VERIFICATION REPORT "IMPROVED COOK STOVE MARKET DEVELOPMENT IN RURAL NEPAL"

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Summary:

VKU Certification Pvt. Ltd.(hereafter referred to as VKU) appointed by Value Network Venture Advisory Services Pte. Ltd., has verified the greenhouse gas emission reductions reported for the project activity "Improved cook stove market development in rural Nepal (VCS 2357)" in Nepal, covering monitoring period from 01 Nov 2020 to 31Oct 2021 with regard to the relevant requirements for VCS activities.

The objective of the verification is to have an independent review ex-post determination of the monitored reductions in GHG emission. Verification was conducted using VKU's procedures in line with the requirements specified in the VCS program guide version 4.2, VCS standard Version 4.3, VCS validation and verification manual version 3.2, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques. The verification consisted of desk review, on-site assessment and the resolution of outstanding issues and the issuance of the final verification report and certification.

The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS/CDM requirements in order to be certified.

The GHG emission reductions were calculated on the basis of the approved methodology AMS-II.G version 11.1 'Energy efficiency measures in thermal applications of non-renewable biomass' (version 11.1) and the monitoring plan included in the joint project description & MR, version 4.1of 23 Sep 2021.

During this verification, 9Corrective Action Request (CAR), 5 Clarification Requests (CLs) and 2 FARs were identified related to operation, monitoring and GHG emission reduction calculation of the VCS project activity in relation to all relevant VCS requirements for the project activity and the applied baseline and monitoring methodology, and these CARs and CLs are successfully closed after necessary corrections/clarifications by the client. The same has been discussed in Appendix B of this verification report.

In conclusion, it is VKU's opinion that the project activity "Improved cook stove market development in rural Nepal" in Nepal, VCS project ID 2357, meets all relevant requirements for VCS standard and guidelines and correctly applies the baseline and monitoring methodology AMS-II.G 'Energy efficiency measures in thermal applications of non-renewable biomass' version 11.1. The monitoring system is in place and the emission reductions are calculated without material misstatement. Hence, VKUis able to certify that the emission reductions from the project during the monitoring period from 01 Nov 2020 to 31 Oct 2021 amount to 28,413 tCO_2e.

1 INTRODUCTION

1.1 Objective

Value Network Venture Advisory Services Pte. Ltd (VNV) has appointed VKU Certification to carry out verification of the project “Improved cook stove market development in rural Nepal (VCS 2357)” project in Nepal for the period from 01 Nov 2020 to 31 Oct 2021.

This report summarizes the findings of the verification of the project, performed on the basis of VCS Requirements and UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The objective of the verification is to have an independent evaluation of a project activity by an accredited validation and verification body against the requirements of the VCS Version 4.2, VCS standard version 4.3 and GHG program applied, on the basis of the registered project design document.

The verification is for the period from 01 Nov 2020 to 31 Oct 2021. The objectives of this verification exercise are, by review of objective evidence, to establish that:

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

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

1.2 Scope and Criteria

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence.

The project is assessed against the requirements of VCS standard version 4.3, VCS program guide version 4.2, validation and verification manual version 3.2 and related rules and guidance. VKU has, based on the recommendations in the latest version of CDM Validation and Verification Standard, VCS validation and verification manual and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

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

1.3 Level of Assurance

All the revisions of the verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent VKU's procedure, with a **reasonable level of assurance**.

The technical review was performed by technical reviewer(s) qualified in accordance with VKU's qualification procedure. Theverification team and the technical reviewers consist of the following personnel:

Role/Qualification	Last Name	First Name
VCS Team Leader, VCS Verifier & Technical Expert TA 3.1	Srivastava	Abhishek Kumar
Technical Reviewer & Technical Expert TA 3.1	Kumar	Sanjay

1.4 Summary Description of the Project

The project has implemented 15,292 improved cook stoves in Baglung, Argakhanchi,Bara, Chitwan,Gulmi, Kaski, Makwanpur, Myagdi, Parbat,Tanahu and Syangja of Nepal replacing conventional cooking stoves. The baseline stoves are conventional system with no improved combustion air supply or flue gas ventilation system as verified from off-site review and interview. The project stoves are having better efficiency compared to baseline cooking system and therefore results in saving firewood compared to baseline scenario. Each project ICS included in the project activity with an end user agreement executed between end user and project developer (Practical Action) /**9**/.The project developer (Practical Action) and VNV has agreement for communication to VCS and VNV is acting as entity responsible for communication with VERRA. Thereby, the ownership rights of carbon credit is signed between end user and project developer /**9**/,/**11**/.

