



**Verified Carbon
Standard**

DELAGUA CLEAN COOKING GROUPED PROJECT IN RWANDA



Document Prepared by Earthood Services Private Limited

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Summary:

- **A description of the project**

The project activity “DelAgua Clean Cooking Grouped Project in Rwanda” involves distribution of fuel efficient improved cookstoves (ICS) to households in Rwanda. The project is a voluntary initiative as host country laws do not mandate the distribution of ICS to the households. The project proponents are DelAgua Health Rwanda (Voluntary) Limited and DelAgua Project Pte. Ltd. who are using carbon finance to support local partners engaged in different activities like production, distribution, and maintenance of various product technologies. This project includes technologies designed to reduce GHG emission by supplying high efficiency ICS to end-users and promoting public health to tackle several health challenges caused due to using less efficient stoves. This will also reduce the consumption of non-renewable biomass resources or fossil fuel for cooking purposes. The project will also improve the indoor air quality and health of women and children as co-benefits.

- **A description of the validation and verification**

Earthood has performed a joint validation & verification of the project activity “DelAgua Clean Cooking Grouped Project in Rwanda” by DelAgua Health Rwanda (Voluntary) Limited and DelAgua Project Pte. Ltd. in Rwanda. This assignment was performed on the basis of rules and requirements defined by VCS for the project activities.

The review of the joint PD & MR, supporting documentation and subsequent follow-up actions (on-site visit and interviews with end-users) have provided Earthood with sufficient evidence to determine the fulfilment of stated criteria. The project correctly applies the approved baseline and monitoring methodology VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves, version 1.1/5/.

The project results in reductions of CO₂e emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario and the emission reductions attributable to the project are, hence, additional to any that would occur in the absence of the proposed VCS project activity.

The average annual and total GHG emission reduction from the project is expected to be 1,819,332 and 14,554,657 tCO₂e, respectively, over the first 7-year crediting period. The monitoring report identified for the first verification period is from 11/10/2021 to 28/02/2023, and the achieved emission reductions during this monitoring period is 1,367,923 tCO₂e.

- **The purpose and scope of validation and verification**

The scope of the services provided by the Earthood Services Private Limited is to perform joint validation & verification of the project activity “DelAgua Clean Cooking Grouped Project in Rwanda”. The scope is to assess the claims and assumptions made in joint project description & monitoring report /1/ against the VCS criteria, UNFCCC criteria, including but not limited to the VCS Standard /3/, VCS Validation and Verification Manual /4/, and other relevant rules and requirements established for Verra.

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

This assignment is an independent and objective review for determination of the monitored reductions in GHG emissions. The joint validation & verification includes the implementation and operation of the project as reported in the project description & monitoring report /1/. The validation & verification process is undertaken by VVB that involves the following:

- The desk review of documents and evidence submitted by the project participant in context of the VCS criteria.
- Undertaking physical site visit, interview, or interactions with the representative of the project participant.
- Reporting audit findings with respect to clarification and non-conformities and the closure of the findings as appropriate.
- Preparing a draft joint validation & verification report of VCS program complying with the VCS requirements.
- Technical review of the draft validation & verification opinion along with other documents as appropriate by an independent competent technical review team for finalization of the joint validation & verification opinion (this report).
- An independent technical review team reviews this report made by the VVB. After the final report is accepted by the Technical Reviewer it is then approved by Earthood Services Private Limited which is processed further according to the VCS and CDM procedures.

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

During joint validation and verification of the project, a total of 05 CLs, 09 CARs and 1 FAR were raised. These have been successfully resolved as provided in Appendix IV of this report.

- **Any uncertainties associated with the validation and verification**

VVB has undertaken an elaborate audit trail for validation of assumptions and claims contained in final joint PD-MR Version 6.0 dated 03/12/2023. Each detail has been checked during site visit and document review which is not only confined to information provided by PP but also by undertaking an independent evaluation of relevant publicly available information by making use of technical expertise of the assessment team. Thus, there are no evident uncertainties associated with the validation.

- **Summary of the validation and verification conclusions**

The review of the project description & monitoring report, supporting documentation and subsequent follow up actions have provided Earthood with sufficient evidence to determine the fulfilment of stated criteria. Earthood is of the opinion that the project activity “DeAgua Clean Cooking Grouped Project in Rwanda” (VCS ID: 4150) meets all the VCS requirements and has correctly applied the VCS approved methodology VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves, version 1.1 /5/. The GHG emission reductions were calculated correctly based on the approved methodology.

Earthood can certify that the emission reductions achieved in the project description & monitoring report for the monitoring period 11/10/2021 to 28/02/2023 by VCS project activity “DelAgua Clean Cooking Grouped Project in Rwanda” amount to 1,367,923 tCO₂e. Therefore, this is being submitted for request for issuance, as per VCS and UNFCCC procedures.

In summary, it is Earthood’s opinion that the project activity “DelAgua Clean Cooking Grouped Project in Rwanda” as described in the joint PD-MR Version 6.0 dated 03/12/2023 meets all the relevant baseline and monitoring methodology. The monitoring plan adequately provides for the ex-post monitoring of the project’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is Earthood’s opinion that the DelAgua Health Rwanda (Voluntary) Limited and DelAgua Project Pte. Ltd. shall be able to implement the monitoring plan and requirements of VCS standard.

Therefore, Earthood requests the registration of the project as a VCS project activity and issuance of VCUs under the first monitoring period.

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1 INTRODUCTION

1.1 Objective

DelAgua Health Rwanda (Voluntary) Limited (PP) has contracted Earthood Services Private Limited (VVB) for joint validation & verification services for the VCS project “DelAgua Clean Cooking Grouped Project in Rwanda” (project ID 4150) located in Rwanda to jointly carry out validation and verification of the project against the requirements of VCS Program.

The objective of the validation assessment is to determine:

- The project conformity with all the applicable VCS requirements of the current version of the VCS Standard v4.4/3/ and program guide v4.3/2/.
- The project conformity with the applied methodology, including the procedure for the demonstration of additionality specified in the methodology.
- Likelihood that methods and procedures set out in the project description will generate verifiable GHG data and information when implemented.
- The data/information reported is accurate, complete, transparent, and free of material error or omission.

In order to fulfil above objectives, the VVB assigned the task of assessment to validation team that is collectively qualified as per Annex A.2.3.3 of ISO 14064-3 and other internal requirements.

The validation/ verification is an independent assessment of the project by a validation/verification body that determines whether the project complies with the VCS rules.

1.2 Scope and Criteria

The joint validation and verification scope of this assignment is defined as an independent and objective review of the VCS Project Description & Monitoring Report (VCS PD-MR) and supporting annexures, which is reviewed by the assessment team against the relevant criteria and decisions by the VCS Board, including but not limited to, the approved baseline and monitoring methodology, applicable tools, VCS standards and guidance. The assessment team has, based on the recommendations prescribed in the latest version of VCS Validation and Verification Manual, employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of VCUs.

The scope of this assignment is to:

- Jointly conduct validation and verification in accordance with Earthood’s own QMS that is based on the VCS VVM along with the guidance provided by the VCS board to determine

if the project meets all applicable VCS requirements, including those specified in the VCS standard, relevant methodology, tools, and guidelines and processing the same with VCS Program Guide.

- Assesses the accuracy, conservativeness, relevance, completeness, consistency, and transparency of the information provided by the project proponents.
- Determine whether the information provided by the project proponent is reliable and credible.
- Present information in the form of joint validation & verification report in a factual, neutral, coherent manner and referencing the sources and assumptions, other forms of validation mean employed.
- Report the findings and conclusions in an objective manner and conduct all validation & verification in accordance with VCS rules and procedures.
- Apply consistent validation and verification criteria in providing expert judgments to the requirements of applicable approved methodology, tools, and also cross check the same.
- Safeguard the confidentiality of all the information obtained during validation and verification.
- Adhere to the principles of independence, ethical conduct, fair presentation, and due professional care in assessment process.

1.3 Reasonableness of Assumptions and Level of Assurance

☐ Limited level of assurance

☒ Reasonable level of assurance

A draft joint validation and verification report that is prepared by the assessment team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Earthood are duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable VCS requirements as appropriate. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the validation and verification team. The report approved by Technical Manager is endorsed by Managing Director, who is overall responsible to ensure quality, before final release. The further details of applicable procedures and responsibilities about Earthood Quality Management System (QMS) are available on its website (www.earthood.in).

Earthood's validation approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned

and performed the validation by obtaining evidence and other information and explanations that Earthood considers necessary to give reasonable level of assurance that reported estimated GHG emission reductions are fairly stated.

In our opinion the estimated and actual GHG emissions reductions were calculated correctly on the basis of the approved baseline and monitoring methodology VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves, version 1.1 /5/.

The assessment result has a reasonable level of assurance in validation & verification that GHG assertions are free of material errors, omissions, and misrepresentations. The documents and evidence reviewed are included under Appendix I of this report.

1.4 Summary Description of the Project

The summary description of grouped project activity has been illustrated in section 1.1 of Joint PD-MR appropriately. As per the given details in PD, information was assessed on-site and found to be consistent. The project activity “DelAgua Clean Cooking Grouped Project in Rwanda” involves distribution of fuel efficient improved cookstoves (ICS) to households in Rwanda. The project is a voluntary initiative as host country laws do not mandate the distribution of ICS to the households. The project proponent is DelAgua Health Rwanda (Voluntary) Limited (“DelAgua”) and DelAgua Project Pte. Ltd. who is using carbon finance to support local partners engaged in different activities like production, distribution, and maintenance of various product technologies. This project includes technologies, designed to reduce GHG emission by supplying high efficiency ICS to end-users and promoting public health to tackle several health challenges caused due to using less efficient stoves.

PP has planned to distribute only two cookstove models i.e., SSM S32X with Pot Skirt and Burn Kuniokoa G2 with Pot Skirt. Although PP has distributed the pot skirt stoves, they have also included the efficiency of the stoves without pot skirts since the users have the option of using the Pot Skirt or not when cooking. The efficiencies of both cookstove models with and without pot skirt have been mentioned which was confirmed by the VVB from the third-party test reports/41/.

The baseline and project scenarios are well described and consistent with the data that was verified during the site visit. The average annual and total GHG emission reduction from the project is expected to be 1,819,332 and 14,554,657 tCO₂e, respectively, over the first 7-year crediting period. The monitoring report identified for the first verification period is from 11/10/2021 to 28/02/2023, and the achieved emission reductions during this monitoring period are 1,367,923 tCO₂e.

2 VALIDATION AND VERIFICATION PROCESS

Joint Validation & Verification Report: VCS Version 4.2

2.1 Method and Criteria

The validation and verification of the project consists of following steps:

Desk review:

- Review of data and information provided in the VCS joint PD-MR/1/ and corresponding annexures.
- Cross checks the information with the sources without limitations to the information provided by the project proponent.

Follow up actions:

- On-site inspection to physically inspect the project design including, but not limited to, monitoring mechanism.
- Interview with relevant personnel and end-users responsible for information given in the VCS PD-MR.

Reporting of findings:

- Resolution of findings
- Draft joint validation & verification report

Independent technical review:

The project documentation is reviewed by internal technical reviewer in order to independently confirm whether the applicable GHG program requirements were objectively met or not, in addition to whether internal procedures were followed while arriving at the validation and verification opinion. The technical reviewer may accept or reject the validation and verification opinion prepared by the assessment team and gives the reasons. The resolved findings may be opened at this stage or new findings may be identified that are required to be addressed by assessment team and/or project proponents, as appropriate. The technical reviewer is the decision maker on behalf of the Earthhood. A positive opinion is issued if all the findings have been satisfactorily resolved and in all other cases a negative opinion is issued unless the contract is terminated by either party before reaching the final opinion.

Earthhood keeps all documents and records in a secure and retrievable manner for at least two years after the end of the project crediting period.

2.2 Document Review

This joint validation & verification of the project is performed primarily as a document review of the VCS Joint PD-MR /1/ and associated documents as stated in detail in appendix I of this document. The assessment is performed by a validation & verification team using a protocol. The cross checks between information provided in the VCS Joint PD-MR and information from sources other than those used, if available, the team's sectoral or local expertise and, wherever necessary, independent background investigations.

The joint validation and verification are performed primarily as a document review of the documents submitted at various stages of assessments. The review is performed by assessment team using dedicated protocols. The assessment team cross checks the information provided in the documents (Joint Project Description & Monitoring Report/1/) and information from sources other than those used, if available, and also conducts independent background investigations. Earthood conducted a desk review as under;

- a) A review of the data and information presented to verify their completeness.
- b) A review of the monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.
- c) An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions

2.3 Interviews

The VVB conducted an on-site visit from 30/03/2023 to 01/04/2023. The on-site visit was conducted as a part of validating the project and also verifying the monitoring procedures followed in the project.

The following points were discussed as the part of the interviews:

- a) Introduction, scope and objective of work, roles and responsibilities of audit team, resources required, and timetable of the onsite audit including venue for closing meeting and any concerns from PP.
- b) All the details about the project activity mentioned in the joint PD-MR was cross-checked by discussion with the PP.
- c) Compliance of monitoring procedures followed at project site with registered PDD and monitoring methodology.
- d) Conducting the site visit by interviewing the end-users.

- e) And finally, submission of the audit findings to the client and agreement on the issues raised and agreement on timelines.

The list of PP representatives interviewed by the VVB team is as follows:

Name	Affiliation	Date	Assessment team
Ajay Dixit	Carbon Operations Manager, Delagua	30/03/2023 to 01/04/2023	Shifali Guleria, Olivier Uwimana
Euan McDougall	CEO, Delagua		
Monica Keza	Country Director, Delagua		
Robert Masinde	Supply Chain Manager, Delagua		
Jean Pierre Sibomana	Operation Manager, Delagua		
Karim	Program Coordinator, Delagua		
Francis Regis Ruzirabwoba	Program Coordinator, Delagua		
Maria Chistelle Ishimwe	Program Coordinator, Delagua		

The list of LSC participants interviewed by the VVB are as follows:

Name	Affiliation	Date	Subject	Assessment team members
Iledefonse Ntenzimana	Farmer and Project ICS user	01/04/2023	- Date of LSC Conducted - Feedback about the project - Continuous Grievance Mechanism	Shifali Guleria and Olivier Uwimana
Geraldine Tuyizere	Farmer and Project ICS user			
Emmanuel Ngwrje	Farmer and Project ICS user			
Donatien Sezibera	Farmer and Project ICS user			

2.4 Site Visits

The VVB carried out an on-site visit from 30/03/2023 to 01/04/2023 and physically inspected the project technical design and implementation as specified in the VCS PD-MR /1/.

The site visit was conducted to validate the accuracy and completeness of the project description. The validation and verification team members who visited the site collectively had the competence for the relevant technical area to which project relates. The views obtained during site observation were considered while concluding the validation and verification opinion.

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The sampling plan adopted by the VVB for carrying out the joint validation and verification assessment is as follows;

- **Sampling plan for validation of the project:**

The Sampling and surveys for CDM project activities and programmes of activities (Version 9.0)/7/ states under paragraph 28 that “When the project participants or the coordinating/managing entity have applied a sampling approach, the VVB may apply acceptance sampling as described in the steps indicated in paragraphs 29–38 below as part of validation/verification activities”.

Since the PP has determined the value of ex-ante parameter Bold, baseline stove type, fuel type through sampling of baseline end-users, the validation team conducted acceptance sampling in line with paragraph 30 and 31 of the sampling standard version 9.0/7/.

As per para 39 of the sampling standard version 9.0/7/, “A VVB may select a different sample size than the one indicated in paragraph 32 above either by choosing a different value for the consumer risk and producer risk (e.g., 20 per cent for the consumer risk) when applying acceptance sampling or by using another approach, if any of the following conditions apply:

- a) The estimated volume of annual GHG emission reductions of the project activity or the PoA being verified is equal to or less than 100,000 tCO₂e.
- b) The security conditions in the project region prevents inspection of many samples (eg. conflict zones); or
- c) The VCS grouped project activity is located in a least developed country or a host party with 10 or fewer registered CDM project activities at the end of the monitoring period being verified.

The grouped project is located in Rwanda, which is a Least Developed Country (LDC) (<https://unfccc.int/topics/resilience/workstreams/national-adaptation-programmes-of-action/ldc-country-information>). Thus, the validation team can choose a different sample size than one indicated in para 32 of the sampling standard/7/.

The validation team selected random sample of PP’s baseline survey records (parameter-B_{old}) to check the acceptability (or otherwise) of the data for each such record with PP’s sample records and determined if the PP’s sample records meet the requirements.

Sample Size:

AQL	UQL	Producer Risk	Consumer Risk	Sample Size; Min	Acceptance No.
0.5%	20%	10%	20%	8	0

The Validation team covered a total of 8 samples to confirm baseline KPT results. Since a common baseline survey was conducted for all PAIs, samples were picked randomly from the entire population which was surveyed for baseline and on which KPTs were conducted.

- **Sampling plan for verification of the project:**

The CDM Standard – Sampling and surveys for CDM project activities and programme of activities (Version 9.0)/7/ states under paragraph 28 that “When the project participants or the coordinating/managing entity have applied a sampling approach, the VVB may apply acceptance sampling as described in the steps indicated in paragraphs 29–38 below as part of validation/verification activities”.

Since the PP has monitored parameters ($N_{y,i,j}$ and μ_y) through surveys, verification team conducted acceptance sampling in line with paragraph 30 and 31 of the sampling standard version 9.0/7/.

As per para 39 of the sampling standard version 9.0/7/, “A VVB may select a different sample size than the one indicated in paragraph 32 above either by choosing a different value for the consumer risk and producer risk (e.g., 20 per cent for the consumer risk) when applying acceptance sampling or by using another approach, if any of the following conditions apply:

- a) The estimated volume of annual GHG emission reductions of the project activity or the PoA being verified is equal to or less than 100,000 tCO₂e.
- b) The security conditions in the project region prevents inspection of many samples (eg. conflict zones); or
- c) The VCS grouped project activity is located in a least developed country or a host party with 10 or fewer registered CDM project activities at the end of the monitoring period being verified.

The grouped project is located in Rwanda, which is a Least Developed Country (LDC) (<https://unfccc.int/topics/resilience/workstreams/national-adaptation-programmes-of-action/ldc-country-information>). Thus, the verification team can choose a different sample size than one indicated in para 32 of the sampling standard/7/.

