



**Verified Carbon
Standard**

IMPROVED COOKING STOVE PROGRAMME IN BURUNDI



Document Prepared by Earthood Services Private Limited

Earthood Services Private Limited

Regd. Office: 409-410, Tower B-4, Spaze I-Tech Park, Sector 49, Sohna
Road, Gurgaon- 122018, INDIA

Tel: +91 124 4204599

Fax: +91 124 4204599

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Prepared By	Earthood Services Private Limited
Contact	Regd. Office: 409-410, Tower B-4, Spaze I-Tech Park, Sector 49, Sohna Road, Gurgaon- 122018, INDIA Tel: +91 124 4204599 Fax: +91 124 4204599 Website: www.earthood.in Email: info@earthood.in
Approved By	Dr. Kaviraj Singh
Work Carried Out By	Team Leader, Technical Expert and Meth Expert: Shifali Guleria Local Expert: Stanislas Niyonzima Validator (Trainee): Vishnu Panicker Technical Reviewer and TA Expert to TR: Deepika Mahala

Summary:

Earthood Services Private Limited (hereafter referred to as Earthood) has been contracted by ECOEYE to conduct the Gap validation & verification of the project - "Improved Cooking Stove Programme in Burundi " (VCS ID- 2828), with regards to the relevant requirements of VCS programme guidelines and standard (VCS standard version 4.2, VCS and VCS program guide version 4.1). Also, relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting has been applied for validation.

The project activity involves distribution of high efficiency of ICS by replacing baseline inefficient wood stoves so as to reduce fuel consumption and increase the combustion efficiently, thereby reducing the CO₂ emission compared to the baseline situation.

The project activity is estimated to disseminating nearly 500,000 ICSs replacing the 3-stone fire result in emission reductions worth 506,373 tons CO₂eq per year and 3,544,611 tons CO₂eq during the entire crediting period of 7 years.

The first crediting period is from 02 Nov 2018 to 01 Nov 2025. During previous monitoring periods, the project activity has requested the following CERs under CDM:

- Monitoring report: 10 Sep 2019 - 15 Sep 2019 | CERs requested: 826
- Monitoring report: 16 Sep 2019 - 30 Apr 2020 | CERs requested: 81 469
- Monitoring report: 01 May 2020 - 31 Dec 2020 | CERs requested: 183 191

During the fourth verification conducted for this project alongside gap validation, actual emission reductions from the monitoring period 01/01/2021 to 31/03/2022 were calculated as 632,878 tCO₂ with a total distribution of 202,856 cookstoves

Scope of validation and verification

ECOEYE contracted Earthood to conduct the Gap Validation and verification of the project. The project is covered under sectoral scope 3- Energy demand based on the methodology AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass, Version 10.0.

A total of 01 CL, 08 CARs and 00 FAR have been raised during the joint validation and verification process of the project activity and successfully closed.

Conclusion

Earthood has performed the Gap Validation-Verification of the VCS project activity “Improved Cooking Stove Programme in Burundi”.

The VVB has confirmed that:

- the PA is in accordance with all relevant host country criteria (Burundi) and VCS rules and requirements.
- the PA is in accordance with all conditions of the latest version of applied methodology AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass, Version 10.0
- the environmental assessment is appropriate and sufficient.
- all information has been consistently applied in the VCS PD-MR.

The implementation of the project has been done as per description in the VCS-PD.

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1 INTRODUCTION

1.1 Objective

ECOEYE contracted Earthood to conduct the Gap Validation and verification of the project. The project is covered under sectoral scope 3- Energy demand based on the methodology AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass, Version 10.0.

1.2 Scope and Criteria

The scope of Gap validation and verification is to establish/ verify that:

- The PA to get registered under VCS without been deregistered from CDM.
- the PA is in accordance with all relevant host country criteria (Burundi) and VCS rules and requirements.
- the PA is in accordance with all conditions of the latest version of applied methodology AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass, Version 10.0
- verify all information has been consistently applied in the VCS Joint PD-MR.
- project implementation and operation with respect to the Project Design
- verify the implemented monitoring plan with the Project Design and applied baseline and monitoring methodology
- evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement
- reported GHG emission data is sufficiently supported by evidence

The Gap validation and verification of the project activity is based on the VCS Joint PD-MR, estimated GHG emission reduction calculations and actual emission reductions calculations.

1.3 Level of Assurance

☐ Limited level of assurance

☒ Reasonable level of assurance

A draft Gap validation-verification report that is prepared by 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 Gap Validation 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 AMS-II.G, Version 10.0/03/, and the VCS standard, Version 4.2/04/.

The validation and verification body has achieved Reasonable level of assurance without conducting onsite visit by assessing the project through alternative means. Please refer section 2.4 of this report for detailed justification.

1.4 Summary Description of the Project

The project activity involves distribution of high efficiency of ICS in households of Burundi by replacing baseline inefficient wood stoves so as to reduce fuel consumption and increase the combustion efficiently, thereby reducing the CO₂ emission compared to the baseline situation. The project is a grouped project and new instances will be added in the future with ICSs disseminated only in Burundi by following the criteria mentioned in the VCS standard v.4.2. The first instance of the grouped project distributes ICSs in the households of Burundi.

The project activity is estimated to disseminating nearly 500,000 ICSs replacing the 3-stone fire result in emission reductions worth 506,373 tons CO₂eq per year and 3,544,611 tons CO₂eq during the entire crediting period of 7 years. The Project activity has distributed 202,856 cookstoves till date leading to a total emission reduction of 632,878 tCO₂e.

The Project activity start date is 02 November 2018 which is the date of first ICS emission reduction. This has been verified from the Registered CDM CPA-DD/06/. The Project Activity is having a renewable crediting period of 7 years x 3. i.e., 21 years. The first crediting period of the project activity starts from 02/11/2018 to 01/11/2025. Monitoring period covered for the verification is from 01/01/2021 to 31/03/2022

The ownership of the project Activity is between POWA, AERA and OBEN. The project ownership has been verified by the validation team from the End-user agreement and Signed contracts/09/. ECOEYE was formerly registered as CME before the project was converted from CDM to VCS and this has been transparently depicted in the joint PD-MR/01/.PP has also submitted as signed 5th addendum/18/ in which it is mentioned “Ecoeye acknowledges that any type of emission reduction generated, issued and sold out from the Project through Verra VCS will not be converted to KOC and shall not raise any liability to Aera.”

CL#01 and CAR#04 was raised and resolved.

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

The validation and verification process is undertaken by VVB that involves the following:

- The desk review of documents and evidences submitted by the project proponent in context of the reference VCS rules and guidelines,
- Undertaking voice/video con-call with the representative of the project proponent,
- Interviewing the selected end-user from the samples acceptance sampling by the local expert from the Validation-verification team.
- Reporting audit findings with respect to clarifications and non-conformities and the closure of the findings
- Verifying all the reported data and parameter.
- Preparing a draft validation-verification report
- Resolution of outstanding issues and the issuance of final validation-verification report and opinion

In order to ensure transparency, a validation protocol was prepared for the project according to the CDM-VVS for PAs version 03.0 verification requirements and VCS Standard version 4.2.