The project has disseminated HPNJE-01ND and Greenway Jumbo ICS to the disadvantagedcommunities in the project districtwith efficiency of 30.29% and 29.79% respectively as certified from Renewable Energy Test Station (RETS), Nepal/**10**/.The project ICSs are single pot metallic rocket stoves with natural draft. The “Greenway Jumbo Stoves” manufactured by Greenway Grameen Infra Pvt. Ltd. of India with supply, distribution andafter sales services is being provided by Smart Power Pvt. Ltd., Nepal.The project technology was witnessed by the audit team during on-site audit and confirms to be correct. Each ICS has a technical life of at least 7years as confirmed from stove manufacturer/**12**/.

As per registered project design document and baseline study and justification, it is noted a project has 3.80 tons/year/HH of firewood consumed in a baseline and a project ICS “HPNJE-01ND can save 2.55 ton/year of firewood whereas “Greenway Jumbo” can save 2.52 tonne/year of firewood as calculated using approved methodology AMS-II.G, version 11.1 /**17**/ /**19**/. Therefore, 15,292 ICSs results in reduction of 31,983 tCO_2e emission reductions per year /**17**/ /**19**/.

The project’s initial crediting period is from 01 Nov 2018 to 31 Oct 2028. Emission reductions from 01 Nov 2018to 31 Oct 2020 have already been verified and issued.

2 VERIFICATIONPROCESS

2.1 Method and Criteria

Verificationwas conducted using VKU's procedures in line with the requirements specified in the VCS Requirements, i.e. VCS Program Guide, VCS Version 4.2, VCS standard document version 4.3. The GHG emission reductions are on the basisofthe approvedBaseline and monitoring methodology AMS-II.G version 11.1.

The verification consisted of the following three phases

- Document review;
- On-site assessment including Interviews and actual project scenario;
- Resolution of any Material Discrepancy and the issuance of the final verification report and certification.

The following sections outline each step in more detail.

2.2 Document Review

The monitoring report (MR) version 01 of 05 Apr 2022, Version 02 of 14 Jun 2022 and version 03 of 21 Jul 2022/**01**/, the emission reduction calculations spreadsheets with version 01 dated 05 Apr 2022, version 02 dated 14 Jun 2022 and version 03of 21 Jul 2022 received from the Project Developer **/02/** were assessed as part of the verification. In addition, the registered Project Design Documents (VCS-PDs) /**19**/ in particular the baseline estimations and the monitoring plan for the project was reviewed. The following table lists the documentation that was reviewed during the verification:

/1/	VNV: VCS monitoring report for "Improved Cookstove Market Development in Rural Nepal", version 01 of 05/04/2022, version 02 of 14/06/2022 and version 03 of 21/07/2022, version 3.1 of 12/08/2022
/2/	VNV: Emission Reduction Calculation Spreadsheet *"*Nepal ICS_ER monitored MP 02_VCS, Version 01 dated 05/04/2022, V02 dated 14/06/2022 and V03 dated 21/07/2022*",*
/3/	VCS: VCS Program Guide, version 4.2 of 22/06/2022
/4/	VCS: VCS Standard, version 4.3 of 22/06/2022
/5/	VCS: Monitoring report Template VCS Version 4.1
/6/	CDM Executive Board: Baseline and Monitoring Methodology "AMS-II.G", "Energy efficiency measures in thermal applications of non-renewable biomass", version 11.1
/7/	UNFCCC: Project search: https://cdm.unfccc.int/Projects/projsearch.html
/8/	Gold Standard Foundation: https://registry.goldstandard.org/projects?q=&page=1
/9/	PA: Sample copies of end user agreement between PA and end user

