2 emission factor of 112 tCO2/TJ plus the non-CO2 emission factor of 26.23 tCO2/TJ, which sums up to 138.23 tCO2/TJ for the project.

2) The previous CDM methodology AMS-II.G. did not account for non-CO2 emissions. However, the VMR0006 v1.1. methodology considers CO2 and Non-CO2 emissions in calculating emission reductions (using conservative IPCC default factors). This approach leads to more accurate calculations and quantifies the actual avoided emissions by the project stoves.

Based on above facts and provided literature/government reports, validation team confirms the appropriateness of the applied methodology VMR0006, version 1.1 to this project . Further, there is no deviation from the applied VERRA methodology during this validation. Hence, the conservativeness and accuracy of emission reduction quantification are exactly as per the newly applied methodology and not to be compared with previous CDM methodology AMS-II.G.

3.3.8 Monitoring Plan

The grouped project employs baseline and monitoring methodology namely VMR0006, version 1.1 /14/. According to section 5.1 and 5.2 of VCS-PD/1.2/, the parameters to be monitoring ex post as per the requirements of the methodology are given below.

[4] http://www.nsomalawi.mw/images/stories/data_on_line/demography/mdhs2015_16/MDHS%202015-16%20Final%20Report.pdf
[5] Malawi Country Environmental Analysis, Hughes, N., Croxton, Simon, & Croneborg, L., 2019, World Bank Group

Parameters Determined ex-ante

The following parameters are determined ex-ante and mentioned in section 5.1 of the VCS-PD/1.2/

Parameter	Unit	Value	Assessment
$f_{NRB,y}$	Fraction	0.94	-Fixed ex-ante as per registered CDM CPA-DD/3/
$NCV_{wood\ fuel}$	TJ/tonne	0.0156	- Fixed ex-ante - Default values from the 2006 IPCC Guidelines have been used.
$EF_{wf,CO2}$	tCO_2/TJ	112	- Fixed ex-ante - Default values from the 2006 IPCC Guidelines have been used.
$EF_{wf,non\ CO2}$	tCO_2/TJ	26.23	- Fixed ex-ante - Default values from the 2006 IPCC Guidelines have been used.
B_{old}	tonnes/year	3.2558	-Fixed ex-ante as per registered CDM CPA-DD /3/
η_{old}	Fraction	0.1	- Fixed ex-ante as per Registered CDM CPA-DD /3/ - Default values from the methodology.
η_p	Fraction	0.345	- Fixed ex-ante -Manufacturers specification.

Parameters monitored ex-post

Parameters/1.2/	Methodology /14/	Description/1.2/
$N_{y,i,j}$	VMR0006	Number of project devices of type I and batch j operating during year y.
$\eta_{new,y,i,j}$	VMR0006	Efficiency of the improved cookstove type *i* and batch *j* determined through water boiling test (WBT) during year *y*.
μ_y	VMR0006	Adjustment to account for any continued use of pre-project devices during the year y
Life Span	VMR0006	The operating lifetime of the project device. The life span should be reported if the methodology equation 5 is adopted to determine the project stove efficiency

In accordance with section 3.21.1 of the VCS Standard (version 4.2) /16/ all documents and records will be kept in a secure and retrievable manner for at least two years after the end of the project crediting period. The data collecting and management methods as provided in section 5.3 of the VCS-PD/1.2/ are acceptable to the validation team. The validation team interviewed representatives of PP and it was established that the database of all the project equipment distributed by PP is created and maintained. In addition, samples of equipment registration records were studied and was found to contain information in compliance with the monitoring requirements of the methodology VMR0006 (version 1.1)/14/.

The validation team considers that the means of implementation of the monitoring plan, including the data management, monitoring equipment and quality assurance and quality

control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed grouped project therein can be reported ex post and verified. In addition, the sampling plan meets the requirements of the monitoring methodology VMR0006 (version 1.1) /14/ and the Standard of Sampling and Surveys of CDM project activities and Programme of Activities (version 09.0) and Guidelines for sampling and surveys for CDM project activities and Programme of Activities (version 04).

Validation team confirms that the overall monitoring plan complies with the requirements of the methodology VMR0006 (version 1.1)/14/, the monitoring arrangements describes in the monitoring plan are feasible within the project design and the project proponents will be able to implement the described monitoring plan.