The Clarification Requests (CL) were issued where additional information was needed to clarify issues, and Forward Action Requests (FAR) for issues relating to project implementation that required review during the first verification of the project activity.

2.2 Document Review

The assessment team has conducted the validation using the VCS Standard v 4.2 and the AMS-II.G version 10.0 methodology as the reference criteria. The assessment team had done the completeness check of VCS joint PD & MR submitted by the PP as per the VCS standard version 4.2 requirements was reviewed. Furthermore, a desk review was also carried out to assess the following:

- Information of project details in compliance with VCS joint PD & MR template
- Appropriateness of methodology AMS-II.G version 10.0 applied to the project activity instance
- Checking the registered CDM CPA-DD under PoA 10474 to verify the ex-ante parameters and the all-other data mentioned in the VCS joint PD-MR.
- Proof of listing of project under pipeline

The VCS joint PD&MR version 1 /01/dated 20/12/2021 was initially reviewed and the PP was requested to submit the revised documents along with the supporting information and documents. The revised documents and additional supporting documents were further assessed by the validation team. During the validation process, the revised VCS joint PD & MR/01/ and the supporting documents were assessed to confirm the actions taken by the PP to the CARs and CLs issued.

It is to be noted that due to the current situation with the global COVID-19 pandemic scenario and restriction on international travel, an on-site inspection has not been performed by the assessment

team, however voice/ video call was arranged with representatives of project proponent and consultant on 01/06/2022. The VVB Local Expert visited the end-user households for VVB survey from 30/05/2022 to 01/06/2022. The samples for conducting the VVB survey was through acceptance sampling. The end-user was asked questions from the VVB survey checklist which was shared with the local expert. The local expert collected the information, and the survey was recorded with videos and pictures of the end-user and ICSs.

Further, prior to the opening meeting (on-call with project proponent representatives), it was verified by the validation-verification team that the project was listed in the VCS pipeline in line with the requirements (Section 3, Registration and Issuance process, version 4.1) and was open for Public Comments from 01/04/2022 to 01/05/2022 (<https://registry.verra.org/app/projectDetail/VCS/2828>) . Hence it can be confirmed that guidance outlined under section 3 of Registration and Issuance process, has been followed for validation process.

2.3 Interviews

It is to be noted that due to the current situation with the global COVID-19 pandemic scenario, an on-site inspection has not been performed by the assessment team. However, a video conference call was organized with the representatives of the PP on 01/06/2022 i.e. with consultant and personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure. The details of the people interviewed are mentioned in the table below:

Name	Organization	Topic covered
Claver Ndizeye	Director of OBEN	Project implementation, start date as per the VCS requirements.
Pascal Rwemera	Director of POWA SA	Consideration of monitoring period, monitoring methodology, project documentation and emission reduction calculations.
Jokhanan Toe	AERA Group	Monitoring system, Collection of Data, Information regarding distribution of ICSs, Grievance mechanism, Data Verification of monitoring parameters, QA/QC procedures, data management, internal audits to maintain data quality & reliability.

2.4 Site Inspections

Since the Assessment team couldn't do the on-site visit, the Local Expert visited the end-user households for VVB survey from 30/05/2022 to 01/06/2022. The following are the Household's visited by the Local expert:

Name	Cookstove ID	Date	Assessment team
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Juma Jean de Bieu	01BUJ035070	30/05/2022	Stanislas Niyonzima
Bubanza	02BUB042754	30/05/2022	Stanislas Niyonzima
Busabe	08MAK152258	30/05/2022	Stanislas Niyonzima
Vyizigiro	08MAK123328	30/05/2022	Stanislas Niyonzima
Nininahazwe Audace	03CIB164315	31/05/2022	Stanislas Niyonzima
Simbavimbere Aime Parfai	03CIB223380	31/05/2022	Stanislas Niyonzima
Sabushimike Pahorina	03CIB188742	31/05/2022	Stanislas Niyonzima
Nininahazwe Marie Claire	09RUM124859	31/05/2022	Stanislas Niyonzima
Edward	09RUM154163	01/06/2022	Stanislas Niyonzima
Ndayizeye Jean	P7RUT056899	01/06/2022	Stanislas Niyonzima
Habarugira Romuald	P7RUT061694	01/06/2022	Stanislas Niyonzima

Through the interviews conducted by local experts (supported by videos and pictures) and comparing them with the evidence and survey conducted by the PP, the assessment team confirms the project is implemented in line with the VCS PD-MR/01/

Sampling Plan:

No sampling was done for the validation of the project since this is a gap validation and baseline was already validated and determined at the time of CDM validation.

A remote audit was conducted for the verification of monitoring period 01-January-2021 to 31-March-2022 with the help of VVB local expert. In order to meet the requirements of Standard for Sampling and surveys for CDM project activities and programmes of activities, the verification team applied acceptance sampling in the verification (in accordance with para 28)/08/.

The verification team determined the sample size for acceptance sampling by evaluating the following, using its own professional judgment and guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities' /08/:

- The proportion of discrepancies between the CME's data and verification team's (field or onsite inspection results) data that can be considered acceptable. This is referred to as the AQL (Acceptable Quality Level): 0.5% was considered in this verification.

- The proportion of discrepancies between the CME's data and verification team's (field or onsite inspection results) data that would be considered unacceptable. This is the UQL (Unacceptable Quality Level): 20% was considered in this verification.
- The producer risk: 10% was considered.
- The consumer risk: 10% was considered.

Considering the above input values, a sample size of 11 was required as per Table (Sample size and acceptance number based on AQL, UQL, and producer and consumer risks) in the referred Standard /33/. Accordingly, the acceptance number thus determined for the sample size is 0. A sample size of 11 meets the criteria.

The monitoring survey has been conducted for 4 batches, and the same has been accounted for in VVB's sample by randomly selecting samples from each batch proportionately to the distribution in monitored database, as demonstrated below:

Batch number	Start date of batch	End date of batch	Number of samples in monitoring database	% of each batch in the monitoring database	VVB sample size (rounded figures)
Batch 1	02-11-2018	01-11-2019	31	17%	2
Batch 2	02-11-2019	01-11-2020	60	33%	4
Batch 3	02-11-2020	01-11-2021	40	22%	2
Batch 4	02-11-2021	01-11-2022	48	28%	3

2.5 Resolution of Findings

As an outcome of the validation & verification process, the team can raise different types of findings:

A Clarification Request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met

Where a non-conformance arises the team leader shall raise a Corrective Action Request (CAR). A CAR is issued, where:

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

The validation process may be halted until this information has been made available to the team leader's satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

During the validation and verification process, total 08 CARs and 01 CL were raised and resolved satisfactorily. The list of CARs/CLs/FARs raised and the response provided, the mean of validation, reasons for their closure and references to correction in the relevant documents are provided in Appendix 2 of this report.

2.5.1 Forward Action Requests

No FAR has been raised during the validation and verification of the project activity

3 VALIDATION FINDINGS

3.1 Project Details

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

As per the project type defined by the UNFCCC and VCS standard version 4.2, the project activity falls under type-II (Energy Efficiency Improvement Project) and the list of the sectoral scope 3 – Energy demand.