The verification team selected random sample of PP’s monitoring survey records (parameter- $N_{y,i,j}$ and μ_y) to check the acceptability (or otherwise) of the data for each such record with PP’s sample records and determined if the PP’s sample records meet the requirements.

Sample Size:

AQL	UQL	Producer Risk	Consumer Risk	Sample Size; Min	Acceptance No.
0.5%	20%	10%	20%	8	0

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The verification team covered a total of 8 samples from each PAI to confirm monitoring survey results. Thus, a total of 32 samples were covered as part of the verification.

The list of end users interviewed by the assessment team is as follows:

Name	Affiliation	Date	Assessment team
Claudine	Baseline KPT sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Godelive	Baseline KPT sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Cassien	Baseline KPT sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Jeannette	Baseline KPT sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Dative	Baseline KPT sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Claude	Baseline KPT sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Leatitie	Baseline KPT sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Boniface	Baseline KPT sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana

Name	Affiliation	Date	Assessment team
Angelique Nyirabarera	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Jean Pierre Nsabimana	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Michel Nshimiyimana	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana

Shyaza Bizimana	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Marie Chantal	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Venant NZABONIMPA	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Raphael Bizimungu	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
SYLVESTRE Kabera	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Telesphore Niyonzima	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Theogene Ndayambaje	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Fredrick Nizeyimana	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Emmanuel Nazarike	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Marcienne Nyirankiwini	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Jean Paul Hakizimana	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Ildephonse Niyonzima	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Athanaz Turatsinze	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Jean Damascene Habanabakize	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Sebasyitsi Elaste	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana

Mukasine Dmarise	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Jean Ntawurutundi	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Marie Musabyimana	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Celestin Twagiramungu	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Anastase Iyakaremye	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Gaspard Ndagijimana	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Aloysia MUKARUTABANA	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Ananias BIGIRIMANA	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
JMV RURANGIRWA	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Bellancile MUJAWANKUSI	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Jean Paul Twagirayezu	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Thadee Bapagasi	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Jean Damascene Sentwali	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana
Faustine Nyabyenda	Monitoring survey sample	30/03/2023 to 01/04/2023	Shifali Guleria and Olivier Uwimana

2.5 Resolution of Findings

The validation and verification protocols used for the assessment is designed in accordance with the latest version of latest VCS Program Documents. The validation and verification protocols are an internal document in Excel and available on request.

As an outcome of the joint validation and verification process, the assessment team can raise different types of findings. Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable VCS/CDM requirements have been met. Where a non-conformance arises the validator/verifier raised a Corrective Action Request (CAR). A CAR is issued, where:

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- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions.
- The CDM/VCS requirements have not been met.
- There is a risk that emission reductions cannot be monitored or calculated.

Forward Action Request (FAR) is raised during validation/verification to highlight issues related to project implementation that require review during the first verification of the project activity. FARs do not relate to the VCS/CDM requirements for registration.

Irrespective of the nature of findings, all of these are given to PP in a separate finding document. In this document, the project proponent(s) is/are given the opportunity to respond to the findings. Based on the responses by PP along with relevant supporting documents/evidence the validation team determines whether the findings are resolved or not. The findings may also be raised at later stage e.g., during internal technical review process and these are also communicated/dealt in the same manner as described above. The draft joint validation & verification report is also prepared during this period reflecting the status of the findings, if any, as appropriate.

In summary, the type and total number of findings that were raised are indicted below:

Type of Finding	CAR	CL	FAR
Total Findings	09	05	01

2.5.1

All the findings raised during this joint validation & verification of the project are included under Appendix IV of this report.

Forward Action Requests

1 Forward Action Requests (FARs) was raised during this assessment.

3 VALIDATION FINDINGS

3.1 Project Details

Project type, technologies and measures implemented, and eligibility of the project

The project “DelAgua Clean Cooking Grouped Project in Rwanda” falls into sectoral scope 03 and is appropriately selected in the VCS joint PD-MR and is implemented in Rwanda. The project category and type are correctly indicated in the VCS joint PD-MR/01/. It has been indicated as well as accepted that it is a grouped project.

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The project entity i.e., DelAgua Health Rwanda (Voluntary) Limited and DelAgua Project Pte. Ltd. is correctly listed in the VCS PD. No other entity has been listed for this grouped project.

The start date of the Group project activity is 11/10/2021 /9/, which is also the date of installation of first ICS under the group project. The start date of the Group project activity is identified in accordance VCS standard/3/.

The PP has planned to distribute 400,000 ICS under the grouped project activity. PP has distributed 1 ICS to each household which was confirmed through the interviews with the end users/18/ and observations made during the on-site visit conducted by the VVB/18/. Also, PP has stated in Section 1.1 of the JPD-MR/1/ that SSM S32 X stove and BURN Kuniokoa G2 will be distributed to each household and the households will be the rural areas of Rwanda which was confirmed during the on-site visit/18/ by the VVB.

The distribution database/30/ which tracks the distribution of the stoves was verified by the VVB. Through the use of a smartphone app, community health professionals can complete distribution forms through the PP and even scan the barcodes of the stoves, which are subsequently linked to a particular residence after they are delivered.

VVB verified during the on-site visit/18/ that there was a correlation between the data in the database and the observations made during the field visit. The distribution dates correspond with a picture of the carbon contract on a poster which are also included in the database.

In addition, the VVB observed the stove distribution in progress during the site visit in order to validate the community health worker distribution model and ensure that the app was being used correctly and that the right dates, beneficiaries, and barcodes were entered into the system.

The crediting period of the Group project activity is from 11/10/2021 to 10/10/2028 and the expected emission reduction from the Group project activity is 14,554,657 tCO₂e from the entire crediting period and the annual emission reduction for the group project activity is expected to be 1,819,332 tCO₂e.

The project crediting period is correctly filled in VCS PD, which is of 7 years and twice renewable, for a maximum total of 21 years. The selected crediting period is consistent with the project start date and the first crediting period spans from 11/10/2021 to 10/10/2028 (both days included).

The project is correctly classified as large project as per VCS Standard /3/ as the average annual emission reductions are more than 300,000 tCO₂e. The estimated annual average emission reductions are estimated as 1,819,332 tCO₂e and the total emission reductions over the crediting period of 7 years are 14,554,657 tCO₂e. The estimated emission reductions are consistent with the corresponding ER spreadsheet /8/.

CAR 07 was raised and resolved.

Technical specifications of project stoves

The grouped project activity envisages distribution of two models of ICS under the initial PAIs. The description of the stove models is given in joint PD-MR/1/ and was confirmed from manufacturer's specification document/10/ and product factsheet/11/. The details (provided below) of the ICS were confirmed from the manufacturer's specifications/10/ and product factsheet/11/:

Model-1:

Name of the stove – Kuniokoa Generation 2 with Pot Skirt

Stove manufacturer – Burn

Stove Type – Natural Draft

Stove Body – Stainless Steel

Stove height – 32.1 cm

Stove diameter – 28.2 cm

Thermal efficiency with pot skirt– 51.3%

Thermal efficiency without pot skirt– 43.4%

Higher Power Output – 2.9 kW

Stove lifetime –10 years

Model-2:

Name of the stove – S32-X With Pot Skirt

Stove manufacturer – SSM

Stove Type – Natural draft

Stove Body – Stainless Steel

Stove height – 28 cm

Stove diameter – 32 cm

Thermal efficiency with pot skirt– 50.1%

Thermal efficiency without pot skirt– 45.7%

Higher Power Output – 2.9 kW

Stove lifetime – 10 years

The ICS Kunikoa has an efficiency of 41.6% in the Gold Standard project GS11145, which is much lower than the value applied for the current project of 50.1%. The reason for the increase in efficiency of the ICS Kunikoa under the DelAgua project activity is due to the addition of pot-skirts leading to increase in efficiency of the stove whereas the ICS that has been used under Gold Standard project GS11145 does not contain any pot-skirt.

Moreover, Generation 2 stove models have been distributed under this project which are an improved version of G1 (Generation 1) stove model used in other projects. The G2 stoves have higher efficiency than the previous version of the same model. All the details have been confirmed from the respective VPA-DDs of the project.

The stove model used in the GS project GS11145 are neither Generation 2 cookstoves nor uses pot-skirts and hence have lower efficiency.

Stove model	Efficiencies
Pot-Skirt (G2 Stove)	50.1%
Without Pot Skirt (G1 Stove)	41.6%

Project design, including eligibility criteria for grouped projects

The joint VCS PD-MR/1/ includes sufficient information with regard to project activity, system and product description and distribution plan. Further description on application and information on the ICS technology is given in Project Instance.

Project activity under VCS is assessed below:

a) Eligibility conditions

Scope	Applicability	VVB Assessment
The seven Kyoto Protocol greenhouse gases	The GP reduces GHG emissions associated with the combustion of cooking fuels. Gases included are CO ₂ , CH ₄ , N ₂ O.	PP has considered the GHG gases within the scope of Kyoto protocol which are reduced using improved cookstove under the grouped PA.
Ozone-depleting substances (ODS).	The GP does not involve any ODS.	The proposed grouped project does not involve any Ozone-depleting substances as it involves only dissemination of ICS.
Project activities supported by a methodology approved	The ICS to be distributed) in the GP uses the methodology	The grouped project applies, VMR0006 "Methodology for

under the VCS Program through the methodology approval process.	“VMR0006 “Methodology for Installation of High Efficiency Firewood Cookstoves”, version 1.1.” which is a VCS approved methodology.	Installation of High Efficiency Firewood Cookstoves”, version 1.1/5/, applicability of the methodology is assessed in detail under section 3.4 of this report.
Project activities supported by a methodology approved under a VCS approved GHG program, unless explicitly excluded under the terms of Verra approval.	Not applicable	Not applicable

b) Excluded project activities under the VCS Program

Excluded Activity	Applicability	VVB Assessment
Grid-connected electricity generation activities using hydroelectric power plants. The exclusion does not apply to ocean energy (e.g., wave, tidal, salinity gradient, and ocean thermal energy conversion). For hydro projects, large scale means a maximum capacity of greater than 15MW, where maximum capacity is the installed/rated capacity or authorized capacity (as determined in the activity approval from the project regulator, government, or similar entity), whichever is lower. Grid-connected means >50% of total generation is exported to a national or regional grid. See the VCS Program document VCS Program	N/A. The GP activities are energy efficiency measures and do not generate electricity from hydro-power plants/units.	The proposed grouped project disseminates ICS which is not related to electricity generation using hydro-power plants. Thus, exclusion condition is not applicable.

Definitions for the full definition.		
Grid-connected electricity generation activities using wind, geothermal, or solar photovoltaic (PV) power plants. The exclusion does not apply to concentrated solar thermal-to-electricity, floating solar PV, or energy storage systems (e.g., batteries). Grid-connected means >50% of total generation is exported to a national or regional grid. See the VCS Program document VCS Program Definitions for the full definition.	N/A. The GP activities are energy efficiency measures and do not generate electricity from wind, geothermal, or photovoltaic (PV) power plants.	The proposed grouped project disseminates ICS, which is not related to wind, geothermal, or photovoltaic (PV) power plants. Thus, exclusion condition is not applicable.
Activities recovering waste heat for combined cycle electricity generation, or to heat/cool via cogeneration or trigeneration. The exclusion does not apply to waste gas recovery or electricity generation using waste heat recovery outside of combined cycle applications (e.g., organic Rankine cycles).	N/A. The GP activities are energy efficiency measures and do not utilize recovered waste heat for any purposes.	The project does not involve any component of electricity generation or heating/cooling via cogeneration or trigeneration. Thus, exclusion condition is not applicable.
Activities generating electricity and/or thermal energy for industrial use from the combustion of non-renewable biomass, agro-residue biomass, or forest residue biomass.	As the GP activities are distribution of improved cook stoves in Rwanda to improve thermal efficiency of cook stoves used for cooking purpose. The exclusion does not apply to thermal efficiency projects i.e., cook stoves,	The project does not involve any component of electricity generation. Thus, exclusion condition is not applicable.

The exclusion does not apply to gasification, pyrolysis, combusting biofuels, biogas, fractions of renewable biomass in refuse-derived fuels, agro/forest biomass residues in waste streams that are sent to landfills, CO2 capture and storage from renewable biomass combustion, or thermal efficiency improvements (e.g., cook stoves).	further the project activity is located in LDC.	
Activities generating electricity and/or thermal energy using fossil fuels, and activities that involve switching from a higher to a lower carbon content fossil fuel. The exclusion does not apply to the use of captured flare and/or vent gas or waste containing previously used petroleum products (e.g., used plastics, oils, lubricants).	N/A. The GP activities are energy efficiency measures and do not generate electricity and/or thermal energy using fossil fuels, neither involve fossil fuel switch. The GP includes energy efficiency improvements in thermal applications, i.e., cookstoves.	The project does not involve any component of electricity generation. Thus, exclusion condition is not applicable.
Activities replacing electric lighting with more energy-efficient electric lighting, such as the replacement of incandescent electrical bulbs with compact fluorescent lights (CFLs) or light emitting diodes (LEDs). Large-scale means energy-efficient improvements with a maximum savings greater than 60 GWh/year or emission reduction greater than 60 kt CO2e per year.	N/A The GP activities do not include the replacement of electric lighting.	The project does not include any replacement of electric lighting. Thus, exclusion condition is not applicable.

Activities installing and/or replacing electricity transmission lines and/or energy-efficient transformers.	N/A. The GP activities do not include the installation and/or replacement of electricity transmission lines and/or energy efficient transformers.	The project does not involve any component of electricity generation. Thus, exclusion condition is not applicable.
Large-scale means energy-efficient improvements with a maximum savings greater than 60 GWh/year or emission reduction greater than 60 kt CO2e per year.		
Activities that reduce hydrofluorocarbon-23 (HFC-23) emissions	N/A. The GP reduces GHG emissions associated with the combustion of cooking fuels.	The proposed grouped project disseminates ICS which does not involve HFC-23. Thus, exclusion condition is not applicable.

c) Eligibility criteria for Grouped PA

S.No.	Eligibility Criteria for the inclusion of new project activity instances	How the new project activity instances comply	VVB Assessment
1.	Grouped projects shall specify one or more clearly defined geographic areas within which project activity instances may be developed. Such geographic areas shall be specified using geodetic polygons.	Each PAI will have clearly defined geographic areas and such area will be specified using geodetic polygons.	The project has been implemented within the geographical boundary of Rwanda which has been verified from the KML files/17/ provided by the PP which was found to be correct. Furthermore, it has been confirmed during the on-site visit/18/ that the project was implemented in Rwanda.
2.	Determination of baseline scenario and demonstration of additionality are based upon the initial project activity instances. The initial	Baseline scenario and demonstration of additionality shall be based upon the initial project activity instances	The baseline scenario has been determined by the PP for all PAIs which has been mentioned under section 3.4 of the joint PD-MR/1/. The detailed assessment of the

	project activity instances are those that are included in the project description at validation and shall include all project activity instances currently implemented on the issue date of the project description.		same has been provided under section 3.4.4 of the report. Additionality of the project has been determined by the PP as per the applied methodology/8/ which has been mentioned under section 3.5 of the joint PD-MR/1/. The detailed assessment has been provided under section 3.4.5 of the report.
3.	Where a grouped project includes multiple project activities, the project description shall designate which project activities may occur in each geographic area.	The grouped project includes only one project activity.	The PAIs only involve the distribution of improved cookstoves to households who rely on traditional cookstoves that use woody biomass for cooking which was verified from the distribution database/30/ provided by the PP. Furthermore, during the on-site visit/18/, it has been found that only distribution of ICS is involved under the project activity and hence it is a single project activity.
4.	The baseline scenario for a project activity shall be determined for each designated geographic area, in accordance with the methodology applied to the project.	Baseline scenario for a project activity shall be determined for each designated geographic area, in accordance with the methodology applied to the project	The baseline scenario has been determined by the PP for all PAIs which has been mentioned under section 3.4 of the joint PD-MR/1/. The detailed assessment has been provided under section 3.4.4 of the report.
5.	The additionality of the initial project activity instances shall be demonstrated for each designated geographic area, in	Additionality for a project activity shall be determined for each designated geographic area, in accordance with the	Additionality of the project has been determined by the PP as per the applied methodology/8/ which has been mentioned under section 3.5 of the joint PD-MR/1/.

	accordance with the methodology applied to the project	methodology applied to the project	The detailed assessment has been provided under section 3.4.5 of the report.
6.	Where factors relevant to the determination of the baseline scenario or demonstration of additionality require assessment across a given area, the area shall be, at a minimum, the grouped project geographic area. Examples of such factors include, inter alia, common practice; laws, statutes, regulatory frameworks, or policies relevant to demonstration of regulatory surplus; determination of regional grid emission factors; and historical deforestation and degradation rates	All the factors relevant to the determination of baseline or demonstration of additionality shall be done for the geographical boundary of the grouped project	The factors relevant to the determination of baseline or demonstration of additionality have been done for the geographical boundary and the same has been assessed via independent research of laws, regulation and historical data available for Rwanda available on the public domain.