3.4 Non-Permanence Risk Analysis

This is not applicable to the project activity as the Project is not an AFOLU (Agriculture, Forestry and Other Land Use) project.

4 VALIDATION CONCLUSION

C-Quest Capital Malaysia Global Stoves Limited has contracted LGAI Technological Center, S.A.(Applus+ Certification) to perform the VCS gap validation of the CDM registered Component project activity (CPA) "Distribution of Improved Cook Stoves in Sub-Saharan Africa–MALAWI-CPA-006" having UNFCCC Ref. No. 9007-P1-0006-CP1 and VCS ID 2712; with regard to the relevant VCS requirements of VCS Standard version 4.2.

This CPAs involves – dissemination of efficient improved fixed cooking stove (ICS) known as "TLC-CQC Rocket Stove" across rural households of Malawi which will result in reduction of greenhouse gases through efficient use of firewood, thereby to contribute to the conservation of forests and woodlands. The specified efficiency of the ICS is 34.5% (based on WBT conducted by Aprovecho Research Centre). The PoA involves several villages across the host country of Malawi.

A risk-based approach has been followed to perform this validation. In the course of the validation 06 Corrective Action Requests (CAR) and 01 Clarification Requests (CR) were raised and successfully closed.

The validation is based on the VCS-PD /1.2/, proof of title, proof of right, additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and supporting documents made available to the validation team by project proponent.

As a result of the validation, the validation team confirms that:
-The project fulfils criteria of VCS Standard Version 4.2.
-The project is in line with all relevant VCS requirements.
-The project baseline is sufficiently justified in the VCS-PD.
-The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 8,235,625 tCO_2e is most likely to be achieved within the first 10 years of renewable crediting period.

No restrictions or uncertainties were identified related to the validation.

APPENDIX 1: < REFERENCES >

S. No	Title of Document	Version	Date
1.1	Initial VCS PD	01	02/09/2021
1.2	Final VCS PD	02	22/04/2022
2	Registered CDM PoA-DD	18	04/06/2019
3	Registered CDM CPA-DD	01	24/05/2019
4	Letter of Approval from Host country (Malawi)	-	20/10/2017
5	Stove distribution database for 250,000 ICS distributed till 31-March-2022	-	-
6	Spread sheets for Emission Reduction Calculations	02	22/04/2022
7	Copy of registration record cum consent deeds signed by Stove end user as proof of project start date	-	04/06/2019
8	Thermal Efficiency test report (WBT) for TLC-CQC Rocket Stove by Aprovecho Research Centre	-	October 2015
9	Self-Declaration from PP to avoid double counting, start date and geographical boundary of project	-	05/04/2022
10	Technical specifications of the ICS provided by Total Land Care	-	-
11	CDM VVS for CDM PoAs	3.0	09/09/2021
12	CDM PS for CDM PoAs	3.0	09/09/2021
13	CDM PCP for CDM PoAs	3.0	09/09/2021
14	VMR0006: Methodology for Installation of High Efficiency Firewood Cookstoves	1.1	22/07/2021
15	VCS Program Guide	4.1	20/01/2022
16	VCS Standard	4.2	20/01/2022
17	Copy of Grievance Records (emails from local representatives about replacement of damaged stove parts and request for new stove installation)	-	-

APPENDIX 2:<COMPETENCYSTATEMENT>

According to the sectoral scope / technical area and experience in the sectoral or national business environment, Applus+ Certification has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of Applus+ Certification.

The composition of audit team shall be approved by the Applus+ Certification ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Qualification	Coverage of scope	Coverage of technical Area	Financial aspect	Host country Experience	Attendance to the On-Site Assessment
Vivek Kumar Ahirwar	Lead Auditor (LA) & Technical Expert (TE)	Yes (3)	Yes (3.1)	N/A	Yes	Yes (During CDM Verification of Project)
Simon Shen	Technical Reviewer (TR)	Yes (3)	Yes (3.1)	N/A	N/A	N/A

The curriculum vitae of the DOE's team members are provided below:

Vivek Kumar Ahirwar is a BEE-Certified Energy Auditor by Govt of India with over eight years of relevant experience in energy efficiency, energy audit, thermal and electrical energy generation technology from renewable source and energy conservation in energy intensive industries, designated consumers and commercial buildings, implementation of energy conservation building codes, research, process and green building projects. He is a certified lead auditor for ISO 14001 EMS and 14064. He has experience under various categories of projects stating from renewable to waste to supercritical projects and WCD. He has successfully audited more than 100 GHG (CDM/VCS/GS) projects in different states across the India. He has done Mater in Technology (Energy Management) from a premier institute, School of Energy& Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from Govt. Engineering college, Rewa, RGPV, India.