The technology employed by grouped project activity involves distribution of ICSs in rural and/or peri-urban areas of Burundi. The technology used in the project generates less GHG emissions and uses lesser fuel compared to the baseline situation which uses non-renewable wood as fuel in an inefficient cookstove, hence considered as more environment friendly and efficient.

The project activity has applied methodology AMS-II.G Ver 10, aiming in emission reduction by disseminating ICSs in Rural areas of Burundi in replacement of traditional wood stoves.

As per para 2.1.1 of the VCS standard, V4.2, the project is eligible under the scope of VCS program as the methodology applied and the project aims in reduction of non-renewable biomass. The project is undergoing Gap Validation -Verification from CDM which is a VCS approved GHG program.

- **Project design, including eligibility criteria for grouped projects**

The project activity is a grouped project and the first instance of the grouped project disseminate improved cook stoves over time amongst households in Burundi. The first instance to be included in the grouped project corresponds to the CPA 1 of the CDM PoA 10474 “Improved Cooking Stove Programme in Burundi supported by Republic of Korea”, for its post-2020 accounting of Emission Reductions. According to the eligibility criteria of Group project mentioned in section 3.5.15 of VCS standard 4.2, at least one set of eligibility criteria for the inclusion of new project activity instances shall be provided for each combination of project activity and geographic area specified in the project description.

No	Criterion	PPs response on how the new project activity instances to comply to the criteria	Means of Validation

1	Meet the applicability conditions set out in the methodology applied to the project	New project activity instances will meet the applicability conditions set out in Section 3.2 where the target of the end-user is household and the ICS deployed is at least 20% of thermal efficiency.	The applicability conditions of applied methodology were assessed at the time of inclusion in CDM PoA and are therefore, not required to be assessed for this PAI at the time of Gap Validation. For future PAIs to be included, compliance with applicability conditions will be confirmed.
2	Use the technologies or measures specified in the project description.	Only improved cookstoves to be adopted in the project,	The adoption of improved cookstoves will be confirmed through sales receipt and manufacturer specifications. Assessment team confirms that ICSs have been distributed in the First instances of the Project Activity and verified from the Distribution database/12/. Hence, the criteria is met.
3	Apply the technologies or measures in the same manner as specified in the project description.	Only improved cookstoves to be adopted in the project and it will replace traditional cookstoves in household	The project technology and baseline technology will be recorded for each device in the project database. Assessment team confirms that ICSs have been distributed in the First instances of the Project Activity, replacing tradition three-stone cookstoves, as verified from the Distribution database/12/. Hence, the criteria is met
4	Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	The new project activity instances will be installed within Burundi only and subject to the same baseline scenario determined in Section 3.4.	The baseline scenario was assessed at the time of inclusion in CDM PoA and are therefore, not required to be assessed for this PAI at the time of Gap Validation. For future PAIs to be included, the baseline will be confirmed through distribution database, which provides data on address of the end-users (for confirmation of host country) and also the baseline device in use.
5	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project	All the new project activity instances that will be included in the grouped project will respect additionality criteria set out in section 3.5.	Additionality was assessed at the time of inclusion in CDM PoA and are therefore, not required to be assessed for this PAI at the time of Gap Validation. For future PAIs to be included, compliance with additionality criteria will be checked.

	activity and geographic area.		
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- **Project proponent and other entities involved in the project**

The Project activity is developed by OBEN, POWA, and AERA Group.

POWA is the Project Proponent. AERA Group and OBEN are the other entities involved in the project.

CAR#02 was raised and resolved.

- **Project start date**

The project start date is 02 November 2018 which is the date of the first ICS sales. This has been verified by the validation team from the Registered CPA-DD in CDM PoA 10474.

- **Project crediting period**

The project proponent has chosen the renewable crediting period of 7 years (renewable). The first crediting period is from 02 November 2018 to 01 November 2025. This has been verified by the validation team from the Registered CPA-DD in CDM PoA 10474

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

The average annual emission reduction is 506,373 tCO₂e. According to the section 3.9.1, if the emission reduction greater than 300,000 tCO₂e per year, then the project is considered as Large project. Hence, the scale of the project is Large Project.

- **Project location**

The project Activity is implemented in rural and/or peri-urban areas of the whole republic of Burundi (18 administrative provinces: geographic coordinates 3° 23' S, 29° 55' E). CL#01 was raised and resolved.

- **Conditions prior to project initiation**

The conditions prior to the start of the project is the same as the baseline scenario. The baseline scenario is the projected use of non-renewable wood fuel to meet similar thermal energy needs as those provided by the ICSs. Common systems used for cooking are the traditional open fire (3-stone) system and traditional stoves which are still dominant in most of the rural households with efficiency of just 10-15%.

The Project activity distributes higher efficiency biomass fired cook stoves. This will contribute to the reduction of non-renewable biomass consumption which would have been otherwise consumed by traditional three stone open firing, less efficient cook stoves

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

There are no laws and regulations governing the use of ICSs in Burundi. The project is a voluntary effort by OBEN, POWA and AERA. Burundi is an LDC and there is no law and regulations for supplying of ICSs. This has been validated by the VVB by doing independent research and also, this project was already registered under CDM.

- **Participation under other GHG programs**

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

The project is register as a CDM-CPA under PoA 10474. The validation team has confirmed that the details provided by the PP in the Joint MR-PD is correct from the link provided and also individual assessment. There is no overlap between the monitoring periods of the two programmes.

- **Rejection by other GHG programs**

The project activity is not rejected from any other GHG programs, and this has been confirmed through independent research and review of other registries.

- **Other forms of credit:**

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

Burundi is non-annex 1 country and for the project, there is no compliance with an emission trading program or to meet binding limits on GHG emissions. The project activity registered as a CPA under a CDM-PoA 10474 and emission reductions from the project won't be used for any compliance under any programs except CDM. There won't be any double accounting of emission reductions as the project activity under VCS shall not claim emission reductions for the same period that is covered under CDM.

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

The Project activity neither sought nor received another form of GHG-related environmental credits. A declaration was submitted by project developer in this regard.

- **Sustainable development contributions**

The Project activity focuses on four Sustainable Development Goals

- a. SDG 3: "Ensure Healthy lives and promote well-being for all at all ages", the project activity involves distribution of ICSs. Thereby increasing the percentage of people experiencing less smoke and reducing the number of deaths and illness from air pollution. 98% of the end-users surveyed for monitoring surveys of this monitoring period experienced less fumes when cooking with the ICS. This has been cross-checked from the monitoring survey data and confirmed VVB survey of selected individual households.
- b. SDG 7: "Ensure access to affordable, reliable, sustainable and modern energy for all", Affordable and modern sustainable energy is being made available to end-users by replacement of inefficient traditional stoves which tend to release more smoke than improved cookstoves being distributed through this project. This SDG is monitored by number of households equipped with ICS. Households equipped with ICS till now is 55,612. This has been verified by the VVB from the distribution database/12/.