d) Eligibility criteria to include PAIs

S.No.	Eligibility Criteria for the inclusion of new project activity instances	How the new project activity instances comply	VVB Assessment
1.	Project Activity Instances (PAIs) must meet the applicability conditions set out in	Please refer the subsections below.	See below

	the applied methodology.		
1a.	Project activities shall be implemented in domestic premises or in community-based kitchens.	Each PAI will distribute technology that is appropriate for domestic use to household end-users.	The ICS distributed under PAI-1, PAI-2, PAI-3 and PAI-4 are for domestic use i.e. for cooking in individual households. The specification of the ICS to be distributed were checked from Manufacturer's specifications/10/ and Product factsheet/11/ confirming the target users for future PAIs. Project ICS distribution database/30/ containing unique household and end user information was checked along with physical visit to the households to confirm the target end users of the PAI 1 to PAI 4 which is already implemented. The locations coordinates were checked using get-geocoordinates app.
1b.	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; in case of project stove replacing fossil fuel baseline stove, it shall exclusively use renewable biomass.	ICS distributed in each PAI will have a thermal efficiency of at least 25% and will be confirmed by the end user that they were using the firewood as the cooking fuel in the project's baseline. Each PAI will record the baseline and project fuel use to ensure that wood fuel is the sole source of energy.	The ICSs distributed till now is Burn Kuniokoa. Other than this S32-X stove is planned to be distributed under the other PAIs. The technical description of both the stoves were checked from the Manufacturer's specifications/10/ and product factsheet/11/. The efficiency of the ICS was further confirmed from the third-party lab test report/41/. The design efficiency of both the stoves are higher than 25%. Information recorded in

			the baseline KPT sheet/25/ on the baseline fuel usage were corroborated through VVB survey to the households on which baseline KPTs were performed. During monitoring the fuel used in project scenario will be confirmed.
1c.	Both 'Projects' and 'Large Projects' can use the methodology	PAIs will comply with the GP requirements.	The GP is defined as a "Large Project" in Joint PD-MR in line with para 3.10.1 of VCS Standard/3/. The scale of the project was also confirmed through review of estimated ER sheet/8/.
1d.	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.	This has been demonstrated at grouped project level that demonstrate that Non-renewable biomass has been used in the project region since 31 December 1989.	The use of Non-renewable biomass since 1989 was confirmed through published report/13,14/.
1e.	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	Biomass residues are not processed as a fuel to be used in the GP. The project activity does not involve fuel switch from baseline case. End users will be asked to state their source of energy and baseline appliance at the point of distribution and during the project monitoring. Above information will be stored in the monitoring database.	The project is not conducting any activity to process biomass. The monitoring plan include monitoring surveys to confirm the fuel used in the project scenario. PP had shown the Project ICS distribution poster/15/ during the VVB site visit, which explains the end-users to correctly use the ICS with wood fuel. Project ICS distribution database/30/ and baseline

	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.		survey records/25/ were checked to confirm that the fuel used by the end users are not processed.
1f.	The Project Design Document 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)	To avoid double counting of emission reductions through the method of distribution, each cookstove has a unique identifier number and the distribution of each stove is logged onto a database which includes unique information for each recipient. Each PAI will have system for avoiding double counting with data being collected via a smartphone app (where possible), or via paper forms, including: 1. Date of distribution 2. A unique serial number on each technology 3. Available end-user data: name, phone number,	The proposed group project will maintain database with end user details and the UID of the device they receive. The device has unique engravings or text specifically mentioning the unit is strictly “not for sale” along with the DelAgua logo to avoid double counting with any other GHG project in the same area. Moreover, the households are checked for baseline stove in use before distribution of the new project ICS in the household. VVB has verified the same during the on-site visit/18/ and from the distribution database/30/ which also confirms that the ICSs distributed under the PAIs are not part of any other GHG programme.

		address/physical location, ID number	
1g.	The Project Design Document 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 End User Agreement will confirm that the ownership rights of the ER/VCUs generated by the PAI reside with the PP. The signature of each end user confirming their understanding of this agreement will be collected at the point of distribution. The End User Agreement will be in English and translated into a local language where required. If necessary, it will be read out to the End User. All rights to distribute the delivered stoves and claim the resultant GHG emissions reductions belong to the PP. The GP will not include any PAI that has been rejected by another GP, or PA-DDs of any other GHG programs.	End users will be asked to sign end user agreement to confirm that they transfer the rights to GHG on receipt of stoves for new PAIs. For all PAIs included under the grouped PA, sample agreements have been checked to confirm transfer of GHG rights/15/.
2.	Use the technologies or measures specified in the project description.	Only ICS that conform with the GP description are to be distributed in the project. The ICS will be chosen to deliver a level of service at least equivalent to the baseline appliance.	The ICSs distributed till now under all PAIs is Burn Kuniokoa. Other than this S32-X stove is planned to be distributed under the other PAIs. The technical description of both the stoves were checked from the Manufacturer's specifications/10/ and product factsheet/11/. The design efficiency of both the

			stoves are higher than 25% as confirmed from the 3 rd party lab test report/41/.
3.	Apply the technologies or measures in the same manner as specified in the project description.	Only ICS that conform with the GP description are to be distributed in the project. The ICS will be chosen to deliver a level of service at least equivalent to the baseline appliance.	The PAIs will include only the ICS shown to be meeting methodology applicability criterion in the Joint PD-MR. The same has been followed for all PAIs. The 4 PAIs consists of a Unique ID as verified from the distribution database/30/, monitoring survey/12/ and cross-verified during the on-site visit to the households/18/. Thus, the eligibility criterion is met.
4.	Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	All new PAIs will be implemented only in regions within the geographic borders of Rwanda subject to the same baseline scenario determined in Section 3.4 in this Project Description. The geographical location of the project ICS can be traced through the information provided in the distribution database, which includes the location data of the ICS distributed.	The PP records the baseline stove at the time of distribution and document in ICS Distribution database/30/. These records were verified during the on-site visit/18/, and it is confirmed that the stoves are distributed within the project boundary i.e., the host country of Rwanda. It is confirmed through the interviews with the end users that traditional woodstove has been replaced by the project stove.
5.	Have characteristics with respect to additionality that are consistent with the initial instances for	All new PAIs will use the activity method for demonstration of additionality. Step 1: Regulatory Surplus	An analysis of Rwandan government programmes or policy for cookstoves as shown under Section 3.5 of Joint PD-MR/1/ was carried out that

	the specified project activity and geographic area. Joint Validation Notification/CS Version 11	There is no government mandated programme or policy in host country of this project ensuring the distribution of new project activity instances. Step 2: Positive List The inclusion of new project activity instances will comply with the positive list as it satisfies criterion 1 where it meets all the applicability conditions of the methodology. Where the project activity installs or distributes stoves at zero cost to the end-user and has no other source of revenue other than the sale of GHG credits, the project activity shall be deemed additional.	there is no mandate for the distribution of ICS to the households in Rwanda. The PP has provided the End User Agreement/15/ to confirm that PAIs were distributed at zero ICS under cost. This was also cross checked by the VVB during the interviews with the end-users/18/. Thus, the PAI is considered auto additional. Similar approach will be followed for future PAIs.
6.	Where a capacity limit applies to a project activity included in the project, no PAI shall exceed such limit. Further, no single cluster of project activity instances shall exceed the capacity limit, determined as follows: Each device that exceeds one percent of the capacity limit shall be identified.	The GP does not have any specified capacity limits applicable, since there are no capacity limits defined within the applied methodology, VMR0006, ver. 1.1. Therefore, this eligibility criterion is not applicable.	The applied methodology does not specify capacity limits/5/.

	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. 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.		
Eligibility conditions specific to inclusion of New PAIs			
7.	The new PAI must occur within one of the designated geographic areas specified in the project description.	The distribution of the ICS is based on a MoU signed with the Government of Rwanda, and therefore, the project activity only distributes to the beneficiaries that are provided in Ubudehe based list of the districts. There is no way this program/GP can distribute ICS in the boundaries of the neighbouring countries of Rwanda. This requires	The project stove has been distributed only in the host country, Rwanda. Project ICS distribution database/30/ records the household locations. The condition has been set correctly in line VCS standard v4.4/3/.

		passing of the project ICS through customs and other procedural regulations.	
8.	The new PAI must comply with at least one complete set of eligibility criteria for the inclusion of new project activity instances. Partial compliance with multiple sets of eligibility criteria is insufficient.	The eligibility criteria set must be complied by the PAIs at all points in time throughout the crediting period. If at any point, it is found that the PAI is not complying with the set of eligibility criteria, then it may be excluded from the crediting for the duration of the monitoring period, until it is able to demonstrate the compliance of the eligibility criteria.	The new PAIs demonstrates conformation with eligibility criteria in the MR. The condition has been set correctly in line VCS standard v4.4/3/.
9.	The new PAI must be included in the monitoring report with sufficient technical, financial, geographic and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/verification body.	The new PAI will include all the technical, financial, geographic and other relevant information related to the compliance of the applicable set of eligibility criteria & also enable sampling by the VVB.	The new PAIs demonstrates conformation with eligibility criteria in the MR in line with Joint PD-MR. The condition has been set correctly in line VCS standard v4.4/3/.
10.	The new PAI must be validated at the time of verification against the applicable set of eligibility criteria.	The new PAI(s) shall be part of the monitoring, and therefore, will be validated against the criteria specified, by a VCS accredited/approved VVB.	The new PAIs demonstrates conformation with eligibility criteria in the MR in line with Joint PD-MR. The condition has been set correctly in line VCS standard v4.4/3/.

11.	The new PAI must 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 (i.e., the date upon which the project activity instance began reducing or removing GHG emissions).	The PAI related evidence on the project ownership will be in the form of a distribution end user receipt poster. This will be signed by the end user, and a photograph of him/her holding the poster along with the ICS will be saved in the PAI database.	The start date of the new PAIs has been determined through the installation documents of the first unit which has been checked at the time of inclusion. The condition has been set correctly in line VCS standard v4.4/3/. The start date of the PAI2 is 11/10/2023 which is also the date of installation of first ICS under the grouped project activity.
12.	The new PAI must have a start date that is the same as or later than the grouped project start date.	The new PAI will have a start date later than the GP start date.	The start date of the new PAIs will be determined through the distribution database/30/ of the first unit disseminated under them which shall be after the start date of the grouped project. The condition has been set correctly in line VCS standard v4.4/3/. The start date of the PAI is 11/10/2023 which is also the date of installation of first ICS under the grouped project activity.
13.	The new PAI must 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	The PAI will be only eligible for the crediting from its start date through to the end of the project crediting period (only).	The start date of the new PAIs will be determined through the installation documents/30/ of the first units disseminated under them. The end date will be cross checked with the end date published on VCS registry/21/. The condition

	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 of the VCS Standard, ver. 4.3) and new instances are eligible for crediting from the start of the next verification period.		has been set correctly in line VCS standard v4.4/3/. The PAI-1, PAI-2, PAI-3, PAI-4 are eligible for crediting from the start date of the instance through to the end of the project crediting period
14.	The new PAI shall not leave one VCS project and subsequently enroll in another VCS project.	It will be ensured that the PAI that is being enrolled under the VCS GP was not previously enrolled under any other VCS project, and will not be enrolled under other VCS project if it is removed from the VCS GP.	PP provides a signed declaration ensuring that new PAIs that has been enrolled under the VCS GP will not be enrolled under another VCS project. The stoves consist of UID, and the database will be maintained to avoid double counting within the GP. The validation team has verified that the PAIs have not been registered, and it has no plans to register under any other GHG program through independent research and by reviewing the declaration from the PP/20/.
15.	The new PAI shall adhere to clustering requirement that states the project proponent shall include in a singular project all project	It will be ensured that PAI included within 10 kilometers of another instance of the same project activity by the same PP is in a singular project.	There are no other project instances by the same PP (DHRV and DelAgua Project Pte Ltd) distributed within 10 kilometres for the same project activity as confirmed from the independent

	activity instances within ten kilometers of another instance of the same project activity and with the same project proponent.		research by the validation team.
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Thus, VVB is of the opinion that the project activity instances meet all the required eligibility criteria to be included within the grouped project.

CL 01 and CAR 01 were raised against the eligibility criteria to include PAIs as well as VCS Program scope and were resolved.

- **Project proponent and other entities involved in the project**

DelAgua Health Rwanda (Voluntary) Limited and DelAgua Project Pte Ltd are the project proponent of the project. No other entity is involved in this grouped project activity.

- **Ownership**

DelAgua Health Rwanda (Voluntary) Limited and DelAgua Project Pte Ltd are the sole owners of the carbon credits generated from the VCS grouped project activity titled “DelAgua Clean Cooking Grouped Project in Rwanda”. This has been clearly mentioned in the VCS PD-MR section 1.7 /1/ and was confirmed by reviewing manufacturer’s agreement/16/. Also, end-user agreement/15/ is signed with each end-user receiving project technology (ICS) to confirm the ownership of rights are only held by PP and end-users have voluntarily waived their rights on carbon credits generating from the use of project stove by signing the poster agreement. VVB confirms that all the evidence demonstrating the ownership of the project or right to use were found to be acceptable. It was found to be in compliance with section 3.7.1 of VCS standard/3/. Independent research was conducted to confirm that the project is not listed under any emission trading program or other binding limits.

DelAgua Project Pte Ltd has been added as the project proponent for the grouped project 4150 along with DelAgua Health Rwanda (Voluntary) Limited. DelAgua received interest from an investor for their cookstove program in Rwanda (VCS 4150). As per the initial investment condition, the project (VCS 4150) had to be registered with “DelAgua Project Pte Ltd” as the PP in addition to DelAgua Health Rwanda (Voluntary) Limited. The company incorporation process along with account opening was taking time. In the meantime, to keep the investor’s confidence, VCS ID 4150 was submitted for the request for registration with DelAgua Health Rwanda (Voluntary) Limited as PP. Considering the project yet to be registered and all the required legalities for DelAgua Project Pte Ltd are already completed prior to project registration, PP has requested VERRA to accept the request for addition of PP.

FAR 01 has been raised.

- **Project start date**

The date of distribution of first project stove has been considered as the start date of the grouped project activity, which took place on 11/10/2021, the same has been verified from the distribution database/30/. This is also confirmed from the end user agreement/15/ and thus was found to be in compliance with section 3.8 of VCS standard/3/.

CL 04 was raised and resolved.

- **Project crediting period**

The project crediting period will be seven years, twice renewable, for a maximum total of 21 years. The first crediting period will be 11/10/2021 to 10/10/2028 (both days included).

- **Project scale and estimated GHG emission reductions or removals**

The project activity is correctly classified as “Large project” as per VCS Standard para 3.10.1 as the average annual emission reductions are more than 300,000 tCO₂e. The estimated average annual GHG emission reductions are 1,819,332 tCO₂e and the total emission reductions over the crediting period of 7 years are 14,554,657 tCO₂e. The estimated emission reductions are consistent with the corresponding ER spreadsheet /8/.

- **Project location**

The project location is Rwanda, and all the project activity instances will be implemented within the boundaries of Rwanda. The project boundary for each Project Activity Instance is the physical, geographical location of the ICS distributed within the host country. The geographical coordinates of the project site were verified at the time of monitoring survey samples during VVB on-site visit/18/. Get-geocoordinates mobile application was used to check the geographical coordinates for the samples visited on-site. The information made available by the PP, the KML files shared of the distribution districts within Rwanda/17/ and the geo-coordinates obtained by VVB/18/ have been verified during the site visit and found to be consistently defining the project location as the geographical boundaries of the host country, Rwanda. Therefore, this was found to be acceptable by the VVB.

CAR 02 was raised against the location of the project and was resolved.

- **Conditions prior to project initiation**

The baseline scenario of the project consists of use of non-renewable biomass (firewood/charcoal) for cooking in households throughout the project location.

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

As this grouped project is a distribution of ICS technologies, this does not come under purview of Environment Impact Assessment (EIA) as per Rwandan laws and regulatory framework. This was verified through General Guidelines and Procedure for Environmental Impact Assessment, Republic of Rwanda /19/.

- **Participation under other GHG programs:**

- **Projects registered (or seeking registration) under other GHG program(s)**

The validation team has verified that the grouped project activity 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 proposed project under VCS/20/.

CAR 03 was raised and resolved.

- **Rejection by other GHG programs**

The project has not been registered by any other GHG programs/20/. The same has been confirmed by the VVB through review of the registries of various GHG programs including CDM, GS4GG and GCC.

- **Other forms of credit and supply chain (Scope 3) emissions:**

- **Emissions trading programs and other binding limits**

The PP confirms in section 1.16.1 of the joint PD-MR /1/ that this grouped project does not reduce GHG emissions from activities that are included in an emissions trading program. Rwanda does not have its own ETS. Also, it does not seek or receive another form of GHG-related environmental credit.

- **Other forms of environmental credit sought or received and eligible to be sought or received**

The grouped project activity did not seek or receive another form of GHG-related environmental credit.

- **Issuance of public statement(s) to help prevent Scope 3 emissions double claiming**

The grouped project activity which aims at distribution of ICS to households does not result in any Scope 3 emissions in its supply chain.

- **Email notification of the potential risk of Scope 3 emissions double claiming**

The grouped project activity does not result in any Scope 3 emissions, hence not applicable.

- **Additional information relevant to the project, including:**

- **Leakage management for AFOLU projects**

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

- **Commercially sensitive information**

The VCS joint PD-MR/1/ does not indicate any information that is commercially sensitive in nature as confirmed by PP under section 1.18 of joint PD-MR/1/.

- **Sustainable development contributions**

Joint Validation & Verification Report: VCS Version 4.2
The project activity is contributing to 8 SDGs for the PAI 1:

SDG 1 No Poverty - Indicator 1.4.1 Proportion of population living in households with access to basic services. In the current monitoring period, 100% of 4 PAIs users i.e., 398,608 households have access to basic cooking services as confirmed from the monitoring survey/12/ when compared with the baseline.

SDG 3 Good Health and Well Being - Indicator 3.9.1 Mortality rate attributed to household and ambient air pollution. In the current monitoring period, 1,715,915 people have less risk towards respiratory ailments due to smoke inside their homes due to the implementation of the project activity. While 100% of PAIs users did experience less smoke and pollution after using the project device and this was confirmed from the monitoring survey/12/.

SDG 4 Quality Education - Indicator 4.7.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment. The number of CHWs trained by the end of current monitoring period, are 4,685. The total number of end users per household that were educated for stove usage are 398,608 and this has been explained in the joint PD-MR/1/. This was confirmed from the CHWs master database/31/.

SDG 5 Gender Equality - Indicator 5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location. In the current monitoring period, 96% of all PAIs users did experience less time in collecting fuelwood as confirmed from the monitoring survey/12/. This was multiplied with the total number of end user HHs, resulting in 383,088 HHs spending less time on unpaid domestic work (i.e., collection of firewood for cooking) during the first monitoring period.

SDG 7 Affordable and Clean Energy – By 2030, double the global rate of improvement in energy efficiency. In the current monitoring period, 398,608 households received ICS and got access to these ICS in PAIs, and this was confirmed from the distribution database/30/.

SDG 8 Decent Work and Economic Growth - Indicator 8.3.1 Proportion of informal employment in total employment, by sector and sex. In the current monitoring period, the project activity provided informal employment to around 4,685 people. This was confirmed from the CHWs master database and salary slips/31/.

SDG 13 Climate Action – Tonnes of greenhouse gas emissions avoided or removed. During the current monitoring period, the GHG emission reductions results to 1,367,923 tCO_{2e} of 4 PAIs and this was confirmed from the ER calculation sheet/8/.