Simon Shen (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ LGAI for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ LGAI, he had been worked for TÜV SÜD as a GHG Validator/Verifier and ISO 9001/14001 Lead Auditor for 3.5 years.

APPENDIX 3: <FINDINGS OVERVIEW >

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

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

Table 2. CR from this validation

CR ID	01	Section no.	VCS PD	Date : 04/03/2022
Description of CR				
1. PP is requested to clarify the role of TLC Malawi as a CPA implementor as there is no mention of them in the CPA DD. 2. PP is requested to provide the justification for choosing 05 June 2019 as start date of project activity according to the guideline mentioned in VCS PD template version 4.0 3. The PP is requested to provide evidence for ownership of this project as per present scenario 4. The PP is requested to provide deceleration document pertaining to not participated in any other GHG Programs (except CDM) and no other forms of credit as mentioned 1.15 and 1.16 of the updated VCS-PD.				
Project participant response				Date : 22/04/2022
1. Role of both other entities, Ecoeye Co., Ltd. and TLC Malawi is now mentioned in section 1.6 of the VCS-PD for clarity. 2. Justification of project start date is being provided to the VVB with copy of registration card for the 1st ICS installed under this project. 3. Section 1.7 of the VCS-PD is updated to include the proof of ownership in line with section 3.6.1 of VCS Standard, version 2.0 4. Declaration document is being submitted to the VVB along with revised VCS-PD .				
Documentation provided by project participant				
Revised VCS-PD, version 02 Copy of consent deeds signed by Stove end user Declaration to avoid double counting of ERs generated from the project.				
DOE assessment				Date: 25/04/2022
Assessment team confirms that VCS-PD has been updated and requested documents have been received. Hence, accepted and CR#01 Closed.				

Table 3. CAR from this validation

CAR ID	01	Section no.	VCS PD	Date : 04/03/2022
Description of CAR				
1. PP is requested to provide a detailed eligibility condition of the project activity under section 1.3 of VCS PD version 01, as per VCS Standard. 2. PP is requested to provide the reference of the 6th criteria mentioned to describe the eligibility as grouped Project in section 1.4 of VCS PD version 01. 3. Please clarify how the 7 years of crediting period is appropriately mentioned in the section 1.9 of the PD. 4. The PP is requested to confirm the scale of project as VCS guidelines in section 1.10 5. The PP is requested to clarify how the Estimated GHG emission reduction consistently same throughout the crediting period where as the efficiency of Project stove is decreasing by 10% every year in section 1.10 6. Please clarify how the quoted information is relevant to section 2.1 requirement as VCS guideline.				
Project participant response				Date : 22/04/2022
1. Section 1.3 of the VCS-PD has been updated to include explanation of the eligibility of the project activity under VERRA as per VCS Standard , version 2.0 2. Section 1.4 of the VCS-PD has been updated to include the reference to criteria mentioned for the eligibility of project instance under this grouped project activity. 3. Section 1.9 of the VCS-PD has been updated to consider 10 years fixed crediting period for the project activity. 4. Scale of project activity has been updated under section 1.10 of the VCS-PD. 5. Estimated ERs as per the actual implementation and applied methodology has been updated under section 1.10 of the VCS-PD. 6. The quoted information was irrelevant and has been removed from the section 2.1 of the revised VCS-PD.				
Documentation provided by project participant				
Revised VCS-PD, version 02 Revised ER sheet, version 02				
DOE assessment				Date: 25/04/2022
Assessment team confirms that VCS-PD has been updated and revised ER sheet has been received. Hence, accepted and CAR#01 Closed				