/10/	Renewable Energy Test Station (RETS), Nepal: Result of performance test of ICS (HPNJE- 01ND and ,Greenway ICS) as per WBT, Test report dated 18/08/2015 and 18/01/2017
/11/	VNV &PA: Decleration of Agency and Communications Agreement dated 11/11/2020
/12/	Greenway Grameen Infra Pvt. Ltd : Declaration of ICS life, Official declaration dated 15/12/2020
/13/	MunaThapa, LokendraSubba: Analysis of available models of improved cook stoves and their suitability in different ecological zones in Nepal
/14/	UNFCCC: AMS II.G - Energy efficiency measures in thermal applications of non-renewable biomass, Version: Version 11.1
/15/	UNFCCC: guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities, Ver. 4.0 (EB86, Annex 4)
/16/	UNFCCC: Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 09.0
/17/	Carbon Check:Joint Validation & Verification report “Improved cook stove market development in rural Nepal” version 2.2 of 27/09/2021
/18/	VERRA: Project review report VCS 2357 dated 23/11/2021
/19/	VNV: Registered joint PD & MR for the project ‘Improved cook stove market development in rural Nepal’ version 4.1 of 23/09/2021
/20/	Practical Action: User survey - Sample User Survey Form - Sample User survey photo taken during survey - Attendance sheet and presentation for data collection training during survey
/21/	VERRA: https://registry.verra.org/app/projectDetail/VCS/2357
/22/	VNV: Project installation database
/23/	Practical Action: Grievance/Repair/Maintenance - Technician’s monthly reports - Maintenance forms
/24/	Practical Action: Declaration to avoid double counting, non-inclusion of projects in other standards

2.3 Interviews

The key personnel interviewed, and the main topics of the interviews are summarized in the table below:

	Date	Name and Role	Organization	Topic
/a/	19 May 2022 to 20 May 2022	NayanJyotiDeka	VNV	Description of the project activity, ownership, avoidance of double

/b/	19 May 2022 to 20 May 2022	DeboshmitaDey	VNV	counting, Emission reductions calculations Monitoring plan and monitoring arrangements Monitoring, recording, QA/QC procedures.
/c/	19 May 2022 to 20 May 2022	Pooja Sharma	PA	ICS operational status, commissioning details, Carbon right transfer, project investment etc.
/d/	19 May 2022 to 20 May 2022	1. BuddhimayaChamrakar (PA/NP/WR/ICS/VCS/07471) 2. Gita Kunwar (PA/NP/WR/ICS/VCS/07462) 3. Sabitrakhatrikhadka (PA/NP/WR/ICS/VCS/07853) 4. SumitraSurar (Karishma) (PA/NP/WR/ICS/VCS/07928) 5. Yam BahadurChhetri (PA/NP/WR/ICS/VCS/07902) 6. Ganga Adhikari (PA/NP/WR/ICS/VCS/07468) 7. Hari Prasad Upadhyay (PA/NP/WR/ICS/VCS/06546) 8. ParbatiAdhikari (PA/NP/WR/ICS/VCS/07463) 9. Ram Prasad B.K. (PA/NP/WR/ICS/VCS/07857)	End Users	

/e/	19 May 2022 to 20 May 2022	Local Stakeholders		Project implementation, socio-economic impact, other benefits etc.

During the verification, VVB followed physical inspection, documents check and interview with PP, users and the stakeholders to check if the reported information for the monitoring period are correct and followed due process inline with the registered PD. For checking operational status, VVB visited the project sites and checked if the project ICS are operational for the sampled users. Other parameters such as the baseline practices, use of other devices during project activities and any repair/maintenance activities and date of project purchased were checked through interviews with the users and related documents such as installation certificates for the stoves and reports from the technicians related to grievance. The detail information on how VVB verified is presented in section 2.4 below.

2.4 Site Inspections

VKU audit team conducted on-site inspection from19 May 2022 to 20 May 2022following sampling approach as explained below:

PP's sampling approach:

PP has proposed simple random sampling plan using 90/10 as confidence/precision. This is in line with the applied methodology /**14**/. The sample size for each parameter is determined following guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 4.0 (EB86, Annex 4) /**15/**.The monitoring parameters monitored through the sampling plan are:

a) Number of operating unit (ICS) under the project activity
b) Continued use of pre-project devices

VKU's verification sampling approach:

As per §25 of the Standard: Sampling and surveys for CDM project activities and programmes of activities (version 09.0) /**16**/, the verification team has to verify whether the project participant have implemented the sampling and surveys according to the sampling plan in the registered monitoring plan. The verification includes determining:

a) Whether the required confidence/precision has been met;
b) Whether the selected sample was representative of the population.

In line with §26 of the Sampling Standard (version 09.0) /**16**/, the verification team has applied a sampling approach for on-site survey as part of verification. Since PP had applied a sampling approach, the verification team has chosen acceptance sampling for monitoring parameters in accordance with §28 of the sampling standard (version 09.0) /**16**/.