SDG 15 Life on Earth Indicator 15.4.2 Mountain Green Cover Index. In the current monitoring period, 740,018 tons of woody biomass were saved while implementing 4 PAIs under its first monitoring period. It was confirmed from the available data i.e., baseline survey/25/, monitoring survey/12/, joint PD-MR/1/ and ER sheet/8/.

All the SDGs listed in the joint PD-MR have been assessed by the VVB thoroughly by desk review and also cross checked during the on-site visit/18/ done by VVB.

No further information is included in the VCS Joint PD-MR/1/. This is to confirm that the information in the project description is accurate, complete, and provides an understanding of the nature of the project.

CAR 04 was raised against the SDG impact monitoring and was resolved.

3.2 Participation under Other GHG Programs

The grouped project activity has not been registered, and it has no plans to register under any other GHG program.

Even though PP has a PoA registered under CDM (CDM PoA 9626) in Rwanda however, it is different from the VCS project in following ways:

- In contrast to the stove model distributed under CDM PoA-9626, which distributed Eco Zoom Dura, the VCS grouped project activity plans to distribute two stove models: SSM S-32 X and BURN Kuniokoa G2.
- Additionally, the CDM PoA began on 01/10/2012, while the VCS project began on 04/11/2022. The CDM webpage was examined to confirm that the most recent CDM PoA 9626 issuance covered the monitoring period 01/06/2020 to 31/12/2020 (CDM: DelAgua Public Health Program in Eastern Africa (unfccc.int)).

VVB verified that there were no discrepancies between the CDM and PAI databases by cross-referencing them. In addition, every stove component in the group project has a barcode associated with a particular household that was verified by the VVB at the on-site visit.

The validation team has verified 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/20/. Additionally, VVB has checked various registry webpages like UNFCCC, VERRA, GCC etc. to confirm that no project with similar title existed in neither of the registries. Therefore, the grouped project activity is in line with section 3.22.1 of VCS standard/3/ and is eligible to participate under the VCS Program.

3.3 Safeguards

No Net Harm

3.3.1

As this grouped project is a distribution of ICS technologies, this does not come under purview of Environment Impact Assessment (EIA) as per Rwandan laws and regulatory framework. This was verified through General Guidelines and Procedure for Environmental Impact Assessment, Republic of Rwanda /19/. It was further identified in the joint PD-MR /1/ that as per as Ministerial Order No. 004/2008: Ministerial Order which establishes the list of works, activities and projects that must undertake an environment impact assessment, this project of distribution of ICS to households in Rwanda does not require EIA. VVB accepted this justification that since project does not need environmental assessments, supports that project does not cause environmental harm.

Local Stakeholder Consultation

3.3.2

The local stakeholder consultation meeting was conducted in two rounds by the project proponent. One with the end users as attendees which was conducted at district level and the other with NGOs, Academia, other project developers, and any other entity.

The local stakeholder consultation meeting was held on 01/03/2023 at Gorillas Golf Hotel, Nyautarama, Rwanda. The relevant stakeholders received invitation for the participation/feedback via multiple means viz., an advertisement/32/ posted in newspaper, “The New Times” on 3rd and 13th February 2023 and advertisement in radio channels. Also, email invitations/32/ were also sent to identified NGOs and other organizations on 4th and 13th February 2023. Relevant evidence including newspaper invites and FM Radio announcement notifying the date, time and location of the event was shared by the PP/32/.

The PP has a continuous grievance mechanism in place for the local stakeholders. The beneficiaries of the project ICS have been provided with the following means to contact the PP:

- Directly registering complains at the nearest cell office.
- A toll-free helpline on which the end users can seek assistance.
- Speaking to the DelAgua CHW network to share their feedbacks.

Evidence on the collection of grievance feedback from the end-users/33/ is provided by PP (photographs of the grievance/feedback notes), and the requirement is identified as being fulfilled during the VVB physical visit/18/.

VVB has conducted interviews with the PP representatives, local stakeholders and the end users and found that there was the constant on-going communication directly with the beneficiary households. The project proponent has disclosed its feedback and grievance redressal mechanism under section 2.2 of the JPD-MR/1/, and the same was verified from the grievance logbook/33/ provided by the PP. During the current monitoring period, 3 feedback/grievances

were raised when grievance logbook/33/ was verified by the VVB, and it has been found that one concern was of high risk out of the three feedback/grievances received by the stakeholders. The two feedback of the stakeholders were anonymous in nature due to which the PP was not able to resolve the issue. While interviewing the PP about the third grievance, it has been concluded that the project stove of one of the end users was stolen and they have lodged the complaint to police for which the action was not taken place, however, the same project stove was found in the market by the PP which kept for sale and the same has been returned to that end user. The grievance of the stakeholder was resolved by the PP which was confirmed from the grievance logbook/33/ provided at the time of on-site visit/18/ as well as from the interviews with the stakeholders at the time of verification audit.

CL 04 and CAR 05 were raised and closed.

Environmental Impact

3.3.3 No environmental impact assessment has been done for this project as the project type is exempted from EIA as per Rwandan laws and regulations. Please see section 3.3.1 of this report for further clarification.

Public Comments

3.3.4 This project was open for public comment from 17/03/2023 to 16/04/2023. No comments were received by the project during the public comment period as confirmed from the project registry webpage /21/.

CAR 05 was raised and resolved.

3.3.5

AFOLU-Specific Safeguards

This project is a non-AFOLU project type; therefore, this section is not required.

3.4.1

3.4 Application of Methodology

Title and Reference

The project, as given in the section 3.1 of VCS Joint PD-MR /1/, has applied VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves, version 1.1/5/ and relevant tools prescribed therein. The reference to the versions of the tools and methodology were found to be valid for use. The validity of the versions of the applied methodology and tools were checked from Verra and CDM websites.

Tools applied in this project are listed below:

CDM TOOL30 "Calculation of the fraction of non-renewable biomass" Version 4.0/29/

CDM Guideline “Sampling and surveys of CDM project activities and programmes of activities” version 4.0/6/

CDM Standard “Sampling and surveys for CDM project activities and programmes of activities” version 9.0/7/ Joint Validation & Verification Report: VCS Version 4.2

The above-mentioned methodology and tools as described in the joint PD-MR/1/ are found to be correctly listed and latest available version is being applied during the validation of the GP.

Applicability

The project “DelAgua Clean Cooking Grouped Project in Rwanda” complies with each applicability condition of the identified methodology /5/. The same has been justified in the following table.

3.4.2

As per para 3.8.1. of VCS standard/3/, non-AFOLU projects shall complete validation within two years of the project start date. Since the project start date was determined to be 10/11/2021. The validation can be completed within 2 years i.e., by 09/11/2023. It shall be noted that the project applies latest version of the methodology/5/.

Applicability criteria of applied methodology, VMR0006 for PAIs to be included are listed in the table below:

No.	Applicability Condition	Justification of applicability	Means of assessment
1.	Project activities shall be implemented in domestic premises or in community-based kitchens.	Since each PAI distributes technology that is appropriate for domestic use to household end users i.e., improved cookstoves for cooking, thus this meets the applicability.	The aim of the project is to reduce GHG emission and provide improved cookstoves following this methodology/5/ to households in Rwanda. It was verified from the ICS distribution database/30/ and VVB’s on-site visit/18/ that project stoves were distributed to only household within the project boundary i.e., Rwanda.
2.	The project stove shall have specified high-power thermal efficiency of at least 25% per the manufacturer’s	ICS distributed in each PAI has a thermal efficiency of at least 25%.	Thermal efficiency of all the ICS will be more than 25% which shall be demonstrated at the time of PAI inclusion.

	specifications and shall exclusively use woody biomass and can be single pot or multi-pot; in case of project stove replacing fossil fuel baseline stove, it shall exclusively use renewable biomass.	Baseline and project fuel for each PAI has been recorded to ensure that wood fuel is the sole source of energy.	The ICSs distributed till now is Burn Kuniokoa. Other than this SSM S32X stove is planned to be distributed under the other PAIs. The design efficiency of both the stoves are higher than 25% as checked from the Manufacturer's specifications/10/, product factsheet/11/ and third-party lab test reports/41/. Therefore, the criterion has been met.
3.	Both 'Projects' and 'Large Projects' can use the methodology	As per estimated annual emission reduction potential, the grouped project activity falls under large projects. As such, PAIs also fall under the Large Project category.	The GP is defined as a "Large Project" in Joint PD-MR in line with para 3.10.1 of VCS Standard /3/. The scale of the project was also confirmed through review of estimated ER sheet/8/. Thus, the grouped project meets the Group project requirements set out in the methodology/5/.
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.	Statistics from the Forest department show that forests were estimated to cover 659,000 ha in 1960, which has reduced to 240,746 ha in 2007. This reflects a loss of approximately 64 per cent of forests in between 1960 and 2007, which is more than 1.3 per cent per year. The Wood remains the	Based on the review of FAO report/28/, Statistics from the Forest department/36/, Biomass Energy Strategy (BEST) Rwanda/37/ and Ministry of Land and Forestry, Rwanda in 2017/38/ provided, VVB confirms that non-renewable biomass was being used in the project region since 31

	Joint Validation & Verification Report: VCS Version 4.2	main source of domestic energy for more than 90 per cent of Rwandans, where in firewood is mainly used by rural areas. The above can also be confirmed from Forest Resource Assessment report 2020 for Rwanda, which states around 45.27% loss in forest from 1984 to 2015. Further the study conducted in June 2009 in various districts of Rwanda reveals that 98% of rural households uses wood fuels as their main source of energy for cooking, which consist of 92% firewood, 5% charcoal and 3% other residue. A recent study conducted by Ministry of Land and Forestry, Rwanda in 2017, reveals that wood demand and supply ratio is 2:1 and the shortage is projected to increase until in future unless alternative sources of wood energy are sought. The consumption of fuelwood for Rwandan households is estimated at 2.7 million tonnes per year. The business-as-usual scenario on wood supply/demand, estimates the deficit	December 1989. The information provided by PP was validated through the latest available Forest Resource Assessment report 2020 for Rwanda/28/ to establish the rate of annual deforestation and thereby the loss of forest cover. Rwanda lost 45.27% of its forest cover between 1984 to 2015. It will be demonstrated for the future PAIs as well. Therefore, the criterion has been met.
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		Joint Validation & Verification Report: VCS Version 4.2 between wood supply and demand to be 4.3 million tonnes (oven dry weight) in 2017, which is projected to increase to 7.5million tonnes by 2026. This is due to a high increase demand for firewood and wood for charcoal. This must imply over-exploitation of already low stocked forests. The analysis also shows that 93% of total wood demand mentioned above is for cooking purpose (57% firewood and 36% charcoal). It can therefore be concluded that non-renewable biomass has been used in Rwanda since long back before 31st December 1989.	
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	Not Applicable. Biomass residues are not processed as a fuel to be used in the GP. The PAIs uses non-renewable biomass (firewood) as source of fuel for the improved cookstove. No processed biomass residue is used.	The project involves distribution of ICS products and does not involve with biomass residues; therefore, this criterion is not applicable.

	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.		
6.	The Project Design Document 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)	In order to avoid double counting of emission reductions through the method of distribution, each cookstove has a unique identifier number and the distribution of each stove is logged onto a database which includes unique information for each recipient. Each PI has a system for avoiding double counting with data being collected via a smartphone app (where possible), or via paper forms, including: 1. Date of distribution 2. A unique serial number on each technology 3. Available end-user data: name, phone number, address/physical location, ID number	Each PAI will maintain a distribution database recording date of distribution and UID of the product as a mechanism to avoid double counting. The unique ID associated with each ICS product distributed to end-users were checked during VVB on-site visit/18/ and were found as correct and consistent with the monitoring survey records/12/ and the distribution database/30/.
7.	The CDM-PDD or CDM-PoA-DD/CPA-DD shall also explain how the proposed procedures prevent double counting of emission	The End User Agreement confirms that the ownership rights of the ER/VCUs generated by the PAI reside with the PP. The	End user agreement/15/ will be collected from each household to transparently show the transfer of GHG rights.

	reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	signature of each end user confirming their understanding of this agreement has been collected at the point of distribution. The End User Agreement is in English and translated into a local language where required. If necessary, is read out to the End User. All rights to distribute the delivered stoves and claim the resultant emissions reductions belong to the PP. The GP does not include any PAI that has been rejected by another GP, or PA-DDs of any other GHG programs.	It was cross checked by the VVB during the interviews with the end-users/18/ that each household had a signed agreement which confirms that the ownership of the resultant carbon credits belong solely to the PP.
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TOOL 30: Calculation of the fraction of non-renewable biomass

S.No.	Applicability Condition	Justification of applicability	Means of assessment
1.	This tool may be used by: (a) DNAs to submit region- or country-specific default fNRB values, following the procedures for development, revision, clarification and update of standardized baselines (SB procedures); or (b) project participants to calculate project- or PoA-specific fNRB values.	Option (b) applied to calculate the project specific fNRB value as described under in the separate fNRB spreadsheet submitted to VVB.	The tool is used to calculate f_{NRB} values unique to each GP Instance. The f_{NRB} project instance Burn Kuniokoa Stove is calculated using the tool.

2.	Project participants and DNAs shall identify and clearly delineate the applicable area for which f_{NRB} is determined. For project- or PoA-specific f_{NRB} values, project participants shall assess and use the area from which woody biomass is sourced for end-users included in the project activity and justify the selection of the area in CDM project design documents. For region- or country-specific f_{NRB} values, DNAs shall specify the applicable area.	The PP has chosen host country Rwanda as region for the project activity.	The PP has identified Rwanda as the region for the grouped project activity and it has been clearly justified in the joint PD-MR/1/.
3.	Project participants and DNAs may choose between the following two options to determine the value of f_{NRB}: (a) Use the default value as provided in TOOL33; or (b) Calculate f_{NRB} by determining the share of renewable and non-renewable woody biomass in the total quantity of woody biomass consumption for the country/region or the project area (hereinafter referred as the applicable area) following the procedure and requirements in the	The PP has chosen option b), wherein a third-party consultant has established the f_{NRB} for host country. Please refer Appendix for calculation details and comparison with literature.	The PP has chosen to calculate f_{NRB} for project instance Burn Kuniokoa Stove using the tool. VVB has verified the calculation from the f_{NRB} calculation sheet/39/ which was found to be appropriate. Further, the detailed calculation has also been provided under Appendix of the joint PD-MR/1/ along with comparison.

	paragraphs below. The project participants shall compare and analyse the calculated values against the values for fNRB reported in relevant scientific literature and justify any differences. This analysis shall be included in the appropriate section of the PDD. The relevant scientific literature should include at least: (i) Bailis, R.; Drigo, R.; Ghilardi, A. & Masera, O. (2015). The carbon footprint of traditional woodfuels. Nature Climate Change, 5(3), pp. 266–272.		
4.	If the fNRB value is estimated at the national level, as a cross check, project proponent shall compare 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 (tonnes/ha), and ii) most recent available observed annual rate of deforestation (ha/yr). If the estimated NRB value is more than 10% above the value calculated as per the product of biomass and deforestation rate,	Please refer Appendix-1 for cross check.	The PP has chosen to calculate fNRB using the CDM tool 30 version 4.0. VVB has verified the calculation from the fNRB calculation sheet/39/ which was found to be appropriate. Further, the detailed calculation has also been provided under Appendix of the joint PD-MR/1/ along with comparison.

	justification shall be provided for the higher value for NRB.		
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CAR 06 was raised against the applicability criteria of methodology and was resolved.

Project Boundary

3.4.3

The project boundary and identified GHG sources, sinks and reservoirs for the project and baseline scenarios are appropriately defined in the joint VCS PD-MR /1/. All the project activity instances (PAIs) that will be added in within the project boundary i.e., Rwanda. The selection and justification for inclusion or exclusion is appropriate and duly supported in the joint VCS PD-MR/1/.

The PP has considered CO₂, CH₄ and N₂O as major GHG in the baseline scenario and project scenario. Emission from burning of non-renewable biomass has been considered in both the scenario. The approach was found to be in line with the applied methodology/5/.

Baseline Scenario

3.4.4

The baseline scenario for ICS has been identified using the methodology VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves, version 1.1 /5/. As per section 6 of the applied methodology, 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 project activity involves distribution of improved cookstoves to the households in Rwanda. In the absence of project activity, the cookstoves used in the households are of three stone fire and conventional stoves with less efficient combustion system. As informed in the PD section 1.1/1/, the energy and mass flows, and the type and level of service provided through improved cookstoves in project scenario will remain same as of baseline scenario. This has been ensured by checking manufacturer's specification of ICS introduced through this project /10/ and independent desk review. According to Rwanda Integrated Household Living Conditions Survey, firewood remains the most common type of cooking fuel in 93% of the households based on the review of Ministry of Land and Forestry, Rwanda in 2017/38/ which was found to be appropriate. PP conducted baseline survey and baseline KPTs/25/ between September to December 2021, to assess the type & quantity of fuels consumed and the cooking technologies in use in pre-project scenario. The baseline scenario was identified as the continued used of traditional cookstove (e.g. Rondreza) without chimney/ grate or three-stone fired for preparation of meal. More than 90% households in the rural and semi-urban areas are relying on firewood for cooking. PP used guidance provided in para 8.4-b of VMR0006 version 1.1/5/ to conduct the baseline survey. Sample size was determined using CDM Guideline: Sampling and Survey for CDM PA and PoA version 4.0. Sample size for each province as per CDM Guideline on 95/10 precision confidence was between 30-33 per province for the baseline survey. PP has randomly selected

32-36 samples per province, totalling to 137 households. Baseline KPTs were also conducted on 137 households which is also in line with CDM guidelines. The baseline fuel consumption came out to be 12.08 kg/device/year which is equivalent to 4.409 tonnes/device/year. The precision achieved for the baseline KPT was 6.27%, Acceptance sampling allowed the validation team to confirm the acceptability of baseline scenario reported by project developer on the basis of the baseline survey.