202,856 Households will be equipped with ICS during the project lifetime.
- c. SDG 8: "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all", the SDG is monitored by number of decent work being created by the project activity. In the present monitoring period, there has been no new jobs created but the project is expected to create 30 jobs during its lifetime. This has been verified by VVB during the Interview with the PP and other entities. /11/

- d. SDG 13: “Take urgent action to combat climate change and its implications”, the SDG parameter is monitored by distributing 202,856 cookstoves and reducing 632,878 tCO₂e in this monitoring period. This was verified by the VVB from the Distribution database and ER sheet./12//02/
- **Additional information relevant to the project, including:**
 - **Leakage management for AFOLU projects**
Not applicable to the project activity
 - **Commercially sensitive information**
No commercially sensitive information has been excluded from the public version of the project description.

Conclusion: In view of the assessment of VCS joint PD & MR/01/ and supporting documents as listed in Appendix 1 of this report, the validation team was able to confirm that the description contained in the VCS joint PD & MR of the project activity provides the reader with a clear understanding of the precise nature of the grouped project activity and the technical aspects of its implementation. Consequently, Earthood confirms that the project description of the project contained in the joint VCS PD& MR/01/ to be complete and accurate. The VCS joint PD & MR complies with the relevant forms and guidance for completing the VCS joint PD & MR.

3.2 Participation under Other GHG Programs

The project has been already registered as a CPA-1 in Clean Development Mechanism (CDM) of UNFCCC, under Kyoto Protocol under the PoA 10474.

CPA Reference Number: 10474-P -0001-CP1

This has been checked and verified by the VVB from CDM website and the information is found relevant.

3.3 Safeguards

3.3.1 No Net Harm

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

3.3.2 Local Stakeholder Consultation

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

3.3.3 Environmental Impact

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

3.3.4 Public Comments

The project is already registered as a CDM project (CDM-PoA 10474). But since the project was shifted from CDM to VCS, the project was open for public comments after getting listed. It was open for comments for a span of one month starting from 01/04/2022 to 01/05/2022 and no comments were raised during the public comment period.

3.3.5 AFOLU-Specific Safeguards

This section is not applicable as the project is not a AFOLU project activity.

3.4 Application of Methodology

3.4.1 Title and Reference

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

3.4.2 Applicability

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

3.4.3 Project Boundary

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

3.4.4 Baseline Scenario

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

3.4.5 Additionality

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

3.4.6 Quantification of GHG Emission Reductions and Removals

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

3.4.7 Methodology Deviations

This section is applicable as there is a deviation from the monitoring plan was registered in line with the applied Methodology. A temporary deviation has been applied during this monitoring period, regarding the monitoring of the efficiency that should be monitored on an annual frequency. PP was not able to conduct efficiency test on an annual basis, because of some delays observed with the laboratory. Therefore, the required annual monitoring frequency was not found to be met.

To ensure that this deviation does not negatively impact the conservativeness of the quantification of GHG emission reductions, it was decided for this monitoring period to use the lowest efficiency of all the batches (30.71%) as the efficiency for all the batches. This results in a reduction of 6,336 tCO₂e

This has been assessed from the joint PD-MR and the calculation in the ER sheet/01/02/.

3.4.8 Monitoring Plan

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

3.5 Non-Permanence Risk Analysis

The project activity does not require a non-permanence risk analysis. Hence this is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

This section is not applicable as this is a Gap Validation-Verification and by referring to point 1 of Section 3.20.5 in VCS standard version 4.2. The project is already registered as a CDM project (CDM-PoA 10474).

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

The calculation of the emission reductions is found to be correct. The details of the reported and the verified values for all parameters are listed in section 4.3 of this report.

S.No.	Parameter	Monitoring frequency	Means of assessment
1.	Ny.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 will be sourced from monitoring surveys/13/. The value of the data used for ex-ante estimation is 218,525. During the monitoring period, Batch 1 has distributed 42,495, Batch 2 has distributed 88,443 cookstoves, Batch 3 distributed 56,676 and Batch 4 distributed 10,873 cookstoves giving a total of 198,487 Cookstoves. This was confirmed from the project monitored database/13/. The operation of the devices was checked by randomly picking 11 samples from monitored database. The responses provided by end-users were found to be consistent with survey response recorded by PP's monitoring team in survey forms/13/. The proportion of operational stoves in total population are identified by 'pop_stoves,y'.
2.	Date of commissioning of batch j	Fixed and recorded at the time of commissioning/distribution of the latest project device in the batch	As per the PD & MR, to establish the date of commissioning, the devices will be grouped in "batches" and the latest date of commissioning of a device within the batch shall be used as the date of commissioning for the entire batch. The same was found applicable for this monitoring period, as confirmed from sales receipts/14/ and project database/12/.
3.	Date of commissioning of project stove i	Recorded during distribution of each device.	The parameter represents actual date of distribution of the project device and is recorded at the time of commissioning. The same was found applicable for this monitoring period, as confirmed from sales receipts/14/.

4.	$\eta_{new,l,j}$	Annually	The parameter represents the efficiency of the device of each type l and batch j. the efficiency of the distributed cookstove will be monitored each year. The value of the parameter for Batch-1 is 30.71%, Batch-2 is 31.48%, Batch-3 is 31.61% and Batch-4 is 31.59%. The results of water boiling tests conducted by independent accredited third party were checked from the test reports/15/ and were found consistent with data reported by PP. However, since the monitoring of the parameter was done biennially instead of the annual monitoring requirement under monitoring plan, the lowest efficiency of all the batches have been taken (30.71%) to maintain conservativeness and to avoid overestimation of ERs. The approach was accepted as a conservative approach, especially considering that the sample size for this parameter was also determined on the basis of 95/10 sampling, which is over and above the requirement of 90/10 sampling.
5.	NCVbiomass	Yearly	The parameter represents the net calorific value of the non-renewable woody biomass briquettes or charcoal used in project devices. The value of the parameter is 0.0156 which has been sourced from IPCC guidelines/16/ and is the same as the registered CDM CPA DD.
6.	μ_y	Atleast 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. The value used for Batch-1 is 94.67%, Batch-2 is 97.79%, Batch-3 is 99.21% and Batch-4 is 99.64%. The monitoring survey database used for determining this parameter is cross-checked against monitoring survey sheets/13/ filled during the survey and found to be consistently reported. The data was further reviewed

			through VVB's survey of 11 end-users (through acceptance sampling) and no discrepancy was identified during the assessment. The required monitoring frequency for this parameter is met.
7.	N	Recorded at the time of commissioning/distribution of project devices	This parameter represents the number of project devices distributed. The value of the parameter is 202,856. This is confirmed from the distribution database/12/ provided by the PP.
8.	Nd,HH	Recorded at the time of commissioning/distribution of project devices	This parameter represents the number of project devices distributed per household. The value of the parameter is 1 and is verified from the distribution records. The data was further reviewed through VVB's survey of 11 end-users (through acceptance sampling) and no discrepancy was identified during the assessment. All end-users were found to have no more than one project cookstove installed in their households.