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

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

VKUhas considered para 39 (a) of “Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 09.0” for determining the sampling size to be visited by VVB /**16**/. In case of the current verification, the estimated emission reduction is 28,413 tCO_2e per year, 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’ version 09.0 /**16**/: Considering Acceptable Quality Level (AQL): 0.5% Unacceptable Quality Level (UQL): 20% and producer risk of 5% and consumer risk of 20% a sample size of 8 was required as per Table 2 in the referred Standard /**16**/. Acceptance number (c) thus determined for the sample size is 0. VKUverified 9 samples to verify the project activity. The verification team selected random samples from PP’s sample list. VVB has assessed 9 samples on-siteto ascertain the monitoring results. The stoves details (unique serial number, date of installation, type of ICS, name of user and address) were checked and found to be consistent with that reported in the installation database. No inconsistency was observed for any of the 9 samples with respect to on-site inspection& document review. This assessment of the selected samples was done to ascertain the implementation status of the project activity w.r.t. the stove types, serial number, location etc. of ICS.

2.5 Resolution of Findings

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

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

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;

- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;

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

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

In summary, 5 CL and 9 CARs were raised during this verification which were closed successfully and details are given under Appendix B of this report.

2.5.1 Forward Action Requests

Based on the review of the joint validation & Verification report /**17**/, VERRA review report /**18**/, no FAR found raised which needs to be closed duirng this verification. However, 2 FARs are raised to resolve it for next verificationin order to enhance the QA/QC for monitoring. The FARs for next verification are given in Appendix B.

2.6 Eligibility for Validation Activities

The project activity is registered under VCS registration reference Number *2357*, hence this section is not applicable.

3 VALIDATION FINDINGS

The project is already registered under VCSwith reference number 2357. The joint validation & verification of the project was done by Carbon Check (India) Pvt. Ltd/**17/** and it was registered under the VCS registration reference no. 2357. The first crediting period is from 01 Nov 2018 to 31 Oct 2028. This verification assessment is for the 2nd monitoring period 01 Nov 2020 to 31 Oct 2021 (Both dates included).

3.1 Participation under Other GHG Programs

The project is registered only under VCS and not registered in any other GHG program.

3.2 Methodology Deviations

No methodology deviation has been applied.

3.3 Project Description Deviations

No project deviation has been applied.

3.4 Grouped Project

The project is not a grouped project. Therefore, this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

As verified from on-site assessment and monitoring results of PP, the audit team confirms the project implementation and operation complies with the project design document. The purpose of the project is to disseminate efficient, improved cooking stoves (ICS) in rural households of Nepal. The ICS are natural draft single pot holemetallic stoves. The improvement in thermal efficiency is achieved by properly designing the dimensions of the combustion chamber and ensuring effective air flow during cooking. The baseline cooking practice in Nepal is the use of the “three-stone” cooking stove, popularly known as traditional stoves using firewood. The project thus reduces greenhouse gas (GHG) emissions by replacing traditional wood-fuel three stone stoves with wood-fuel ICS. The replacement of traditional stoves by ICS improves heat transfer to the cooking utensil thereby reducing the amount of fuel (non-renewable biomass) required for cooking. A reduction in consumption of non-renewable biomass contributes towards reduction in GHG emissions into the atmosphere. Thus, ICS reduce GHG emissions through their improved thermal efficiency as

compared to traditional/baseline stoves. This project is implemented by Practical Action (PA). Users transfer the ownership of carbon credit via end user agreement. VNV is working as partner to PA for sale of carbon credit generated from the project activity. The operational and management structured is verified from document review and on-site interview. The project involves 15,292 ICS (HPNJE-01:12,415 and Greenway Jumbo: 2,877) implemented in Baglung, Argakhanchi, Bara, Chitwan, Gulmi, Kaski, Makwanpur, Myagdi, Parbat, Tanahu and Syangja districts of Nepal. The first stove was installed on 01 Nov 2018 and is also verified from project database /**22**/. The ICS promoted under the project have7 years technical life /**12**/. The initial tested efficiency of HPNJE-01and greenway Jumbo were30.29% and 29.79 % respectively. During this 2nd monitoring period operational status of total 15,292 ICS were taken into consideration and monitoring survey confirmed a 100% operational rate between 01 Nov 2020 to 31 Oct 2021 /**02**//**20**/.

VKU verification team verified 9 ICS more than the required 8 samples as explained in section 2.4 above to ascertain accuracy of information. VKU confirms the project cook-stoves are operating in all samples interviewed, each cook-stove has unique identification number which has been provided in the end user agreement and are correct as per project database. Along with the serial number, the stove model, end user name, address, installation date etc. had also been noted which were found to be consistent on ground.