The procedures for identifying the baseline scenario have been correctly followed and the identified scenario reasonably represents what would have occurred in the absence of the project. VVB confirms that the applied methodology, tools, and documentary evidence/22,23,24,40/ are correctly quoted and interpreted. VVB has checked the baseline KPT data and baseline survey/25/ submitted by PP. The information was also cross-checked with the households during the on-site visit/18/. The project's fuel consumption estimate, which was calculated using baseline KPTs, was discovered to be conservative when compared to estimates made by Government of Rwanda and other VERRA registered projects. As per the Govt. study, the fuel consumption by household is 6.75 tonnes per year. Furthermore, the value used in the registered projects under Verra vary between 6.75 to 7.6 tonnes per year. The baseline fuel values for the projects registered under Gold Standard range from 3.17 to 4.97 tonnes/HH/year; however, these are regional data, not national data. Furthermore, the baseline assessment methods utilized in each project differ, making it impossible to compare them to the current project. VVB has assessed confirms that the baseline fuel value is conservative, in accordance with VCS Standard section 2.2.1/3/. The assumption and data can be deemed reasonable. The joint VCS PD-MR/1/ considers the national and sectoral policies in effect. The selected methodology /5/ has been correctly applied to identify the baseline scenario as what would happen in the absence of the project and in compliance with the prescription given therein.

3.4.5

Additionality

PP has demonstrated additionality according to the applied methodology /5/ as given below:

The activity method is used by the PP to demonstrate additionality as prescribed by VMR0006, v1.1 /5/. The project is not mandated by Rwandan laws and the project is deemed additional as the project meet all the applicability conditions of the methodology and also comply with the positive list. Under the additionality section of the applied methodology /5/, it is stated that where the project activity installs or distributes stoves at zero cost to the end-user and has no other source of revenue other than the sale of GHG credits, the project activity shall be deemed additional which was confirmed from the end user agreement/15/ which confirmed that the ICS were distributed at zero cost.

It was confirmed from the end users and the local stakeholders during the on-site visit/18/ whether they were charged anything for the stoves. In response to the question, it was clearly mentioned by the end users and the local stakeholders that the stoves were provided to them completely free of cost and has expressed gratitude for being able to use the stove and the advantages it has brought to their family. The same was also discussed with the PP and the

implementation partners during the closing meeting of the on-site visit/18/. Since, the project is distributing improved cookstoves at zero cost to the end-user, as cross checked by the VVB during the interviews/18/ with the project beneficiaries. Thus, the project is deemed additional.

Therefore, VVB confirms that the project additionality has been sufficiently established proved by the PP in accordance with the applied methodology VMR0006, v1.1 /5/.

CAR 06 was raised and resolved.

Quantification of GHG Emission Reductions and Removals

3.4.6

The methodology's equations and options, as well as all other methodological tools, are appropriately quoted in the Joint PD-MR /1/. The emission reductions of the grouped project's project instances would be determined using the formulae specified in the applied methodology; VMR0006 (version 1.1) /5/.

VVB verifies that the equations are accurately stated for the determination of emissions reductions at project instance level based on the evaluation of the Joint PD-MR/1/. The data and requirements supplied in the approach have been compared with the parameters and equations presented in the Joint PD-MR /1/ as well as other pertinent documents. The Joint PD-MR/1/, ER spreadsheet/8/ and methodology VMR0006 (version 1.1)/5/ have all been compared using equations to ensure consistency.

Since the project includes an improved cookstove as an energy efficiency measure, equations 1 and 2 of methodology VMR0006 will be used to determine the net reductions in GHG emissions.

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

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 CO₂e
- $ER_{y,i,j}$ = Emission reductions by improved cookstove of type i and batch j during year y in t CO₂e

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

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
$f_{NRB,y}$	=	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)
$EF_{wf,CO2}$	=	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

PP has submitted the detailed calculation sheet for $f_{NRB}/39/$. The f_{NRB} was estimated by the project proponent using the CDM TOOL30: "Calculation of the fraction of non-renewable biomass"- Version 03.0 /29/, which is the most recent version available at the time of submission to VERRA. PP calculated f_{NRB} using values from various reports, including the FAO 2020 report of Rwanda/28/, 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories/43/ and the World bank data/42/. According to CDM tool 30/29/, several vintages may be used for parameters if they can be justified in cases when data for a single vintage is not available for all of them. The PP obtained the value for the parameter annual wood fuel consumption in the household sector from FAO 2020 report of Rwanda/28/, 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories/43/ and the World bank data/42/ which is the only source of data accessible and is utilized by all projects of a similar nature in accordance with different criteria. Consequently, the VVB accepts the same.

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

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

Where:

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.
η_{old}	Efficiency of baseline cookstove.
$\eta_{new,i,j}$	Efficiency of the improved cook stove type i and batch j determined through water boiling test (WBT). Alternatively, efficiency may be determined using Equation 5.

The efficiency of the improved cookstove will be determined using the equation below:

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

Where:

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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.

According to Equation 6 below, B_{old} will be changed ex-post based on the percentage of project households determined to be continuing this practice if project households continue to utilize baseline cookstoves in addition to enhanced cookstoves. In these situations, the amount of woody biomass saved $B_{y,\text{savings},i,j}$ as a result of the installation of enhanced cook stoves shall be computed using an adjusted value to take into account the ex-post use of baseline stoves in addition to the upgraded cookstove.

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

Sample calculations of VCU estimate (based on year 2022 of ICS monitoring estimates)

The factor y will be 0.1 if the baseline stove usage in the first year is 10% of the total cooking. Utilizing the provided baseline data, the B_{old} value is applied.

$$\begin{aligned} B_{\text{old,adjusted}} &= 4.409 \times (1 - 0.1) \text{ tonnes/year} \\ &= 3.968 \text{ tonnes/year} \end{aligned}$$

Under the current monitoring period, PP has distributed Burn Kuniokoa Generation 2 stove with pot skirt having the thermal efficiency of 51.3%. The efficiency of stove without pot skirt is 43.4%. As per equation 5 of applied methodology, the efficiency by end of Year 2022 is as follows:

Year 2022 efficiency of project stove with pot skirt- 47.74%

Year 2022 efficiency of project stove without pot skirt- 40.39%

Assuming that 15% of users may not use a pot skirt for a variety of reasons or occasions, the weighted average efficiency for the year 2022 is computed as follows.

$$\text{Project stove efficiency in year 2022} = 47.74\% \times 0.85 + 40.39\% \times 0.15 = 46.64\%$$

$$B_{y,\text{savings},i,j} = 3.968 \times (1 - (0.1/0.4664)) \text{ tonnes/year}$$

=3.117 tonnes/year

Moreover, it is anticipated that by 2022, 1% of the project stoves would not be operating. Distribution of all the stoves is expected to reach 400,000.

$$ER_{y,i,j} = 3.117 \times 0.8872 \times 0.0156 \times (112 + 26.23) \times (40,000 \times 99\%) \times 0.95$$

$$= 2,243,669 \text{ tCO}_2 \text{ per annum}$$

The total emission reduction achieved during this monitoring period, from 11/10/2021 to 28/02/2023, is 1,367,923, as shown in the VCS Joint PD-MR /1/ and also in the ER spread sheet /8/. This project as a whole is expected to achieve an estimated total emission reduction of 14,554,657 tCO₂e in the 7-year crediting period and an average of 1,819,332 tCO₂e per year.

In light of the proposed group project, it can be said that all values utilised in the VCS Joint PD-MR to determine emission reductions are realistic, and the calculating method is accurate.

The project applies the VCS methodology VMR0006, v1.1/5/. All the parameter considered for calculation of emission reductions are correctly applied by the PP.

Data and Parameters fixed ex-ante:

S.No.	Parameter	Value applied	Means of assessment
1.	B _{old}	4.4092 tons/annum	The parameter represents annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices. According to methodology /5/, the value of B _{old} can be sourced from historical data or baseline surveys. The source of the data has been taken from baseline KPT survey/25/ and was found correct and acceptable upon checking the KPT excel sheet/25/. The description, source, and justification of choice of data is included in accordance with applied methodology /5/. The value is consistent in Joint PD-MR/1/ and ER calculation sheet/8/. The validation team had also conducted survey to visit the households where KPT was performed to confirm the conduction of activity. A sample size of 137 was considered for Baseline KPT considering the non-response scenario of the survey/25/. The survey was conducted in line with section 8.4-b of VMR0006 version 1.1/5/

		Joint Validation & Verification Report: VCS Version 4.2	where the sample size for the baseline KPT has been determined using CDM Guideline: Sampling and Survey for CDM PA and PoA version 4.0/6/ has been used by the PP which was found to be correct. VVB had also conducted a survey to visit the households where KPT was performed to confirm the conduction of activity. In line with the CDM guidelines, PP conducted Baseline KPTs on 137 households and from the baseline KPT sheet as well as Baseline study results. According to the CDM guideline/6/, PP has used 95/10 precision confidence level and has correctly applied across the samples and the required sample size was calculated to be 30-33 households per province. Hence, the actual sample size considered for KPT was 32-36 households per province which is more than the required sample size and in line with the CDM Sampling requirement. The results thus obtained have met the reliability criteria of 95/10 for large scale project activities. Quantitative measurement of fuel wood which is the primary fuel, done with a weighing scale and moisture meter and its consumption was measured for 3 consecutive days in the sampled households, visiting those households on 4 consecutive days. The project activity aims to replace the baseline traditional/conventional firewood stoves. Hence, the baseline fuel consumption Bold = 12.08 kg/HH/day is applicable for project households that displaces firewood. The parameter has been determined through calculation as demonstrated in the 'Fixed ex ante' worksheet of the ER calculation sheet i.e. Bold,HH= 12.08*365/1000 and the results were validated from test results in the baseline KPT survey sheet and KPT excel sheet /25/ and was cross check through interviews with the
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			households during the on-site visit/18/ which were picked up as samples. VVB has also assessed the Survey Report viz., "National Survey on Cooking Fuel Energy and Technologies in Households, Commercial, and Public Institutions in Rwanda," published in December 2020/22/. In this report it has been estimated that 6.75 tonnes/HH will be consumed from traditional biomass. The value applied by PP for Bold is 4.409 tonnes/device/year based on the KPT which is less than the literature value and hence the applied value is found to be appropriate. Furthermore, there are several VCS registered projects where the baseline fuel consumption value is equivalent or higher. PP has added reference to these projects in the revised JPD-MR. VCS 3654/23/ has applied the B_{old} value as 6.7525 based on the Survey report/22/ mentioned above. Therefore, the value considered for Bold by the PP is applicable.
2.	η_p	1) Kuniokoa Generation 2 0.434 for project stove without skirting 0.513 for project stove with pot skirting 2) SSM S32X: 0.457 for project stove without skirting 0.501 for project stove with pot skirting	The parameter represents efficiency of project stove at the start of project activity. The value of the parameter is sourced from the stove efficiency test report certified by the Centre for Research in Energy and Energy Conservation (CREEC) lab /41/ and manufacturer's specification/10/. The value applied was found valid and correct. The description, source, and justification of choice of data is included in accordance with applied methodology/5/. The value is consistent in joint PD-MR/1/ and ER calculation sheet/8/.
3.	$NCV_{biomass}$	0.0156 TJ/tonne	The parameter represents net calorific value of the non-renewable woody biomass. The value has been sourced from IPCC /27/ and was found

			correct and valid. The value is consistent in Joint PD-MR/1/ and ER calculation sheet/8/.
4.	$EF_{wf\ CO_2}$	112 tCO ₂ /TJ	The parameter represents CO ₂ emission factor for woody biomass. The value has been sourced from IPCC /27/ and was found correct and valid. The value is consistent in Joint PD-MR/1/ and ER calculation sheet/8/ and was determined in line with the applied methodology.
5.	$EF_{wf\ non-CO_2}$	26.23 tCO ₂ /TJ	The parameter represents non-CO ₂ emission factor for woody biomass. The value has been sourced from IPCC /27/ and was found correct and valid. The value is consistent in Joint PD-MR/1/ and ER calculation sheet/8/ and was determined in line with the applied methodology.
6.	Leakage Factor	0.95	The parameter represents the leakage factor applied to account for increase in NRB use outside the project boundary. The value of the parameter, 0.95 is from section 8.3 of the methodology/5/. The section states that leakage shall be considered as default 0.95 in accordance with Section 5.4 of AMS-II.G. The value is consistent in Joint PD-MR/1/ and ER calculation sheet/8/ was determined in line with the applied methodology/5/.
7.	$f_{NRB,y}$	0.8872	The fraction of woody biomass saved is calculated by C4 Eco solutions/44/ in line with the applicable CDM Tool 30, version 4.0/29/. The value has been consistently reported in the Joint PD-MR/1/ and ER calculation sheet/8/. The detailed assessment has been included below. According to the fNRB calculation, the value is 91%; however, PP utilized the fNRB value from another registered project, which was less than 91%, as a conservative measure which was verified from the detailed excel sheet with list of registered projects and baseline fuel consumption value/47/. The value has been adjusted to 88.72% as a result.

Assessment of fNRB:

PP has submitted the f_{NRB} calculation sheet/39/ containing the sources of values, which was reviewed by the assessment team.

The formula used for calculating the f_{NRB} was found to be in accordance with TOOL30, version 4.0/29/:

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

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 4.0/29/.

$$NRB = H - RB$$

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 30/29/ and was found to be acceptable as the f_{NRB} here is calculated for a specific country (i.e., Rwanda).

The consumption of woody biomass (H) was determined in accordance with paragraph 14, section 3.1 of TOOL30/29/, 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/39/ and sources provided in that sheet as well as cross checked 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 World bank data/42/ and FAO/28/.

As per para 13 of the CDM tool 30, the NRB was compared to the top-down product of the most current annual deforestation data (3,187 ha/yr) and the average above-ground biomass (146.06 t/ha), in accordance with paragraph 13 of TOOL 30 v4/29/. The NRB, as determined by the CDM Tool 30 v4.0 2022 and reported in this report, is 5,598,738 t/yr, higher than the cross-check results based on deforestation (465,493 t/yr). Since the cross-check estimate of biomass loss from deforestation only takes into account the average biomass stocks from fully deforested areas, it is likely to underestimate the amount of non-renewable biomass. The cross-check does not take into account unsustainable wood harvesting that leads to forest degradation and significant drops in biomass stocks but does not completely eliminate deforestation.

Consequently, as the instructions in CDM Tool 30 v4.0 2022 were followed, the estimate of NRB is deemed appropriate for this investigation.

A summary of sources and assessment of all parameters in line with applied TOOL 30/29/ mentioned above used in calculation of $f_{NRB,y}$ (for Rwanda) have been provided in table below:

Parameter and Description	Value	Data Source	Means of assessment
$f_{NRB,y}$ (Fraction of non-renewable biomass in the country/region or project area)	0.91	Calculated in line with TOOL 30	This parameter was found to be in line with equation (1) of TOOL 30/29/ as checked against f_{NRB} calculation sheet/39/.
NRB (Quantity of non-renewable biomass (t/yr) in the country/region or project area)	5,598,738	Calculated in line with TOOL 30	This parameter was found to be in line with equation (2) of TOOL 30/29/ as checked against f_{NRB} calculation sheet/39/.
RB (Quantity of renewable biomass in the country/region or project area)	578,495	Calculated in line with TOOL 30	The calculation of this parameter was found to be in line with equation (4) of TOOL 30/29/ as checked against f_{NRB} calculation sheet/39/. The weighted mean annual increment (MAI) values were calculated based on the MAI values taken from FAO document/28/, and forest extent covered under different ecological zone, the values of which were taken from 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories/43/.
H (Total annual consumption of wood in the absence of the project activity in the country/region/project area) (ton/yr)	6,177,233	Calculated	In line with TOOL30 para 14 under section 3.1 /29/, the value was calculated based on the sum of total domestic and non-domestic fuelwood consumption by rural and urban population,

			using the wood to charcoal conversion factor. The calculation of this parameter was found to be in line with equations of TOOL30/29/ as checked against fNRB calculation sheet/39/ and JPD-MR/1/.
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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 the absence of project activity was calculated to be 6,177,233 t/yr as verified from fNRB calculation sheet/39/.

As per para 6 of the tool 30, comparison between peer reviewed literature (Bailis et.al.) has also been included in the PD. The fNRB value for the Rwanda is higher than the expected fNRB values determined Bailis et.al report using the WISDOM method. While direct comparisons between the WISDOM and CDM methodologies are only sometimes appropriate –given the different approaches of the methodologies–the following factors can contribute to variations in the fNRB estimates between the application of the CDM method in the present study and the WISDOM method:

- **Parameter H (Total consumption of woody biomass in the applicable area in the relevant period (tonnes)):** More recent population statistics (2021) for Rwanda were used and represents an increase in population numbers since the 2009 data was utilized in the comparison study. As the value of parameter H is determined using the entire population, it is therefore greater than the value obtained from the Bailis report.
- Updated 2019 FAO forest products statistics were used in the present study, whereas the comparison study used 2013 FAO forest products statistics.
- **Parameter RB (renewable biomass):** The present analysis gives lower estimates of the accessible forest area than the comparison study due to the methodology used. As a result, the predicted RB is reduced, which raises the NRB and fNRB.
- **Parameter MAI (Mean Annual Increment):** A weighted average based on the forest area of three categories—primary forests, secondary forests older than 20 years, and secondary forests younger than 20 years—was used to compute MAIs in the current study. A 21-year future period was projected using the observed forest increase extents between 2000 and 2012 using data from the 2019 Refinement of the IPCC Guidelines. The comparison study states that the assessment of growth rates as a percentage of standing stock was done differently after field measurements and IPCC numbers were combined to determine MAI values. This method frequently results in higher MAIs, which can then raise RB estimations and, as a result, lower NRB and fNRB predictions.

Since the project involves fNRB calculations based on national level data, VVB has cross checked the data with Global Forest Resources Assessment 2020: Main Report (FAO, 2020)/28/, Global Forest Watch, 2023/45/ and Mongabay, 2020/46/.

Furthermore, the values of fNRB were also compared against other registered projects across VERRA and Gold Standard in Rwanda and found that the values used in other registered projects across various standards range from 88.72% to 98%. In order to be conservative, the fNRB value has been considered as 88.72% which is the lowest value among all the values of fNRB amongst the registered projects and found it to be appropriate.

According to para 10 of the tool 30/29/, the most recent historical data available for the same vintage has been used for the fNRB calculations i.e., values from year 2019. Two different sources for deriving the fuelwood consumption were used as national level data is available for consumption of fuelwood in Rwandan households.

The calculations for fNRB value, as demonstrated in the calculation sheet/39/, have been done using the equations 1,2, 3 and 4 of the applied tool version 4.0/29/. All parameters' sources used for calculations of fNRB are listed in appendix III of the validation report.

Estimation of renewable biomass (RB) is carried out in line with paragraph 19 of TOOL30/29/:

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

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 578,495 t/yr.