The PP has provided the complete set of data for all the monitored parameters in the ER spreadsheet/02/. This data has been verified as described in section 4.3 below. The formulae & method used to calculate the baseline emissions, project emissions and leakage are appropriate and in line with the approved methodology AMS-II.G version 10.0/03/:

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

Where:

- i = Indices for the situation where more than one type of project device is introduced to replace the pre-project devices
- j = Indices for the situation where there is more than one batch of project device
- ER_y = Emission reductions during year y in t CO₂e
- $ER_{y,i,j}$ = Emission reductions by project device of type I and batch j during year y in t CO₂e
- LE_y = Leakage emissions in the year y

$$I = B_{y,savings,i,j} \times N_{y,i,j} \times n_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil\ fuel}$$

Where:

- $B_{y,savings,i,j}$ Quantity of woody biomass that is saved in tonnes per cook stove If type I and batch j during year y
- $f_{NRB,y}$ Fraction of woody biomass saved by the project activity in year y (established as non-renewable biomass using survey methods)
- $NCV_{biomass}$ Net calorific value of the non-renewable woody biomass that is substituted (IPCC

	default for wood fuel, 0.015 TJ/tonne, based on the gross weight of the wood that is 'air-dried')
Efprojected_fossilfuel	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 63.7 tCO ₂ /TJ
N _{y,j}	Number of project devices of type I and batch j commissioned.
M _y	Adjustment to account for any continued use of pre-project devices during the year y applying equation 6

$$B_{yIsavings,I,I} = B_{old,I,j} \times \left(1 - \frac{\eta_{old,I,j}}{\eta_{new,I,j}}\right)$$

Where:

$\eta_{old,I,j}$	Efficiency of the old devices being replaced by project devices of type I and batch j.
$\eta_{new,I,j}$	Efficiency of the Project device I in batch j

Bold,I,j is determined as follows:

$$B_{old,I,j} = B_{old,HH} \div N_{d,HH}$$

Where:

B _{old,HH}	=	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 (tonnes/household/year)
N _{d,HH}	=	Number of project devices per household (number)

Bold,I,j is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

All the formulas taken from the methodology are correctly applied and is consistent with the one applied in the Registered CDM CPA-DD. All parameters used in the calculations and formulas above with their description and values are tabulated below:

Parameters	Values			Mean of verification
N _{y,I,j}	Year	2021	2022	The parameter represents number of project devices of type I and batch j operating during year y. The data has been sourced from monitoring surveys /13/. The value of the data used for ex-ante estimation in Registered CDM CPA-DD is 218,525.
	Batch 1	42,495	42,495	
	Batch 2	88,443	88,443	
	Batch 3	56,676	56,676	
	Batch 4	10,873	10,873	
pop_stoves_yj	Year	2021	2022	The parameter represents proportion of cooking stoves found to be operating in a
	Batch 1	96.77%	96.77%	

	<table> <tr> <td>Batch 2</td><td>98.33%</td><td>98.33%</td></tr> <tr> <td>Batch 3</td><td>97.50%</td><td>97.50%</td></tr> <tr> <td>Batch 4</td><td>100%</td><td>100%</td></tr> </table>	Batch 2	98.33%	98.33%	Batch 3	97.50%	97.50%	Batch 4	100%	100%	representative sample of each batch. The parameter is used to calculate the number of project devices of type I and batch operating during year y. The data has been sourced from monitoring surveys /13/.						
Batch 2	98.33%	98.33%															
Batch 3	97.50%	97.50%															
Batch 4	100%	100%															
μ, y	<table> <tr> <td>Year</td><td>2021</td><td>2022</td></tr> <tr> <td>Batch 1</td><td>94.67%</td><td>94.67%</td></tr> <tr> <td>Batch 2</td><td>97.79%</td><td>97.79%</td></tr> <tr> <td>Batch 3</td><td>99.21%</td><td>99.21%</td></tr> <tr> <td>Batch 4</td><td>99.64%</td><td>99.64%</td></tr> </table>	Year	2021	2022	Batch 1	94.67%	94.67%	Batch 2	97.79%	97.79%	Batch 3	99.21%	99.21%	Batch 4	99.64%	99.64%	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. The values have been taken from the manufacturer's specification
Year	2021	2022															
Batch 1	94.67%	94.67%															
Batch 2	97.79%	97.79%															
Batch 3	99.21%	99.21%															
Batch 4	99.64%	99.64%															
fNRB,y	0.8183	This parameter represents the fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass. The value is taken from the tool 30/17/ and is checked by the verification team that the value is consistent with the Registered CDM-CPA-DD.															
NCVbiomass	0.0156 TJ/tonnes	The parameter represents the net calorific value of the non-renewable woody biomass briquettes or charcoal used in project devices. The value of the parameter is 0.0156 which has been sourced from IPCC guidelines/16/ and is the same as the registered CDM CPA DD.															
EFprojected_fossilfuel	63.7 tCO ₂ /TJ	This parameter represents emission factor for the fossil fuel projected to be used for substitution of non-renewable woody biomass by similar consumers. The value is taken from the methodology/03/ and is verified by the verification team.															
By,savings,I,j	3.39 tonnes/year	This parameter represents Quantity of woody biomass that is saved in tonnes per cook stove of type I and batch j during year y. This is a calculated value and is confirmed by the VVB that the value is right.															

Bold,I,j	5.03 tonnes/year	This Parameter is Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type I and batch j. The value is verified from the Registered CDM CPA-DD/06/ and is found correct.															
Bold,HH	5.03 tonnes/HH/year	This parameter is 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. The value is verified from the registered CDM CPA-DD/06/ and is found correct.															
Nd,HH	1.0 person/HH	This parameter represents the number of project devices distributed per household. The value of the parameter is 1 and is verified from the registered CDM CPA-DD/06/, distribution records/12/ and also during the site visit of the verification team.															
nold,I,j	10%	This parameter represents the efficiency of pre-project devices and the value is verified by VVB and is same as the CDM CPA-DD/06/.															
nnew,I,j	<table border="1"> <thead> <tr> <th>Year</th><th>2021</th><th>2022</th></tr> </thead> <tbody> <tr> <td>Batch 1</td><td>30.71%</td><td>30.71%</td></tr> <tr> <td>Batch 2</td><td>30.71%</td><td>30.71%</td></tr> <tr> <td>Batch 3</td><td>30.71%</td><td>30.71%</td></tr> <tr> <td>Batch 4</td><td>30.71%</td><td>30.71%</td></tr> </tbody> </table>	Year	2021	2022	Batch 1	30.71%	30.71%	Batch 2	30.71%	30.71%	Batch 3	30.71%	30.71%	Batch 4	30.71%	30.71%	The Parameter is the efficiency of the device of each type I and batch j implemented as part of the project activity. The efficiency of the distributed cookstove will be monitored each year. The Actual value of the parameter for Batch-1 is 30.71%, Batch-2 is 31.48%, Batch-3 is 31.61% and Batch-4 is 31.59% in accordance with the WBT test reports/15/which were conducted for sample project stoves. However, since the
Year	2021	2022															
Batch 1	30.71%	30.71%															
Batch 2	30.71%	30.71%															
Batch 3	30.71%	30.71%															
Batch 4	30.71%	30.71%															