It is noted that no changes have been observed or identified which may impact the additionality, no addition of component nor extension of technology, no addition nor removal of project sites, no change of values of the actual operational parameter relevant to determination of emission reductions which are within the control of the PP; no change has been observed or identified that may impact the scale of the project activity or applicability of baseline and monitoring methodology AMS-II.G version 11.1.

VKU verification team confirms that all the emission sources within the project boundary have been considered appropriately. Monitoring of all parameters during the monitoring period is followed as per registered monitoring plan. Below table describes the data parameters relevant to the monitoring plan.

Data parameters fixed ex-ante and available at validation are given below:

	Data/parameter	Unit	Value applied	Assessment
1	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* ($B_{old,i,j}$)	tonnes/ household/year	3.80	The value is fixed as per registered PD for the entire crediting period/**19**/.
2	Efficiency of pre-project device ($\eta_{old,i,j}$)	%	10%	This value is default as per applied methodology (AMS-II.G, version 11.1) /**14**/. This value is fixed ex-ante during validation /**19**/

3	Fraction of woody biomass that can be established as non-renewable biomass (f_{NRB})	%	86.10%	Calculated following procedures outlined in tool to calculate f_{NRB} referred in the methodology AMS-II.G, version 11.1 which is duly approved by Ministry of Forest and Environment, Nepal on 25 Nov 2018. The value is fixed as per registered PD for the entire crediting period /**19**/.
4	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers ($EF_{projected\_fossilfuel}$).	CO_2/TJ	64.40	Default value as per applied methodology /**14**/ and ex-ante fixed in registered PD /**19**/.
5	Leakage adjustment factor	Fraction	0.95	Default value as per paragraph 39 of the applied methodology /**14**/.Also ex-ante fixed in registered PD /**19**/.

Data and parameters monitored:

Parameter	Value	Description/Assessment
Number of project devices of type i and age a that are operating in year y$N_{y,a,i}$(Number)	15,292	From the total commissioned ICS, PP has conducted the sample survey in line with monitoring plan and sampling and survey guidelines covering 32 samples for HPN JE-01ND and 33 samples of Greenway Jumbo and found 100% operational /**01**//**02**/.During the site visit, VKU verified taking 9 samples and all samples were found operational. Hence reported results are accepted.
Efficiency of the device of each type I and batch j implemented as part of the project activity ($\eta_{new,l,j}$)	ForHPN JE-01ND: 27.35% For Greenway Jumbo: 27.01 %	PP has chosen linear decrease in efficiency as per paragraph 37(a) of the methodology and accordingly decreased the project system efficiency for each year of operation. The applied efficiency is correct as per the methodology requirement and registered PD /**19**/ and hence accepted.
Adjustment to account for any continued use of pre-project devices during the year y (μ_y)	For HPN JE-01ND: 0.946 For Greenway Jumbo: 0.906	As per sample survey, it was noted users use pre-project devices in some cases. During the survey, users were asked if people uses baseline stoves and other stoves as well. In case if they also use baseline stoves and/or other stoves, the use

		of project devices are considered 50% conservatively though they are found operating during the monitoring period. Considering this, the survey found that yearly factor for compensating pre-project device use for the project is calculated as 0.946 for HPNJE-01ND and 0.906 for Greenway Jumbo./**02**/. VVB noted during interview with end users the use of pre-project device is very rare and survey's result found to be correct as per user's confirmation. Hence, the result is accepted.
Date of commissioning of batch j	Batch 1: 01November 2018 to 28 Feb 2019 Batch 2: 01 March 2019 to 21 June 2019	The date of commissioning of batch is considered as per the applied methodology requirement. The date of commissioning of project devices are found correct as per the project database and accordingly the date of commissioning of bath is taken correctly for the project devices.
Date of commissioning of project device i	Installed between 01 November 2018 - 21 June 2019	The project includes 15,292 ICS of two types of stoves (HPN JE-01ND and Greenway Jumbo) installed in two batches of 12,157 and 3,135 ICS. The implementation took place between 01 November 2018 to 21 June 2019. The date of commissioning of each device is found consistent in the project database.
Net calorific value of the non-renewable woody biomass that is substituted ($NCV_{biomass}$)	0.0156 TJ/tonne	IPCC default for wood fuel /**14/**
Life of project ICS	7 Years	As per manufacturer specification. Consistent in the registered PD /**12**/.This has been validated during registration as well /**17**/.