According to the list of default country-specific fNRB values approved by the Board (table 1.0), Rwanda has the fNRB of 98% (though it is expired). <https://cdm.unfccc.int/DNA/fNRB/index.html/>.

Hence, the value of fNRB considered is consistent with the fNRB value of Rwanda from other sources.

Moreover, the fNRB value as per ASB0041-2018 has been calculated using version 1 of Tool 30. Also, the commercial wood consumption value which has been used for calculating 77% as per PSB0045 is based on rough estimations as stated in “Projection scenario of supply/demand of woody biomass In Rwanda from 2015 to 2026” (page 8). (CDM: Standardized baselines (unfccc.int))

fNRB calculation:

$$NRB = H - RB$$

$$= 6,177,233 - 578,495 \text{ t/yr}$$

$$= 5,598,738 \text{ t/y}$$

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

$$= 5,598,738 / (5,598,738 + 578,495)$$

$$= 0.91$$

The calculated f_{NRB} of 0.91 indicates that the consumption of woody biomass within the country is greater than its capacity to supply sustainably. The third party f_{NRB} report/44/ has detailed the calculation which was found appropriate by the assessment team.

Data and Parameters to be monitored:

S.No.	Parameter	Monitoring frequency	Means of assessment
1.	$N_{y,i,j}$	At least once every two years	The parameter will be recorded in the database and updated for operational rate through monitoring surveys in-line with the applied methodology/5/.
2.	η_{old}	Fixed for each individual household at first HH visit	The value applied for the ex-ante estimates is the same as the actual value obtained at the time of distribution of ICS units for all PAIs. However, the value of the parameter will be recorded based on the actual data obtained at the time of distribution for each PAI.
3.	$\eta_{new,i,j}$	Annually	The parameter represents the efficiency of the device of each type i and batch j. The efficiency of the

			distributed cookstove will be monitored as per equation 5 of the applied methodology/5/ which provides a provision of default loss in efficiency for each year. Design efficiencies in-line with the manufacturer's specifications/10/ have been used to arrive at the ex-ante efficiency value for each year within the crediting period/8/.
4.	μ_y	At least once every two years	This parameter represents the adjustment to account for any continued use of pre-project devices during the year y. The data will be monitored at least once every two years.
5.	Life Span	Yearly	The parameter represents operating lifetime of project device for projects opting Equation 6 $\eta_{new,i,y} = \eta_p \times (DF_n)^{y-1} \times 0.94$ for updating project stove efficiency during project crediting period. The model of the cookstove distributed under the grouped project activity is Burn Kuniokoa Generation 2 and SSM S32 whose lifespan is 10 years which has been verified from the manufacturer's specifications. Under PoA 9626, the improved cookstove model is Eco-Zoom Dura which is different than the SSM S-32 X cookstove intended to be distributed under VCS 4150. The manufacturer for Dura model distributed under CDM is Eco Zoom. However, the manufacturer for S-32 X is SSM. Also, the second stove model i.e., Burn Kuniokoa Generation 2 is not part of CDM PoA-9626. This is a completely different model introduced in this grouped

			project. The manufacturer's specifications mentions the operational lifetime of both the stove models included under the grouped project activity as 10 years which founds to be appropriate. VVB has also assessed similar projects which have distributed the same model cookstoves and the lifetime of the stove was same as mentioned in the JPD-MR. Thus, the value of the parameter is sourced from the manufacturer's specification/10/ and the applied value was found valid and correct. Once the project stove has been operational for 10 years from the date of commissioning, the emission reduction from each stove can be claimed. For further claiming VERs, PP will replace the project stove with newer, improved cookstoves, subject to baseline applicability at the time of replacement. The value applied was found valid and correct.
6.	Date of commissioning of batch j	Once	The parameter represents the latest date of commissioning of a device within the batch for updating commissioning date of the project stove for the entire batch. The value of the parameter is sourced from distribution database/30/. The value applied was found valid and correct.

All documentation and records must be retained safely and shall be easily accessible for at least two years after the project crediting period ends, in line with section 3.23.1 of the VCS Standard (v4.4)/3/. The validation team accepts the data collection and administration techniques described in section 6.3 of the joint VCS PD-MR/1/. 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/16/ were examined, and it was discovered that they contained data that complied with the monitoring standards of the methodology VMR0006 v.1.1/5/.

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)/5/, the Standard of Sampling and Surveys of CDM Project Activities and Programme of Activities (v.09.0)/7/, and the Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities (v.04)/6/.

The validation team certifies that the overall monitoring plan complies with the methodology VMR0006 (v.1.1)/5/ requirements, that the monitoring arrangements described in the monitoring plan/1/ are practical within the project design, and that the project proponents will be able to carry out the described monitoring plan/1/.

Methodology Deviations

3.4.7

The VMR0006, v.1.1/5/ was adopted for the Group project activity, and the PP adhered to the VCS PD-MR/1/ development process. The validation team has confirmed that the Group project activity has not been subjected to any methodology deviations.

3.4.8

Monitoring Plan

The monitoring plan covers:

1. Maintenance of database

The database shall include the following:

- Unique project identification number
- Installation date
- Family name
- Contact details of user (when available)
- Socioeconomic level (if households or communities are targeted), or type of establishment (if SMEs are targeted)
- Baseline cooking fuel source
- Baseline stove type
- Date of replacement of cook stove

- Monitored parameters
 - Usage of Skirt with the project ICS
2. The roles and responsibilities of the parties involved is described in line with the VCS standard. Joint Validation & Verification Report: VCS Version 4.2
 3. The PP has various quality control measures in place like training staff to conduct surveys. trained supervisors conduct spot check on surveyor results, all information related to parameters are collected on phone-based application/forms, surveys results are tagged as valid or invalid based on the duration of surveys, data validation done by PP.
 4. Trainings are conducted on various topics, distribution plan, surveys etc. and records for the same is maintained.
 5. Calculation of ERs is done on the basis of latest results by PP's team.
 6. Joint PD-MR/1/ has been reviewed to check that the procedure for data uncertainty, emergency preparedness, roles and responsibility, operational and management structure are mentioned in the Joint PD-MR/1/. The monitoring plan completely describes all measures to be implemented for monitoring all parameters required.
 7. Sampling plan:

Sampling plan is made according to the CDM Standard 'Sampling and surveys for CDM project activities and programmes of activities'/7/, and CDM Guidelines: Sampling and Survey for CDM project activities and programmes of activities/6/ to estimate monitored parameter values used in the ER calculations. Sampling is applicable to two monitored parameters as given below:

PARAMETER	Description	Parameter type
$N_{y,i,j}$	Number of project devices of type i and batch j operating during year y	Proportional
μ_y	Adjustment to account for any continued use of pre-project devices during the year y	Mean

The target population will be the end users listed in the database on which random sampling will be applied. The sample size for proportional based parameter came out to be 43 as per the sample size calculation for all 4 PAIs which has been verified from the ER sheet/8/ and the calculations were found to be appropriate and consistent with the values mentioned in the JPD-MR/1/. The sample size equations stated in the Joint PD-MR/1/ were checked and found consistent with CDM Guidelines: Sampling and Survey for CDM project activities and programmes of activities, version 4/6/. Furthermore, as per CDM guidelines, if the sample

size for mean based parameter is <30 , then student t-distribution needs to be applied which has been applied by the PP since the sample size came as 7.

However, PP monitored 120 samples for both the monitored parameters – $N_{y,ij}$ and μ_y and there were two reasons for considering the above-mentioned value. The first reason is that common surveys were conducted for both the parameters and second reason is to make up for any outliers or non-responses related to the samples and to meet the precision requirement. Therefore, 120 samples were covered by the PP for both the parameters. Thus, the PP has calculated and surveyed appropriate number of samples.

The sampling frames may include individual PAI or group of PAIs. The PP will apply a 95/10 confidence/precision for individual PAIs on an annual or biennial basis. If sampling is done for groups of PAIs, then 95/10 all be applied in line with CDM Standard Sampling and surveys for CDM project activities and programmes of activities, version 9/7/.

The monitoring plan included in the section 6.3 of the Joint PD & MR /1/ is based on the VCS methodology /5/ which has been applied to the proposed VCS grouped project activity.

The monitoring arrangements described in the monitoring plan are feasible within the project design. CAR 08 was raised and resolved.

3.5 Non-Permanence Risk Analysis

This is not applicable for the proposed VCS project as it is Non AFOLU project.

4 VERIFICATION FINDINGS

4.1 Accuracy of GHG Emission Reduction and Removal Calculations

The Joint PD-MR /1/ accurately cites the equations and alternatives provided in the methodology as well as all other methodological tools. The emission reductions of the project instances of the grouped project and project activity instance are determined using the formulae indicated in the applied methodology; VMR0006 version 1.1/5/. The verification team examined the emission reduction spreadsheets (ER sheets)/8/ and verified all the calculations, concluding that they were accurate and in line with the PD's monitoring plan and the used monitoring approach.

The usage of the pot skirts by the households was recorded during the monitoring survey and was taken into account for calculating the ERs. During the current monitoring period, 88.7% of users (PAI-4) are using Pot skirt, while the remaining 11.3% are using without pot skirt. The $\eta_{new,ij}$ value during ex-post computation has been changed to accommodate for this and the ER sheet/8/ was verified by the VVB to confirm the same.

The emissions are computed as follows using applicable methodology VMR0006 (version 1.1)/5/:

Baseline Emission:

The applied methodology VMR0006, ver. 1.1 does not account for baseline emissions separately, rather quantifies emission reductions as a function of the reduction in the amount of non-renewable biomass fuel consumption in the efficient project stoves as compared to baseline stoves.

Project Emissions:

It was checked with the applied methodology that there are no project emissions and are not quantified separately. The emission reductions saved under the project are calculated through one equation which directly evaluates the GHG saving of amount of fuel saved on switching to new ICS as compared to the previous stove.

Leakage emissions:

Leakage shall be considered as default 0.95 in accordance with section 8.3 of VMR0006/5/.

The equation stated under section 5.4 of the Joint PD-MR/1/ were compared with the applied methodology/5/ and were found to be exactly same. The same equations have been used in the estimated ER sheet/8/ to calculate the estimated ERs for the entire crediting period.

Net GHG Emission Reductions:

$$ER_y = \sum_i \sum_j ER_{y,i,j} \quad \text{Equation (2)}$$

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 CO₂e
- $ER_{y,i,j}$ = Emission reductions by improved cookstove of type i and batch j during year y in t CO₂e

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

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
$f_{NRB,y}$	=	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)
$EF_{wf,CO2}$	=	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 quantity of woody biomass saved due to the implementation of improved cookstoves to be estimated using equation below:

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

Where:

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.
η_{old}	Efficiency of baseline cookstove.
$\eta_{new,i,j}$	Efficiency of the improved cook stove type i and batch j determined through water boiling test (WBT). Alternatively, efficiency may be determined using Equation 5.

The efficiency of the improved cookstove will be determined using the equation below:

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

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

According to Equation 6 below, B_{old} will be changed ex-post based on the percentage of project households determined to be continuing this practice if project households continue to utilize baseline cookstoves in addition to enhanced cookstoves. In these situations, the amount of woody biomass saved $B_{y,savings,i,j}$ as a result of the installation of enhanced cook stoves shall be computed using an adjusted value to take into account the ex-post use of baseline stoves in addition to the upgraded cookstove.

$$B_{old,adjusted} = B_{old} \times (1 - \mu_y) \quad \text{Equation (6)}$$

The ER calculation spreadsheet/8/ submitted by the PP contains values for the data parameters that were used to calculate emission reductions in a clear and accessible manner. Monitoring records (distribution records) /30/, VCS Joint PD-MR /1/, and applied methodology /5/ were used to verify the input values. The emission reduction calculated were compared with the ER sheet/8/ and found to be correct.

A. Data and parameters available at the time of validation are same as listed above under section 3.4.6 of this report

B. Data/Parameter monitored for all PAIs under MP1:

S.No.	Parameter	Monitoring frequency	Means of assessment										
1.	$N_{y,i,j}$	At least once every two years	The parameter represents number of project devices of type i and batch j operating during year y. The data is sourced from database/30/ and monitoring surveys/12/. <table><tr><td></td><td>Stoves distributed</td></tr><tr><td>PAI-1 (AC ICS)</td><td>24,274</td></tr><tr><td>PAI-2 (BC ICS)</td><td>250,029</td></tr><tr><td>PAI-3 (DA ICS)</td><td>99,412</td></tr><tr><td>PAI-4 (ST ICS)</td><td>24,893</td></tr></table> The total number of stoves distributed under the current monitoring period for all PAIs is 398,608/8/. It was found that 100% of the stoves were operational as checked from the monitoring survey results /12/ carried by the PP for the first monitoring period. There was no drop-off observed during the current MP.		Stoves distributed	PAI-1 (AC ICS)	24,274	PAI-2 (BC ICS)	250,029	PAI-3 (DA ICS)	99,412	PAI-4 (ST ICS)	24,893
	Stoves distributed												
PAI-1 (AC ICS)	24,274												
PAI-2 (BC ICS)	250,029												
PAI-3 (DA ICS)	99,412												
PAI-4 (ST ICS)	24,893												

			The monitored samples checked by VVB during on-site visit/18/ were also questioned on the operationality of the project stove, and all the responses were checked with the available information in the monitoring surveys/12/ which was found as sufficiently following the requirements.																				
2.	η_{old}	Fixed for each individual household at first HH visit	The parameter represents efficiency of baseline stove. The value of the parameter considered is 0.1 determined from baseline efficiency sheet/25/ recorded for each household at the time of project ICS distribution inline to the applied methodology /5/. The value is consistently applied and reported between ER sheet/8/ and Joint PD-MR/1/. The monitoring samples checked by VVB at the time of on-site visit/18/ were questioned on the baseline device and baseline fuel type and all the responses were checked with the available information in the monitoring survey/12/. This was checked on-site/18/ and found as sufficiently following the requirements.																				
3.	$\eta_{new,i,j}$	Annually	The parameter represents the efficiency of the device of each type i and batch j. The value of the parameter during the current monitoring period: <table border="1"> <thead> <tr> <th></th><th>2021</th><th>2022</th><th>2023</th></tr> </thead> <tbody> <tr> <td>PAI-1</td><td>-</td><td>-</td><td>0.4789</td></tr> <tr> <td>PAI-2</td><td>0.4746</td><td>0.4746</td><td>0.4651</td></tr> <tr> <td>PAI-3</td><td>-</td><td>0.4767</td><td>0.4767</td></tr> <tr> <td>PAI-4</td><td>-</td><td>0.4738</td><td>0.4644</td></tr> </tbody> </table>		2021	2022	2023	PAI-1	-	-	0.4789	PAI-2	0.4746	0.4746	0.4651	PAI-3	-	0.4767	0.4767	PAI-4	-	0.4738	0.4644
	2021	2022	2023																				
PAI-1	-	-	0.4789																				
PAI-2	0.4746	0.4746	0.4651																				
PAI-3	-	0.4767	0.4767																				
PAI-4	-	0.4738	0.4644																				

			Kuniokoa ICSs were only distributed under the PAIs. Hence, $\eta_{new,i,j}$ value is determined in line with equation 5 of the applied methodology for year 1 and year 2 for Kuniokoa ICS model/5/. The usage of pot skirts by the households was recorded during the monitoring survey and was taken into account for calculating the ERs. During the current MP, 88.7% of users (PAI-4) are using Pot Skirt, while the remaining 11.3% are using without pot skirt. The $\eta_{new,i,j}$ value during ex-post computation has been changed to accommodate for this and the ER sheet/8/. The values provided by the PP were verified from the ER sheet/8/ and the calculations were checked which was found to be appropriate. The values were also found to be consistent with the JPD-MR/1/ and the ER sheet/8/.
4.	Life Span	Yearly	The parameter represents operating lifetime of project device for projects opting Equation 6 $\eta_{new,i,y} = \eta_p \times (DF_n)^{y-1} \times 0.94$ for updating project stove efficiency during project crediting period. The value of the parameter is 10 years which has been sourced from the manufacturer's specification/10/. The value applied was found valid and correct.
5.	Date of commissioning of batch j	Once	The parameter represents the latest date of commissioning of a device within the batch for updating commissioning date of the project stove for the entire batch. The value of the parameter is applied is 11/10/2021 which is sourced from the distribution database/30/. The value applied was found valid and correct.
6.	μ_y	At least once every two years	This parameter represents the adjustment to account for any continued use of pre-

			project devices during the year y. The value used for PAI-1 is 0.0167, PAI-2 is 0.0440, PAI-3 is 0.0240 and PAI-4 is 0.0390 for the current MP. The values have been sourced from the monitoring surveys/12/. As checked from the monitoring survey results/12/ carried out for the first monitoring period, the end users were using the pre-project devices at around 1.67% of the total cooking events. The value of the parameter was found as acceptable, and sufficiently fulfilling the methodological/5/ requirements.
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In conclusion, VVB reviewed all the evidence submitted by PP related to GHG emission reduction calculations and confirmed that all the parameters are correctly applied. Default values used in the calculation were identified correctly. The emission reduction calculation has been done in line with the applied methodology /5/.

Sampling Plan for PAI-1, PAI-2, PAI-3 and PAI-4 for the current MP:

By end of the current monitoring period, the project activity has installed 398,608 number of the ICS/PAIs. As defined in the PD, PP has applied sampling approach for measurement and determination of the parameter $N_{y,i,j}$ (i.e., Number of ICS installed and operating till the end of the current monitoring period – “Number of project devices of type i and batch j operational during year y”) and μ_y (i.e. Adjustment to account for any continued use of pre-project devices during the year y). PP has calculated the sample size considering the confidence level of 95% and precision 10% with simple random sampling technique using the CDM standard requirements/6,7/

As per sample size calculator, total 481 samples were randomly selected /25/ out of which 120 samples were selected from PAI-1, 122 samples from PAI-2, 121 samples from PAI-3 and 118 samples from PAI-4 were selected from the distribution database/30/ in line with applied methodology VMRO006 ver. 1.1/5/, which prescribes the minimum sample size to be 10% of the group size. The monitoring surveys were conducted between 14/03/2023 to 23/03/2023.

The monitoring plan included under Appendix 1 of the Joint PD-MR /1/ is based on the VCS methodology/5/ which has been applied to the proposed VCS project activity.