				monitoring of the parameter was done biennially instead of the annual monitoring, the lowest efficiency of all the batches have been taken (30.71%) to maintain conservativeness and to avoid overestimation of ERs.
Baseline Emissions	Year	2021	2022	This parameter is calculated in the ER sheet /02/and VVB found it correct with applied formula that has been verified from the applied methodology/03/.
	Batch 1	105,396	25,988	
	Batch 2	226,601	55,874	
	Batch 3	147,311	36,323	
	Batch 4	28,386	6,999	
Project emissions (PEy)	0 tCO ₂ /year			There is no project emission and hence this is not applicable.
Leakage emissions (LEy)	0 tCO ₂ /year			This parameter represents the leakage emission in the project activity. The value is taken zero as the adjustment factor of 0.95 is applied at B y.saving.i.j level and is found correct by the VVB.
Emission Reduction	Year	2021	2022	This parameter represents the emission reduction in the project activity. The value is found correct, checked by the Verification team and is inline with the applied methodology/03/.
	Batch 1	105,396	25,988	
	Batch 2	226,601	55,874	
	Batch 3	147,311	36,323	
	Batch 4	28,386	6,999	
	Total	507,694	125,184	

As per CER excel spreadsheet/02/ submitted by the PP, the net emission reductions for the current monitoring period were verified as 632,878 tCO₂e. The assessment team was able to confirm that the GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology. CAR#02, CAR#05, CAR#06, CAR#07 and CAR#08 was raised and resolved.

The sampling plan for monitoring will be followed in line with the originally validated sampling plan in the registered CDM CPA-DD. The sampling plan applied for this verification was reviewed by the assessment team and was found to be followed accordingly. Wherever a deviation from monitoring plan was observed, conservative approach has been applied and reviewed by the assessment team, as discussed in detail for each parameter above.

4.3 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 remote 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

5 VALIDATION AND VERIFICATION CONCLUSION

Earthood, contracted by ECOEYE, has performed the independent joint validation & verification of the project activity “Improved Cooking Stove Programme in Burundi”. 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 AMS-II.G version 10.0.and draft VCS-PD & MR and ERs estimates spreadsheet.

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 Earthood considered necessary to give reasonable assurance that the estimated GHG emission reductions are fairly to be achieved.

VVB confirms that:

- the project activity is in accordance with all relevant host country criteria and VCS rules and requirements;
- the project activity is in accordance with all conditions of the latest version of applied methodology;
- the local stakeholders’ consultation has been performed in accordance with host country and VCS requirements;
- the environmental assessment is appropriate and sufficient;

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

Quantity of GHG emission reductions or removals in tCO₂e equivalents achieved by the project during the verification period is as follows

Verification period: From [01st –January-2021] to [31st-March-2022]

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)
01/01/2021-31/12/2021	507,694	0	0	507,694
01/01/2022-31/03/2022	125,184	0	0	125,184
Total	632,878	0	0	632,878



Approved by

Dr. Kaviraj Singh
Managing Director

Earthood Services Privated Limited

Date: 10/12/2022

Place: Gurugram, Haryana

APPENDIX 1: DOCUMENT REFERENCE

Ref. No	Title of Document		Version	Date
1	Joint Project Description & Monitoring Report		1	20/12/2021
			1.1	17/02/2022
			1.2	12/05/2022
			1.3	08/06/2022
			1.4	29/06/2022
			1.5	06/07/2022
			1.6	19/07/2022
			1.7	05/09/2022
			1.8	29/11/2022
2	Emission Reductions Calculation Spread sheet	EX-ANTE	-	
		EX-POST	-	08/06/2022
3	AMS-II.G : Energy efficiency measures in thermal applications of non-renewable biomass		10	-
4	VCS Standard		4.2	20/01/2022
5	VCS pipeline https://registry.verra.org/app/projectDetail/VCS/2828		-	-
6	Registered CDM -CPA-DD of PoA 10474		1.3	08/08/2019
7	CDM-VVS for PAs		03	
8	Sampling and surveys for CDM project activities and programmes of activities		09	27/05/2021
9	Signed Contracts between Project proponents		-	-
10	VCS Program Guide		Version 04	19/09/2019
11	Video con-call held with the site personnel and consultant Photographs of the ICSs with the end users		-	
12	Distribution Database		-	-
13	Monitoring survey filled forms		-	-
14	Sales receipts		-	-
15	WBT test by Centre de Recherche Universitaire sur les Energies Alternatives (CRUEA)" (University of Burundi)		-	-
16	2006 IPCC Guidelines for National Greenhouse Gas Inventories		-	-
17	Tool 30: Calculation of the fraction of non-renewable biomass		Version 03	-
18	(Ecoeye-Aera) 5th ADDENDUM to the ICS Dissemination GHG mitigation CDM Project in Burundi - Redacted		-	21/10/2022

APPENDIX 2: ABBREVIATIONS

ACM	Approved Consolidated Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
EB	Executive Board
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse Gases
ICS	Improved Cookstoves
ISO	International Organization for Standardization
MP	Monitoring Period
MR	Monitoring Report
MW	Mega Watt
MWh	MegaWatt hour
O&M	Operation & Maintenance
OBEN	OBSERVATOIRE DE L'ENVIRONNEMENT ET DE LA NATURE
PD	Project Description
PoA	Programme of Activities
PoA-DD	Programme of Activities Design Document
PP	Project proponent
QA/QC	Quality Assurance/Quality Control
tCO ₂	Tonnes of Carbon Dioxide
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
VVS	CDM validation and verification standard for programme of activities

APPENDIX 3: COMPETENCY STATEMENT

Competence Statement			
Name	Shifali Guleria		
Education	M.Sc. (Environmental Studies and Resource Management), TERI University		
Experience	3+ year		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (AMS-I.A., AMS-II.G.,AMS-II.E., AMS-III.A.V., AMS-I.D, ACM0002)		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (1.2, 3.1)		
Reviewed by	Deepika Mahala	Date	16/02/2022
Approved by	Ashok Gautam	Date	18/02/2022

Competence Statement	
Name	Vishnu S Panicker
Education	M.Sc (Sustainable Development and Environment Management) B.Sc (Forestry)
Experience	-
Field	Forestry and environment
Approved Roles	

Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	NO		
Trainee	YES		
Reviewed by	Deepika Mahala (Quality Manager)	Date	08/09/2021
Approved by	Ashok Kumar Gautam (Technical Manager)	Date	17/09/2021

Competence Statement	
Name	Stanislas Niyonzima
Education	DESS (Professional master) Planning and management of agricultural projects Bachelor's Degree (Rural economics) Design and management of rural development projects
Experience	32+ years
Field	Climate Change & Environment
Approved Roles	
Team Leader	NO
Validator	NO
Verifier	NO
Methodology Expert	NO
Local expert	YES (Burundi)
Financial Expert	NO

Technical Reviewer	NO		
TA Expert (X.X)	NO		
Reviewed by	Shifali Guleria (Quality Manager)	Date	25/05/2022
Approved by	Deepika Mahala (Technical Manager)	Date	25/05/2022

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 4: FINDINGS OVERVIEW

CAR: Corrective Action Request

CL: Clarification Request

FAR: Forward Action Request

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

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

Table 2. CL from this verification

CL ID	01	Section no.		Date : 19/04/2022
Description of CL				
For the section 1.12 Project location, the reference given in the footnote is not accessible. https://www.usaid.gov/documents/1866/2008-burundi-population-census-status-and-structure-population PP is requested to give an accessible link for the reference.				
Project participant response				Date : 12/05/2022
The link have been updates				
Documentation provided by project participant				
Revised VCS joint PD+MR				
DOE assessment				Date: 03/06/2022
PP has updated the link for reference in the footnote of the Section 1.12 Project location and the link is accessible. From the table 5 in page 7 of Central Census Bureau, the value of 89.9% is confirmed. Hence the CL is closed.				