CAR ID	02	Section no.	VCS PD	Date : 04/03/2022
Description of CAR				

1. During remote site visit, it was discussed with the PP that the PP wish to change the applied Methodology form CDM Methodology AMS II G Version 4 to apply VCS Methodology "VMR0006-Methodology-for-Installation-of-High-Efficiency-Firewood-Cookstoves-v1.1", therefore the PP is requested to update entire section 3 , section 4 & section 5 of the PD. 2. During remote site visit, it was discussed with the PP that the PP want to change the applied Methodology form CDM Methodology AMS II G Version 4 to apply VCS Methodology"VMR0006-Methodology-for-Installation-of-High-Efficiency-Firewood-Cookstoves-v1.1", therefore the PP is requested to provide explanations why the PP wants to change this Methodology in section 3.6 of the PD.	
Project participant response	**Date : 22/04/2022**
1. Section 3, 4 and 5 of VCS-PD has now been updated based on the VERRA meth VMR0006, version 1.1. 2. Section 3.6 of the VCS-PD has been updated to include the explanation on reason for shifting to VERRA meth from CDM methodology for the project activity.	
Documentation provided by project participant	
Revised VCS-PD , version 02	
DOE assessment	**Date: 25/04/2022**
Assessment team confirms that VCS-PD has been updated to reflect change in the methodology along with its reason. Hence, accepted and CAR#02 Closed,	

CAR ID	03	**Section no.**	VCS PD	**Date : 04/03/2022**
Description of CAR				
PP is requested to follow the VCS PD template version 4.0 appropriately in content page regarding Appendix Page number and section 5 of VCS PD provided to VVB.				
Project participant response				**Date : 22/04/2022**
PP has updated the content page and removed reference to appendix , as no appendix added in the revised VCS-PD.				
Documentation provided by project participant				
Revised VCS-PD, version 02				
DOE assessment				**Date: 25/04/2022**
Assessment team confirms that VCS-PD has been updated. Hence, accepted and CAR#03 Closed.				

CAR ID	04	**Section no.**	1	**Date : 04/03/2022**
Description of CAR				
1. PP is requested to provide the complete description of the project activity in section 1.11 as per the VCS PD template version 4.0 and VCS standard version 4.2. 2. PP is requested to provide the correct link of map in section 1.12 of VCS PD version 01.				
Project participant response				**Date : 22/04/2022**
1. Section 1.11 of the VCS-PD has been updated as per requirement of VCS-PD template. 2. Link to Malawi Map has been corrected in revised VCS-PD.				
Documentation provided by project participant				
Revised VCS-PD, version 02				
DOE assessment				**Date: 25/04/2022**

Assessment team confirms that VCS-PD has been updated. Hence, accepted and CAR#04 Closed.

CAR ID	05	Section no.	2	Date : 04/03/2022
Description of CAR				
1. Please elaborate on how due account of all and any input received during ongoing communication has been taken care by the Project Proponent. Describe if any or provide statement no relevant communication has been received, etc. 2. The PP needs to submit copy of grievance records and clarify if there is any comment received for this project. 3. The PP is requested to provide details about Publication Period i.e. VCS listing period and If applicable, please confirm how comments received during this period has been addressed by the PP. 4. Please clarify how the quoted information is relevant to section 2.4 requirement as VCS guideline				
Project participant response				**Date : 22/04/2022**
1. Section 2.2 of the revised VCS-PD has been updated to include the information about process followed for the ongoing communication by PP. 2. Copy of grievance records (emails from local representatives about replacement of damaged stove parts and request for new stove installation) has been submitted to the VVB for reference. 3. Section 2.4 of the VCS-PD has been updated to include the information about public comment period under VERRA. No comment received during public comment period. 4. The information was not relevant and has been removed from section 2.4 of the VCS-PD.				
Documentation provided by project participant				
Revised VCS-PD, version 02 Copy of Grievance Records				
DOE assessment				**Date: 25/04/2022**
Assessment team confirms that VCS-PD has been updated and requested documents have been received. Hence, accepted and CAR#05 Closed				

CAR ID	06	Section no.	4	Date : 04/03/2022
Description of CAR				
The ER sheet need to update as per calculation approach provided as per VMR0006-Methodology-for-Installation-of-High-Efficiency-Firewood-Cookstoves-v1.1				
Project participant response				**Date : 22/04/2022**
Revised ER Sheet based on new methodology VMR0006; version 1.1 has been submitted to VVB for reference. Changes in VCS-PD based on revised estimation has been done.				
Documentation provided by project participant				
Revised ER Spread sheet, version 02				
DOE assessment				**Date: 25/04/2022**
Assessment team confirms that ER spreadsheet has been updated and have been received. Hence, accepted and CAR#06 Closed.				

Table 4. FAR from this validation

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