The assessment team has checked the sample calculation as per the Guideline: “Sampling and Survey for CDM project activities and programme of activities” version 04/6/ and found out that the calculation of confidence/precision is consistent as per the monitoring plan.

4.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

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

The assessment team confirms the quality of evidence to determine the GHG reductions are satisfactory and the detailed information regarding the roles and responsibilities have been provided in the Joint PD-MR/1/.

5 VALIDATION AND VERIFICATION OPINION

Earthood, contracted by DelAgua Health Rwanda (Voluntary) Limited (PP), has performed the independent joint validation & verification of the project activity “DelAgua Clean Cooking Grouped Project in Rwanda”. The PP is responsible for the information about the implementation of the project activity.

Earthood commenced the joint validation & verification based on the baseline and monitoring methodology VMR0006, version 1.1/5/ and joint VCS PD-MR and ERs estimated and calculation spreadsheet/8/.

Earthood’s validation approach is based on the understanding of the risks associated with reporting the project activity, estimates of GHG emission data and the controls to be implemented to mitigate these. Earthood planned and performed the validation and verification by obtaining evidence, site visit, other information, and explanations that ESPL considered necessary to give reasonable assurance that the estimated GHG emission reductions are fairly to be achieved.

Further, the validation and verification of the GHG statement was conducted in accordance with ISO 14064-3; 2019 by the ESPL assessment team.

Therefore, the VVB confirms that:

- the project activity is in accordance with all relevant host country criteria (Rwanda) and VCS rules and requirements.
- the project activity is in accordance with all conditions of the latest version of the applied methodology.

- the environmental assessment is appropriate and sufficient.
- the monitoring plan is transparent and adequate.
- all information has been consistently applied in the VCS Joint PD-MR.
- the implementation of the project has been done as per description in the VCS Joint PD-MR.

Quantity of GHG emission reductions or removals in tCO₂ equivalents are estimated to be 14,928,695 throughout the crediting period and 1,866,086 is the annual average reduced ERs. The validated ex-ante emissions reductions are as follows:

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
11 Oct 2021- 31 Dec 2021	379,873
01 Jan 2022- 31 Dec 2022	2,243,669
01 Jan 2023- 31 Dec 2023	2,160,906
01 Jan 2024- 31 Dec 2024	2,082,325
01 Jan 2025- 31 Dec 2025	2,044,721
01 Jan 2026- 31 Dec 2026	2,033,761
01 Jan 2027- 31 Dec 2027	2,001,708
01 Jan 2028- 10 Oct 2028	1,607,694
Total estimated ERs	14,554,657
Total number of crediting years	7
Average annual ERs	1,819,332

Quantity of GHG emission reductions or removals in tCO₂ equivalent achieved by the project during the verification period is as follows:

Verification period: from 10/11/2021 to 28/02/2023

Verified GHG emission reductions and removals in the above verification period is reported below:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
(11-October-2021 - 31-	421	-	-	421

December - 2021)				
(01-January - 2022 - 31-December - 2022)	989,019	-	-	989,019
(01-January - 2023 - 28-February - 2023)	378,483	-	-	378,483
Total	1,367,923	-	-	1,367,923

Comparison between the estimated ex-ante GHG emission reductions and removals and the achieved emission reductions and removals for the current monitoring period is reported below:

<u>Ex-ante emission reductions /removals</u>	<u>Achieved emissions reductions /removals</u>	<u>Percent difference</u>	<u>Justification for the difference</u>
2,966,919	1,367,923	-53.89%	There is a 53.89% difference in the ex-ante estimates and the actual emission reductions obtained for the first monitoring period since the scope of this activity is joint registration and issuance of VCUs. This difference is observed due to the difference in the estimates made for the parameters to be monitored and the actual values obtained. The discrepancy results from the first instance's ICS distribution being less even than anticipated, from the average ICS age, and from the baseline stove's utilisation being only minimally used throughout the present monitoring period. Therefore, lead to a difference in the estimates and actuals for the ERs/VCUs.

Approved by

Joint Validation & Verification Report: VCS Version 4.2



Dr. Kaviraj Singh
Managing Director
Earthood Services Private Limited

Date: 15/12/2023
Place: Gurgaon, Haryana

APPENDIX I: LIST OF DOCUMENTS REFERRED

S.No.	Title of document	Version	Date
1.	VCS joint PD-MR	6.0	Dated: 03/12/2023
2.	VCS Program guide	4.3	Dated: 17/01/2023
3.	VCS Standard	4.4	Dated: 17/01/2023
4.	VCS VVB Manual	3.2	Dated: 19/10/2016
5.	VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves	1.1	Dated: 22/07/2021
6.	CDM Guidelines Sampling and surveys of CDM project activities and programmes of activities	Version 4	Dated: 16/10/2015
7.	CDM Standard Sampling and surveys for CDM project activities and programmes of activities	Version 9	Dated: 13/09/2012
8.	Emission Reduction calculation sheet	Version 6.0	-
9.	Date of first stove unit distribution	-	Dated: 11/10/2021
10.	Manufacturer's specifications of the project stoves	-	Last accessed on 04/06/2023
11.	Product Factsheet of project stoves	-	Last accessed on 04/06/2023
12.	Monitoring survey results	Version 2.0	-

13.	The transition from cooking with charcoal to LPG https://www.mdpi.com/1996-1073/14/15/4582/htm	-	Last accessed on 15/05/2023
14.	TREES AND WOODLOTS IN RWANDA AND THEIR ROLE IN FUELWOOD SUPPLY- Jean Damascene Ndayambaje The usage of firewood as fuel for cooking in years prior to 1989 is mentioned at multiple instances within the research thesis, alongwith the relevant references. https://edepot.wur.nl/272116	-	Last accessed on 15/05/2023
15.	End user agreement – Carbon Waiver on the Distribution Poster agreement	-	-
16.	Manufacturer’s agreement and Stove purchase invoices	-	-
17.	KML Files shared by PP for the districts where distribution has taken place under PAI-1	-	-
18.	VVB On-site visit evidence	-	Dated: 30/03/2023 to 01/04/2023
19.	General Guidelines and Procedure for Environmental Impact Assessment, Republic of Rwanda	-	-
20.	PP Declaration on the project VCS 4150 not registered under any program	-	Last accessed on 15/05/2023
21.	Project 4150 webpage – DelAgua Clean Cooking Grouped Project in Rwanda: https://registry.verra.org/app/projectDetail/VCS/4150	-	Last accessed on 15/05/2023
22.	National Survey on Cooking Fuel Energy and Technologies in Households, Commercial, and Public Institutions in Rwanda	-	Dated: December 2020
23.	VCS Project 3654 https://registry.verra.org/app/projectDetail/VCS/3654	-	Last accessed on 07/11/2023
24.	https://www.statistics.gov.rw/publication/eicv-5-main-indicators-report-201617	-	Last accessed on 15/05/2023
25.	Baseline KPT survey sheet	Version 1.0	-

	KPT calculation excel sheet		
26.	Random sample generator	-	-
27.	2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy	Chapter 1 Introduction Chapter 2 Stationary Combustion	Last accessed on 15/05/2023
28.	FAO Resource Assessment Report 2020 for Rwanda https://www.fao.org/3/ca9878fr/ca9878fr.pdf	-	-
29.	Tool 30 Calculation of the fraction of non-renewable biomass	4.0	Dated: 08/09/2022
30.	Distribution database of ICS	-	-
31.	CHWs Master Database and Salary slips	-	-
32.	LSC invite evidence: • Newspaper invite • FM announcement • E-mail invitations	13/02/2023	-
33.	LSC feedback form	-	-
34.	CDM PoA 9626 https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/RVUJL2DMZ7HBKC1PEG408NA0WSI6TX/view	-	Last accessed on 07/11/2023
35.	Tool 1 Tool for the demonstration and assessment of additionality	7.0	Dated: 23/11/2012
36.	Statistics from Forest Department https://www.rema.gov.rw/soe/chap6.pdf	-	-
37.	Biomass Energy Strategy (BEST) Rwanda, Volume 3 – Rural Supply and Demand https://cleancooking.org/binary-data/RESOURCE/file/000/000/36-1.pdf	-	Dated: June 2009

38.	Ministry of Land and Forestry, Rwanda in 2017 https://www.cif.org/sites/cif_enc/files/fip_final_rwanda.pdf	-	Dated: 10/11/2017
39.	f _{NRB} Calculation sheet	-	-
40.	https://unfccc.int/sites/default/files/resource/Rwanda%20First%20Biennial%20Update%20Report_Final_V.pdf	-	Last accessed on 15/05/2023
41.	a) CREEC efficiency test report of BURN Kuniokoa G2 stove with pot skirt b) KIRDI efficiency test report of BURN Kuniokoa G2 stove without pot skirt	-	Dated: 25/05/2018 and 04/09/2019 respectively
42.	World Bank Data	-	Last accessed on 12/06/2023
43.	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories	-	Last accessed on 12/06/2023
44.	Calculation of the fraction of non-renewable biomass (f _{NRB}), Rwanda by C4 EcoSolutions (Pty) Ltd.	-	Dated: 07/06/2023
45.	Global Forest Watch	-	Dated: 2023
46.	Mongabay 2020 Annual report	-	Dated: 2020
47.	Summary_Baseline Fuel Consumption_VCS+GS4GG	-	Last accessed on 13/12/2023

APPENDIX II: ABBREVIATIONS

Abbreviations	Full texts
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CO ₂	Carbon di oxide
CP	Crediting Period
DR	Desk Review
EB	Executive Board
EF	Emission Factor
ER	External Resource
EIA	Environmental Impact Assessment
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GP	Grouped Project Activity
ICS	Improved Cook Stoves
MR	Monitoring Report
PAI	Project Activity Instance
PD	Project Description
PP	Project Proponent
tCO ₂ e	Tonnes of Carbon di oxide equivalent
TA	Technical Area
TR	Technical Reviewer
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCU	Verified Carbon Units
VVB	Validation and Verification Body

APPENDIX III: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Joint Validation & Verification Report: VCS Version 4.2

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	18/02/2022
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 (Technical Manager)	Date	10/05/2022

Competence Statement			
Name	Olivier Uwimana		
Education	Bachelor’s in Applied Mathematics		
Experience	4+ years		
Field	Statistics		
Approved Roles			
Team Leader	No		
Validator	No		
Verifier	No		
Methodology Expert	No		
Local expert	Yes (Rwanda)		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	No		
Reviewed by	Shreya Garg	Date	19/08/2019
Approved by	Anshika Gupta	Date	19/08/2019

Competence Statement			
Name	Deepika Mahala		
Country	India		
Education	M. Sc. (Environment Management), GGSIP University B.Sc. Hons. (Chemistry), Sri Venkateshwar College, DU		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0002, AMS.I.D., AMS.I.A, AMS.III.AV, AMS.II.G, AMS-II.C		
Local expert	YES (India, Bangladesh)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2 & TA 3.1)		
Reviewed by	Shifali Guleria (QM)	Date	28/04/2022
Approved by	Kaviraj Singh (MD)	Date	28/04/2022

APPENDIX IV: LIST OF FINDINGS

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

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

Table 2. CL from this joint validation and verification

CL ID	01	Section no.	3.1	Date : 29/03/2023
Description of CL				
Issue: The eligibility criteria for point 3 under column 'how the new project activity instances comply' in section 1.4 of the joint PD-MR states <i>"The ICS distributed in the PAIs will adhere to the GP description and replace biomass burned in the baseline scenario."</i>				
Action Item: PP shall clarify how the biomass used in the baseline is replaced after the distribution of the project stove.				
Program Rule: VCS Standard version 4.4				
Project proponent response				Date : 18/05/2023
There was typo error the same has been corrected, as the project activity does not involve fuel switch and will only reduce the fuel wood consumption. The project targets replacing wood fuel based traditional stoves and same is recorded during distribution of ICS.				
Documentation provided by project proponent				
PD Version-1.2				
VVB assessment				Date: 02/06/2023
The project activity just reduces the amount of wood used as fuel and does not entail switching fuels. It has been mentioned during ICS distribution that the project's goal is to replace conventional stoves that use wood fuel. The PP has corrected the statement and the revised joint PD-MR was found to be appropriate.				
Hence, CL 01 is closed.				

CL ID	02	Section no.	NA	Date : 10/04/2023
Description of CL				
Issue: 1. During the on-site verification audit conducted by the VVB audit team, charcoal usage as cooking fuel in baseline was noted in the households listed below: - DA050346 - ST020726 - DA068040				

d. DA011432	
2. During the on-site verification audit, one of the households was also found using LPG as one of the fuels for cooking.	
Action Item: PP shall clarify the baseline scenario of the project and clarify how is the charcoal usage in baseline and switch to fuelwood at the time of project stove installation accounted for in the emission reduction calculations. PP shall further clarify how usage of other improved stoves and technologies accounted for to ensure accurate calculations.	
Program Rule: Applied methodology VMR0006	
Project proponent response	Date : 18/05/2023
The charcoal usage is occasional and HH uses the same during any party or more gathering, however in general the wood fuel being used. The PP has recorded the fuel usage during distribution and survey as wood fuel only.	
Documentation provided by project proponent	
PD Version 1.2	
VVB assessment	Date: 02/06/2023
VVB has verified the baseline study results document and it was observed that the charcoal consumption in the baseline has been mentioned as zero. However, during the on-site visit, it has been observed 4 households out of 11 were using charcoal as cooking fuel in baseline along with firewood. PP is requested to clarify the inconsistency observed.	
Moreover, consideration of households using charcoal in baseline under this project is not clear, given that the project design does not account for any discount factors or conversion factors in case of such occurrences. Please clarify, with respect to applicability of applied methodology VMR0006.	
CL 02 remains open.	
Project proponent response	Date : 12/06/2023
The PP acknowledges the existence of charcoal cooking during the site visit, but this was an exceptional circumstance and a very irregular occurrence as explained during the site visit. The site visit took place on 30 th and 31 st March which is a week before the beginning of the Genocide Memorial period called Kwibuka. Kwibuka is a time when families reconnect in the village where most of the atrocities happened. As they travel to the villages from the urban areas, they often bring supplies including food and cooking fuels (mainly charcoal).	
In light of what was seen during the site visit, the DelAgua team reviewed the monitoring survey work to understand the discrepancies and spoke to the team members who conducted the surveys. They said that there was no evidence of anything other than wood cooking during their monitoring survey. As a result, the PP sought to understand the existence of more charcoal cooking than we have ever experienced before during our regular education visits as well as seen from the monitoring surveys historically. It is during this exercise that we came to understand the connection to Kwibuka. Previously, we have never undertaken work in the build-up to Kwibuka out of a sign of respect but also this is the beginning of the rainy season when there are additional operational challenges to carry out educational visits.	
As such, there is no impact on the baseline as the charcoal cooking events were one-off irregularities as a result of the Kwibuka family gatherings.	
Documentation provided by project proponent	
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VVB assessment	Date: 13/06/2023

The VVB has accepted the justification provided by the PP for the exceptional circumstance of usage of charcoal in place of firewood during the on-site visit for the project due to Kwibuka commemoration. The duration of the festival was further cross-checked by the VVB through the online resources like: YouTube video (<https://www.youtube.com/watch?v=iHVQijlZIEg>) and UN WebTV (<https://media.un.org/en/asset/k1z/k1zbl6eeg3>) that confirms that the Kwibuka commemoration is celebrated on 07/04/2023. Hence, the justification provided by the PP founds to be appropriate.

Hence, CL 02 is closed.

CL ID	03	Section no.	NA	Date : 10/04/2023
Description of CL				
Issue: During the on-site verification audit conducted by the VVB audit team, it is noted that the end-user Emmanuel Nzakira is still using the baseline stove along with the distributed project stove. However, according to the monitoring survey document provided to the VVB "VCS 4140 mon sur" tab "Responses-All", the response to question "Do you currently use any other stove besides your primary stove?", the response for this end user (UID DA065936) is "No".				
Action Item: PP shall clarify the discrepancy between the recorded information and information found on site.				
Program Rule: VCS Standard version 4.4				
Project proponent response				Date : 18/05/2023
The issue has been discussed with team and noted that there was manual error during recording, the same has been revisited and corrected in survey records. The emission reduction calculations revised accordingly. Further, the PP has well defined policy on selection of household and if any household does not comply with eligibility criteria for inclusion under PAI/grouped project activity will be discarded from database with remark. The PP has also procedure for technical review for approval of new PAI in grouped project and for any such case the same is being checked.				
Documentation provided by project proponent				
ER sheet version 1.2				
VVB assessment				Date: 02/06/2023
VVB has reviewed the revised ER sheet and monitoring survey sheet provided by the PP and found it appropriate.				
Hence, CL 03 is closed.				

CL ID	04	Section no.	3.1, 3.3.2	Date : 20/06/2023
Description of CAR				

Issue:

- The distribution records will be required to confirm the start date of the project.
- The local stakeholder meeting evidence with potential end users as attendees which have been conducted at district level will be required to confirm the statement “Of these, ‘meeting A’ was done prior to distribution of ICS, precisely a month before the actual distribution in the relevant district in the host country for targeted end users”.

Action Item:

Following documents will be required:

- Distribution records
- LSC evidence conducted with the end users at district level.

Program Rule:

VCS Standard v4.4

Project proponent response	Date : 20/06/2023
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1.The distribution record provided along with this response.
2. Though as general practice PP does conduct local stakeholder meeting at district level before start of distribution, however as LSC conducted at grouped project activity level as per requirement. Hence the statement deleted from revised JPD/MR.

Documentation provided by project proponent

Distribution record
JPD/MR

VVB assessment	Date: 21/06/2023
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1. VVB has verified the distribution database provided by the PP and found that the start date i.e., 11/10/2021 as stated in the joint PD-MR was found in the database and hence it is correct. CLOSED.
2. PP has conducted the local stakeholder consultation at the grouped project activity level in accordance with VCS Standard v4.4 and hence the statement which states about the LSC meeting conducted at district level has been removed by the PP. VVB has verified the LSC evidence (LSC announcement records, photographs and LSC presentation) and found that the LSC meeting was conducted by the PP. CLOSED.

Hence, CL 04 is closed.