Table 3. CAR from this verification

CAR ID	01	Section no.		Date : 19/04/2022
Description of CAR				
1. The Joint PD-MR given by the PP is an older version of the template. PP is requested to update the document in a new version of Joint PD-MR. 2. Throughout the given Joint PD-MR, the version of the VCS Standard mentioned is version 4.1. PP is requested to check and update the number of version of the VCS standard to version 4.2 (updated on 20/01/2022).				
Project participant response				Date : 12/05/2022
1. The version of the Joint PD+MR have been updated to the latest version 2. <i>Version of the VCS Standard have now been updated to V4.2</i>				
Documentation provided by project participant				
Revised VCS PD+MR				
DOE assessment				Date: 03/06/2022
1. The validation confirmed that the Joint PD-MR is in the latest version of the template. 2. PP has corrected the version of VCS standard throughout the Joint PD-MR to the latest version. i.e., VCS Standard 4.2. All the sections in the Joint PD-MR is filled and is inline with the latest standard following the conditions required for Gap validation. The required sections for the Gap Validation is filled according to the requirement.				
Since both the comments has been addressed, CAR#01 is closed.				

CAR ID	02	Section no.		Date : 19/04/2022
Description of CAR				
A. <i>Version of the methodology applied in the ER sheet "Copie de OBEN AERA ECOEYE Burundi VCS" is inconsistent with the Version of the methodology applied throughout the Joint PD-MR. PP shall clarify the version number of applied methodology.</i> B. <i>PP is requested to check the inconsistency of the following::</i> 1. <i>N_{y,i,j} (Number of project devices of type i and batch j operating during year y)</i> 2. <i>N (Number of project devices distributed)</i> 3. <i>Baseline emissions</i> 4. <i>Total emission reductions</i> <i>The values mentioned in the joint PD-MR are inconsistent with the values mentioned in the ER sheet "220429- ER Ex-post Calc - OBEN CDMCPA1 - MR4" for above mentioned list.</i> C. <i>EF_{projected_fossilfuel} (Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers) under section 6.2 Baseline Emissions in PDD states the value 63.70tCO₂/TJ. However, in the applied methodology and in the ER sheet, the value of EF_{projected_fossilfuel} is 73.2tCO₂/TJ. PP is requested to clarify the source of value applied and address the inconsistencies.</i>				
Project participant response				Date : 12/05/2022

A. Version of the methodology in the ER sheer have been corrected. Methodology applied is AMS-I.E Version 12.0 B. Inconsistencies have been corrected C. The correct value of <i>EFprojected_fossilfuel</i> is 73,2 tCO₂e/TJ as per approved methodology of AMS-I.E V12.0	
Documentation provided by project participant	
Revised VCS Joint PD+MR	
DOE assessment	Date: 03/06/2022
A. This Project is undergoing Gap validation. The project is being registered under VCS without any changes from the registered CDM documents. The methodology AMS-II.G version 10 has been applied in the Registered CDM document, whereas the version of methodology has been updated to version 12 in the VCS Joint PD-MR. In case the PP wishes to voluntarily update the methodology, this will classify as a deviation and will have to be reported accordingly. Please check the inconsistency in the version number of methodology. i.e., version 12 to version 10 of AMS-II.G and clarify the reason for methodology update. The comment A is open. B. The inconsistencies have been addressed. The values in the ER sheet and the joint PD-MR is found to be consistent. Thus, the comment B is closed. C. In Version 10 of the methodology AMS-II.G, the value of <i>EFprojected_fossilfuel</i> is 63.70 tCO₂/TJ. Since this is a Gap validation, the version of the methodology will be the same (unless PP applies for a deviation) and therefore, it's not clear why the value applied for this parameter is different from the CDM version. Comment C is open	
Since out of the three comments, two are still open so the CAR#02 is open.	
Project participant response	Date : 08/06/2022
A. The PP has taken in account clarifications from DOE. The methodology version has been updated to 10.0 (version during registration) C.The value of <i>EFprojected_fossilfuel</i> have been corrected in the MR and ER calculation sheet according to version applicable v10.0. No deviations is done.	
Documentation provided by project participant	
Revised Joint PD+MR	
Revised ER calculation sheet.	
DOE assessment	Date: 14/06/2022
Validation team assessed the Revised documents and found that both the comments have been addressed. A. The version of methodology have been corrected to Version 10. i.e., the one in the registered CDM CPA-DD. B. The value of <i>EFprojected_fossilfuel</i> has been corrected in both the MR and ER calculation sheet.	
Hence, the CAR#02 is closed.	

CAR ID	03	Section no.	3.1	Date : 19/04/2022
Description of CAR				

The validation team couldn't confirm the organization "POWA S A" as project implementer in any of the given documents provided (Sales agreement,etc). It has been mentioned in the section 6.1 of the Joint PD-MR that POWA S A is also included as project implementer from September 2021. PP is requested to clarify or give a proof of the company's involvement as project implementer.	
Project participant response	Date : 12/05/2022
<i>POWA is involved in the project as also cookstoves distributors. ERPA between AERA and POWA is submitted for assessment</i>	
Documentation provided by project participant	
<i>ERPA between AERA and POWA</i>	
DOE assessment	Date: 03/06/2022
Validation team found that PP has provided the document to prove that POWA S A is a project implementer and will be manufacturer and distributor of ICS from September 2021. Hence the CAR#03 is closed.	

CAR ID	04	Section no.	1.4	Date : 19/04/2022
Description of CAR				
PP is requested to clarify the end date of the monitoring period mentioned in the Joint PD-MR. In the 'CER calculation' and 'DATABASE' tabs of ER sheet "220429- ER Ex-post Calc - OBEN CDMCPA1 - MR4", the end date of the MP is specified as 31 March 2022. PP is requested to address the inconsistency of the end date between the ER sheet and Joint PD-MR.				
Project participant response				Date : 12/05/2022
<i>The end date of the monitoring period is 31/03/2022. Inconsistencies have been addressed.</i>				
Documentation provided by project participant				
<i>Revised VCS Joint PD+MR</i>				
<i>Revised ER sheet</i>				
DOE assessment				Date: 03/06/2022
PP has addressed the inconsistency. The end date of MP is 31 March 2022 and is now consistent in both Joint PD-MR and ER sheet "220512- ER Ex-post Calc – OBEN CDMCPA1 – MR4". Hence the CAR#04 is now closed.				

CAR ID	05	Section no.	4.2	Date : 05/05/2022
Description of CAR				

According to the equation(7) of para 32 in AMS-II.G ver12.0, $By,savings,i,j = Bold,i,j * (1 - \eta_{old,i,j}/\eta_{new,i,j})$ But in Cell G11 of 'ramp-up' sheet in the ER sheet " 220429- ER Ex-post Calc - OBEN CDMCPA1 - MR4" the equation given is $By,savings,i,j = Bold,i,j * (1 - \eta_{old,i,j}/\eta_{new,i,j}) * Leakageadj$ Kindly justify why the equation has been modified.	
Project participant response	Date : 12/05/2022
<i>The equation have been corrected in the ER sheet with $By,savings,i,j = Bold,i,j * (1 - \eta_{old,i,j}/\eta_{new,i,j})$</i>	
Documentation provided by project participant	
<i>Revised ER calculation sheet</i>	
DOE assessment	Date: 03/06/2022
The validation team has found that the equation has been corrected in the ER sheet "220512- ER Ex-post Calc – OBEN CDMCPA1 – MR4" but in the ER sheet "PoA10474-0001_ER Ex-ante Calc-OBEN-CDM-CPA1", the equation is still incorrect. Hence the CAR#05 is open	
Project participant response	Date :08/06/2022
The equation is also corrected in the ER sheet "PoA10474-0001_ER Ex-ante Calc-OBEN-CDM-CPA1".	
Documentation provided by project participant	
Revised Ex-ante calculation sheet "PoA10474-0001_ER Ex-ante Calc-OBEN-CDM-CPA1"	
DOE assessment	
Validation team found that the equation has been corrected in both the ER sheets. And hence the comment have been addressed The CAR#05 is closed.	

CAR ID	06	Section no.	4.2	Date : 05/05/2022
Description of CAR				
<i>In the section 1.17 'Additional information relevant to the project' under Leakage management, PP has mentioned "According to the para 34 of the methodology, the default net to gross adjustment factor of 0.95 has been applied to account for leakage and therefore no surveys or no separate leakage management are required. "PP is requested to check the paragraph number. The leakage is mentioned in the Para 41 of the AMS.II.G-ver.12.</i>				
Project participant response				Date : 12/05/2022

<i>The number of the paragraph have been revised accordingly to the methodology</i>	
Documentation provided by project participant	
<i>Revised VCS Joint PD+MR</i>	
DOE assessment	Date: 03/06/2022
Validation team found that paragraph number has been correctly mentioned in the revised Joint PD-MR. Hence, the CAR#06 is closed.	

CAR ID	07	Section no.	4.2	Date : 05/05/2022
Description of CAR				
From the information provided in the PDD, the actual applied frequency of monitoring is not clear. Kindly clarify if monitoring was done following annual or biennial frequency. If annual frequency was followed, please clarify how required frequency was met for this monitoring period, which is longer than 1 year. According to applied methodology and as per monitoring plan under CDM PoA, both annual and biennial monitoring are permitted, however, <i>"Sampling standard shall be used for determining the sample size to achieve 90/10 confidence precision (or 95/10 confidence precision) for the sample size calculation (if conducted biennially)."</i> PP shall clarify the sampling plan and monitoring frequency followed.				
Project participant response				Date : 12/05/2022
<i>Biennial frequency have been applied for this monitoring period. Sample size have been calculated to achieve 95/10 precision level</i>				
Documentation provided by project participant				
<i>Revised VCS-PD</i>				
DOE assessment				Date: 03/06/2022
Validation team confirms the sample size has been calculated with 95/10 confidence precision from the tab Sample size calculation of ER sheet "220512- ER Ex-post Calc – OBEN CDMCPA1 – MR4", However the monitoring frequency couldn't be confirmed from the Joint PD-MR. Please confirm that the monitoring frequency is biennial. Since the finding is not fully addressed, CAR#07 is open.				
Project participant response				Date : 08/06/2022
<i>The Joint PD+MR have been revised. Monitoring frequency is now added in section 6.1 and 6.2 of the revised Joint PD+MR</i>				
Documentation provided by project participant				
<i>Revised Joint PD+MR</i>				
DOE assessment				Date: 14/06/2022

Validation team has found that monitoring frequency has also been added in the Section 6.1 and section 6.2 of the revised Joint PD+MR.

Hence the CAR#07 is closed.

CAR ID	08	Section no.	4.2	Date : 14/06/2022
Description of CAR				
In the 'Efficiency' tab of ER Sheet "220608- ER Ex-post Calc – OBEN CDMCPA1 – MR4", - The average efficiency of all the four batches is found to be inaccurately calculated. For example: for Batch 1, the average efficiency should have been taken by considering the average value of Cell B2 to B6, but the average value of cell B3 to B7 is taken which is wrong. The same error is observed for all 4 batches. PP is requested to clarify. - The standard deviation should also be checked for all the four batches, considering the comment above. For example: for batch 1, standard deviation should be taken by considering the average value of Cell C2 to E6, but the average value of cell C3 to E7 is taken which is wrong. The same mistake is done for all 4 batches. PP is requested to address the inconsistency.				
Project participant response				Date : 20/06/2022
- The average efficiency for all batches has been corrected, regarding the CAR raised. - The standard deviation is also finally revised and found correct and in line with applicable cells.				
Documentation provided by project participant				
NA				
DOE assessment				Date: 24/06/2022
VVB has checked the correction made in the ER sheet. VVB found that the values have been corrected and is found consistent. However, it has been mentioned by Project developer that required frequency for the parameter has not been met, i.e., biennial frequency of monitoring has been achieved instead of annual which is requirement as per monitoring plan. Since a deviation from monitoring plan is observed, Project Developer shall clarify how this will be reflected in the project documentation and how is it ensured that the approach applied will be conservative and not result in overestimation of emission reductions. Open				
Project participant response				Date : 19/07/2022
The temporary deviation is now clearly reflected in the PD (included in section 3.6 of the Joint PD+MR). To ensure conservativeness of the calculation, and avoid overestimation of emissions reductions, it was decided to use the lowest efficiency (30.71%) as efficiency for all the batches of this monitoring period.				
Documentation provided by project participant				
Revised Joint PD+MR				
Revised ER sheet				
DOE assessment				Date: 21/07/2022

VVB has checked the revision and temporary deviation has been applied for not meeting the required frequency for the parameter. i.e., biennial frequency of monitoring has been achieved instead of annual which is requirement as per monitoring plan. To maintain conservativeness and to avoid overestimation of ERs, the lowest efficiency obtained for any batch has been applied to all batches. Additionally, it is also noted that the sampling has been conducted considering 95/10 confidence precision since annual monitoring frequency couldn't be achieved. The approaches have been accepted on the basis of conservativeness for this monitoring period as a temporary deviation i.e., for the duration 01-January-2021 to 31-March-2022.

The total ERs have also been revised and checked by the assessment. The calculations are found to be accurate and in line with the approach applied.

Hence this CAR#08 has been closed.

Table 4. FAR from this verification

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