CL ID	05	Section no.	-	Date : 20/06/2023
Description of CAR				
Issue: Section 9.3 of VMR0006 states that “Technologies aged beyond their useful lifetime, as established in the usage survey, are removed from the project and no longer credited”. The lifespan of ICS is 10 years while CP may be renewed till 21 years.				
Action Item: PP shall explain how the condition stated in the meth will be followed in the grouped PA.				
Program Rule: VMR0006 v1.1				
Project proponent response				Date : 20/06/2023

Each ICS under PAIs will claim ERs for its operational lifetime, however as individual ICS has operational lifetime less than crediting period of grouped project activity, replacement of ICS will be provided to end users on end of lifetime. Furthermore, the ICS is also distributed in phases or in few years given total numbers, hence ICS operational given lifetime will be considered during VCUs calculation. PP will consider replacement, however as its grouped project and if any instance added after renewal of crediting period, the same will cover the total 21 years as opted by PP.

Documentation provided by project proponent

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VVB assessment

Date: 21/06/2023

The operational lifetime of each ICS covered by PAIs will be used to calculate ERs, but as each ICS's operational lifetime is shorter than the crediting period for a grouped project activity, end users will receive a replacement ICS at the end of its operational lifetime. PP has clearly stated that they will replace the stoves after the end of the lifetime of the stove.

Hence, CL 05 is closed.

Table 3.CAR from this joint validation and verification

CAR ID	01	Section no.	3.1	Date : 29/03/2023
Description of CAR				
Issue:				
- In section 1.3 of the joint PD-MR, the project proponent has mentioned the VCS Program scope under Table 1 according to previous version of VCS Standard, v4.3. Similarly, ‘Table 2: Excluded project activities under the VCS Program’ has also followed the previous version of VCS Standard. - In section 1.4 of the joint PD-MR, the justification provided for point 1c is insufficient. - Some of the eligibility criteria mentioned in the table having heading ‘Eligibility conditions specific to inclusion of new PAIs’ under section 1.4 of the joint PD-MR were found to be missing.				
Action Item:				
- PP shall revise the VCS Program scope and Excluded project activities under the VCS Program in accordance with the latest VCS Standard version 4.4. - PP shall revise this and justify the applicability condition appropriately. - PP is requested to include all the eligibility criteria for the inclusion of New Project Activity Instances in line with para 3.6.17 of VCS Standard version 4.4.				
Program Rule:				
VCS Standard version 4.4				
Project proponent response				Date : 18/05/2023
- Section 1.3 of the PD has been corrected in line with the latest VCS Standard version 4.4. - The relevant corrections made in revised PD in line with requirement. - All relevant criteria regarding inclusion of new PAI is incorporated in revised PD.				
Documentation provided by project proponent				
PD version 1.2				
VVB assessment				Date: 02/06/2023
- PP has not revised table 2 in line with the latest VCS Standard version 4.4. OPEN. - The eligibility criteria for the “capacity limit” has now been mentioned in the table having heading of the joint PD-MR which was found to be appropriate. CLOSED.				
Hence, CAR 01 remains open.				
Project proponent response				Date : 12/06/2023
The exclusion criteria details updated in line with VCS Standard version-4.4				

Documentation provided by project proponent	
PD Version-3	
VVB assessment	Date: 13/06/2023
The revised joint PD-MR was reviewed and found that the 'Table 2: Excluded project activities under the VCS Program' has now been revised and is in line with the latest version of the VCS Standard. Joint Validation & Verification Report: VCS Version 4.2	
Hence, CAR 01 is closed.	

CAR ID	02	Section no.	3.1	Date : 29/03/2023
Description of CAR				
Issue: The geographic coordinates of the project location are found to be missing. The PP shall indicate the geographical location of the project in the joint PD-MR.				
Action Item: The PP shall indicate the project location and geographic boundaries including a set of geodetic co-ordinates.				
Program Rule: VCS standard version 4.4				
Project proponent response				Date : 18/05/2023
The location details provided as KML file along with other details incorporated in revised PD.				
Documentation provided by project proponent				
PD version 1.2				
VVB assessment				Date: 02/06/2023
The revised joint PD-MR was reviewed and found that the geo-coordinates along with other details have not been incorporated.				
Hence, CAR 02 remains open.				
Project proponent response				Date : 12/06/2023
The geo-coordinates incorporated in revised PD.				
Documentation provided by project proponent				
PD Version-03				
VVB assessment				Date: 13/06/2023
The geo-coordinates along with the project area map have been incorporated by the PP which was found to be correct.				
Hence, CAR 02 is closed.				

CAR ID	03	Section no.	3.1	Date : 29/03/2023
Description of CAR				
Issue: In section 1.15 of the Joint PD-MR, the project proponent has mentioned that every PAI will be required to demonstrate whether they have been registered or are seeking registration under any other GHG program and if the PAI has been registered under any other GHG program, then the details will be provided.				
Action Item: PP shall identify and mention whether the project/PAI has been registered or seeking registration under any other GHG program. If the PP has found any such project under any other GHG program, details of the same should be mentioned under the same section. Kindly include the information in				

line with the Joint PD-MR template guidelines v4.2 which states to "Indicate whether the project has been registered or is seeking registration under any other GHG programs. Where the project has been registered under any other GHG program, provide the registration number and details."

Program Rule:

Joint PD-MR template version 4.2

Joint Validation & Verification Report: VCS Version 4.2

Project proponent response

Date : 18/05/2023

The ICS included under each PAI i.e., PAI-1, PAI-2, PAI-3 and PAI-4 under grouped project activity are distributed by DelAgua, the ICS are uniquely identifiable and are not part of any other GHG programme. A declaration regarding the same is also provided by PP. To check on any possibility of double counting, whole database by PP being checked and serial number used in PAIs under grouped project are unique.

Documentation provided by project proponent

Declaration letter

VVB assessment

Date: 02/06/2023

The grouped project activity included four PAI i.e., PAI-1, PAI-2, PAI-3 and PAI-4 under which ICS are distributed by the PP and these ICS have unique ID in order to avoid double counting. It was confirmed during the on-site visit and from the distribution database that the serial number used in the PAIs under the GP are unique. Moreover, VVB has verified from the declaration provided by the PP which states that the project has not been registered nor seeking registration under any other GHG program.

Hence, CAR 03 is closed.

CAR ID	04	Section no.	3.1	Date :	29/03/2023
Description of CAR					
Issue:					
In section 1.17.2 of the Joint PD-MR, the project proponent has mentioned that "The SDG impact monitoring for the PAI has not been performed yet. The monitoring will be conducted before the joint validation and verification and will be verified by VVB" under column 'Current Project Contributions' for all SDG Targets.					
Action Item:					
PP shall provide a brief description of the quantifiable impact of the project's activities related to the SDG indicator during the MP in accordance with VCS Joint PD-MR template, version 4.2 under the entire 'Current Project Contributions' column.					
Program Rule:					
VCS Joint PD-MR template, version 4.2					
Project proponent response					Date :
					18/05/2023
The impact assessment is included in revised PD as per sample survey results.					
Documentation provided by project proponent					
PD version 1.2					
VVB assessment					Date:
					02/06/2023
The revised joint PD-MR has been reviewed and was found that the PP has incorporated the current project contributions for all the SDG targets and were found to be appropriate. VVB has verified the values from the evidence and was found to be correct.					
Hence, CAR 04 is closed.					
CAR 04 has been reopened during the TR round.					
It has been observed that the SDG indicator 4.7.1 is related to Education of school children which is not related to the project. Kindly clarify why this SDG indicator has been targeted by the PP.					

Project proponent response	Date : 20/06/2023
The relevant SDG12.8 which covers education to train people on sustainable lifestyle, as the project promotes meeting one of the basic needs i.e., cooking has been added and SDG 4.7.1 has now been removed. The PP creates awareness among end users regarding the issues with traditional wood stove and how proper usage of improved cookstove can lead to sustainable development by not only saving forest but also saving time and money incurred towards fuel collection and purchase. By reducing smoke level significantly the project also promotes healthy life style. Hence overall project provides key information to end users on how proper usage of ICS can lead to sustainability and is appropriately incorporated in PD as SDG12.8	
Documentation provided by project proponent	
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VVB assessment	Date: 21/06/2023
The revised joint PD-MR has been reviewed and found that SDG 4.7.1 has been removed and SDG 12.8 has been added which ensures awareness on sustainable development and lifestyle among people. Under this SDG, in order to promote sustainable development, PP has educated the end users about the problems with conventional wood stoves and how appropriate use of improved cookstoves can not only save forests but also time and money spent on fuel collection and purchase. Also, the project encourages a healthy lifestyle by drastically reducing smoking levels.	
Hence, CAR 04 is closed.	

CAR ID	05	Section no.	3.3.2, 3.3.4	Date : 29/03/2023
Description of CAR				
Issue:				
1. In section 2.2 of the Joint PD-MR, the project proponent has only mentioned the mechanism for ongoing communication with local stakeholders. PP has not included the details regarding the procedures/methods used for documenting the outcomes of LSC, the dates of announcement, meeting held and about grievance redressal mechanism. 2. In section 2.4, PP has not provided the dates of the public comment period. Also, the comments which have been received were also not included.				
Action Item:				
• PP shall cover the following points under this section in line with the VCS PD & MR template guidelines v4.2: 1. "Procedures/methods used for engaging local stakeholders including the dates of announcement, meeting held and the period during which the input was taken. 2. Procedures/methods used for documenting the outcomes of the LSC. 3. How does the PP accounted for the inputs received during the consultation and include details on any updates to the project design". • PP is requested to mention the dates of the public comment period and also include the details of the comments received and how does the PP had addressed those comments.				
Program Rule:				
VCS Joint MR & PD template v4.2				
Project proponent response				Date : 18/05/2023
1. The stakeholder consultation meeting conducted on 1st March 2023, the details on identification of relevant stakeholder, mode and date of invitation and proceedings of the meeting is incorporated in revised PD. The procedure on ongoing communication with stakeholders also incorporated in revised PD. 2. There were no comments received on grouped project during public comment period on VERRA website. The same has been incorporated in revised PD.				
Documentation provided by project proponent				

PD version 1.2	
VVB assessment	Date: 02/06/2023
1. PP has conducted the local stakeholder consultation meeting in two rounds, one with the end users and the other with NGOs, academia and other entities. The relevant stakeholders i.e., NGOs, academia and other entities were invited through various means like advertisement in newspaper and radio channels and also emails and the LSC was conducted on 01/03/2023. VVB has verified the same from the evidence provided by the PP (newspaper advertisement photographs, minutes of the meeting, feedback form etc.). VVB has reviewed the revised joint PD-MR and concludes that the PP has now included the details regarding the procedures/methods used for documenting the outcomes of LSC, the dates of announcement, meeting held and about grievance redressal mechanism. CLOSED. 2. The grouped project was open for public comments from 17/03/2023 to 16/04/2023 on the VERRA website. The grouped project has not received any comments during this period and the same has been incorporated in section 2.4 of the revised joint PD-MR. CLOSED. 6) Hence, CAR 05 is closed.	

CAR ID	06	Section no.	3.4.2, 3.4.5	Date : 29/03/2023
Description of CAR				
Issue: - PP has provided the justification “PAIs will comply with the GP requirements” for the applicability condition “Both ‘Projects’ and ‘Large Projects’ can use the methodology”. The justification provided under section 3.2 was found to be incomplete and is not clear how the above-mentioned eligibility criterion was found to be met. - PP has only demonstrated ‘Step 2 Positive List’ in section 3.5 of the joint PD-MR in order to demonstrate the additionality of the project. Action Item: - PP shall justify the applicability condition in detail and should provide proper description on how the project complies with this applicability condition. - In accordance with the applied methodology VMR0006 v1.1, section 7, Step 1, the project proponent must demonstrate regulatory surplus in accordance with the rules and requirements regarding regulatory surplus set out in the latest version of the VCS Standard and ensure that the project is not mandated by any law, statute or other regulatory framework. Program Rule: VCS Joint PD-MR template v4.2, Methodology for Installation of High Efficiency Firewood Cookstoves VMR0006 v1.1				
Project proponent response				Date : 18/05/2023
1.The justification against each applicability criteria on how actual PAI complies with requirement is incorporated in revised PD. 2. A review of the national energy policies of the Rwanda shows that there are no mandatory laws, policies or requirements mandating the use of ICS. Though the Government of Rwanda's (GoR) Energy Sector Strategic Plan (2013-2018) identifies dissemination of improved cookstoves (ICS) as one way to reduce fuel wood consumption. The government promotes the use of improved ICS, however it's not mandatory. <i>The project participant provides the cookstove to end users free of cost, hence there is no revenue stream apart from the sale of GHG credits. Therefore, as per applied approved methodology project activity is additional.</i>				
Documentation provided by project proponent				

PD version 1.2	
VVB assessment	Date: 02/06/2023
- PP has provided the justification against the applicability criteria which was found to be appropriate. - VVB has verified from the national energy policies of Rwanda that there are no mandatory laws enforced by the government for the use of ICS. Further, it has been confirmed from the Government of Rwanda's (GoR) Energy Sector Strategic Plan (2013-2018) that they promote the use of ICS, however the government has not made this mandatory. PP has added Step 1 in accordance with the rules and requirements regarding regulatory surplus set out in the latest version of the VCS Standard which was found to be appropriate. Hence, CAR 06 is closed.	

CAR ID	07	Section no.	3.1	Date : 29/03/2023
Description of CAR				
Issue: It has been stated under section 4.1 of the joint PD-MR that “However, the monitoring for the PAIs has not been done yet. As soon as the monitoring is done, the relevant data is added to this section, i.e., prior to the submission of Validation to Verra.” and thus PP has not included the details of the implementation status of the project activity during the current monitoring period. Action Item: PP shall provide information on “the operation of the project activity(s) during the current monitoring period, including any information on events that may impact the GHG emission reductions or removals and monitoring” in line to para 4.1 of the VCS Joint PD-MR template. Program Rule: VCS Joint PD-MR template v4.2				
Project proponent response				Date : 18/05/2023
The first ICS under grouped project commissioned dated 10 Nov 2021, the same is considered as start date for the grouped project activity. There are four project instances currently included under the grouped project with a total ICS distribution of 399,050. As per sample survey results 100% ICS were found operational, however in some cases baseline stove usage also observed and same has been adjusted in emission reduction calculation. The detail on project implementation has been incorporated in revised PD.				
Documentation provided by project proponent				
PD version 1.2				
VVB assessment				Date: 02/06/2023
VVB has verified from the distribution database that the start date of the grouped project activity is 10/11/2021 and it under this project four project activity instances are included. The total ICS distributed under this grouped project activity is 399,080 and was found to be in line with the ER calculation sheet and the distribution database. In accordance with the sample survey results, it was found that all the ICS were operational, however some of the HHs were still using the baseline stoves. Thus, the emission reduction calculation has been adjusted by the PP which was found to be appropriate. The project implementation details provided in the joint PD-MR have been revised and were found to be correct. Hence, CAR 07 is closed.				

CAR ID	08	Section no.	3.4.8	Date : 29/03/2023
Description of CAR				

Issue:

- It has been observed that responsibility of the project proponent has been provided under section 6.3 of the joint PD-MR. PP has not included *"The organizational structure, responsibilities and competencies of the personnel that carried out monitoring activities."* in accordance with VCS Joint PD-MR template v4.2.
- The joint PD-MR does not have any information about the sampling plan, size applied for the current monitoring period.

Action Item:

- PP shall include the organizational structure, responsibilities and competencies of the personnel that carried out monitoring activities.
- PP shall provide the sampling plan applied during the current monitoring period.

Program Rule:

VCS Joint PD-MR template v4.2

Project proponent response

Date : 18/05/2023

1. The organizational structure is incorporated in revised PD along with role and responsibilities.
2. During first periodic verification across sampling done for 4 PAIs, as the same type of ICS deployed under each PAI, hence a homogenous population is considered. As per sampling guidelines, 95/10 confidence and precision level considered for sample size calculation for number of ICS in operation and baseline stove usage if any, which is appropriate. The random sample generated from distribution database for sample survey. The details on sample size calculation and reliability check can be verified from ER sheet.

Documentation provided by project proponent

PD version 1.2

ER sheet version 1.2

VVB assessment

Date: 02/06/2023

- The revised joint PD-MR has been reviewed and found that the organizational structure, responsibilities and competencies of the personnel that carried out monitoring activities has now been incorporated and PP has provided all relevant information which were found to be appropriate. CLOSED.
- The revised joint PD-MR has been reviewed and found that the PP has included the sampling plan and the sample size which has been applied during the current monitoring period. PP has made the sampling plan in accordance with CDM Standard 'Sampling and surveys for CDM project activities and programmes of activities', and CDM Guidelines: Sampling and Survey for CDM project activities and programmes of activities according to which 95/10 confidence and precision level has been considered for sample size calculation for the number of ICS in operation and baseline stove usage. This has been verified from the ER calculation sheet which was found to be correct. CLOSED.

Hence, CAR 08 is closed.

CAR ID	09	Section no.	-	Date : 20/06/2023
Description of CAR				

Issue:

It has been observed that the actual sample size surveyed in each PAI has not been discussed anywhere in the MR. According to ER sheet, 120 samples per PAI have been covered (total 480). However, in survey file "VCS 4150 non_sur", 481 samples have been listed in tab "Responses_All". Further, as per tabs "Sample size PAI-1", "Sample Size PAI-2", "Sample Size PAI-3" and "Sample Size PAI-4", number of samples monitored in 268.

Action Item:

PP shall review and clarify the discrepancy and revise throughout the joint PD-MR, ER sheet and monitoring survey sheets.

Program Rule:

VCS Standard v4.4

Project proponent response	Date : 20/06/2023
There was typo error in the number of samples for each PAI, the same has been corrected and is now consistently reported in JPD/MR and ER sheet. The sample size calculated for each PAI comes to less than 100, however as per sampling plan the PP has considered more sample for each PAI which is conservative. The details on sample size and results now incorporated in revised JPD/MR and ER.	
Documentation provided by project proponent	
JPD/MR V2 ER sheet V02	
VVB assessment	Date: 21/06/2023
The revised joint PD-MR as well as ER sheet was reviewed and found to be consistent with the monitoring sheet provided.	
Hence, CAR 09 is closed.	

Table 4. FAR from this joint validation and verification

FAR ID	01	Section no.	3.1	Date : 08/10/2023
Description of FAR				
The next verifying VVB must check how already existing households with end-user agreements with DelAgua Health Rwanda (Voluntary) Limited were informed about the addition of PP to the grouped project activity- DelAgua Project Pte. Ltd.				
Project participant response				Date : DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
VVB assessment				Date: DD/MM/YYYY
NA				