4.2 Safeguards

4.2.1 No Net Harm

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

4.2.2 Local Stakeholder Consultation

PP organized stakeholder consultation during validation of the project activity which was validated by the validation agency.The verification team has interacted local stakeholders during on-site assessment and details are summarized in section 2.3 of this report. A continuous complaint mechanism system is in place for the project with records of complaint/feedback and monthly reports provided by the technicians. The grievance are received at the field level by technicians and women self-help group for the operational and usage related issues and address them locally whereever possible. At the centre, Kathmandu office of the Practical Action, 3 persons are assigned as incharge of addressing and receiving the grievances. VVB during the site verification confirmed that there was no negative comment or feedback from local stakeholders as recorded by the verification team and no outstanding grievances to be adressed for this monitoring period.

4.3 AFOLU-Specific Safeguards

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

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The baseline emission reductions have been calculated using the following formulae:

$$ER_y = B_{y,savings} \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossilfuel} \times N_{y,I} \times \mu_y$$

Where:

$B_{y,savings,i,j}$	=	Quantity of woody biomass that is saved in tonnes per cookstove device of type *i* and batch *j* during year *y*. $B_{y,savings}$ is calculated as following: $B_{y,savings} = B_{old} * (1-\eta_{old}/ \eta_{new})$. B_{old} is fixed ex-ante to be 3.80 ton/year as per PD. η_{old} is also fixed ex-ante to be 10% default as per the methodology. $\eta_{new}$is linearly decreased as per applied methodology.
$f_{NRB,y}$	=	Fraction of woody biomass that can be established as non-renewable biomass (fNRB) fixed ex-ante to be 86.1% calculated as per procedure outlined in tool to calculate fNRB.
$NCV_{biomass}$	=	Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried')
$EF_{projected\_fossilfuel}$	=	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 64.40 t CO_2/TJ
$N_{y,i,a}$	=	Number of project devices of type *i* and age *a* operating during year *y*. During this monitoring period, 100% households are operational as explained in section 4.1 above.
μ_y	=	Adjustment to account for any continued use of pre-project devices during the year *y*. The same is calculated as 0.946 for HPN JE-01 ND and 0.906 for Greenway Jumbo from sample survey.

As per paragraph 29 of the applied methodology and PD, $B_{y,savings,i,j}$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakage. Therefore, ERy is realized during the monitoring period is 28,413 tCO_2.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

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

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan. No significant, lack of evidence and missing data were detected during verification. Hence, the verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures.

The operational status of project ICS is monitored through sample survey following UNFCCC sampling and survey guideline follows 90/10 confidence precision.The survey forms and photographswere checked to ascertain the monitoring results reported in survey/**20**/.For enhancing the survey reliability and QA/QC, training was provided to the data collector during survey /**20**/. It is also noted that the achieved precision is less than 10%i.e., it lies within the confidence interval of 10% and hence meets the desired confidence precision /**02**/. The monitored results are found consistent with on-site audits. The focal person is also nominated by the project participants for providing training to the field persons to minimize the errors and addressing any nonconformity.

Also, project developer has set up grievance/repair/maintenance mechanisms and rectifies any issues for the operation of the project device. The ICS found non-operational in previous survey were duly checked and repaired on time to make them operational /**23**/ and are considered for this monitoring period as well for ER calculation.

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

4.6 Non-Permanence Risk Analysis

There is no non-permanence risk rating determined by the project proponent.

5 VERIFICATION CONCLUSION

VKU Certification Pvt. Ltd. has performed verification of the emission reductions reported for the project activity “Improved cook stove market development in rural Nepal” in Nepal, VCS Registry Project ID 2357, for the period 01 Nov 2020 to 31Oct 2021, with regard to the relevant requirements for VCS activities. The project participants of the “Improved cook stove market development in rural Nepal” project is responsible for:

- the preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered project design document version 4.1 of 23 Sep 2021.
- the development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.

It is the responsibility of VKU to express an independent verification opinion about the project’s conformity with the requirements of VCS Standard version 4.3 and GHG program applied, on the reported greenhouse gas emission reductions from the project.

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

- the project has been implemented and operated as per the registered VCS-PD;

- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Standard version 4.3requirements;
- the monitoring is in place as per the applied baseline and monitoring methodology;
- the monitoring plan in the registered VCS-PD is as per the applied baseline and monitoring methodology.

It is VKU's opinion that the GHG emission reduction stated in the monitoring report version 3.1 of 12 Aug2022 for the "Improved cook stove market development in rural Nepal" for the period 01 Nov 2020 to 31 Oct 2021 are fairly stated. The GHG emission reductions are calculated on the basis of approved methodology AMS-II.G version 11.1 and the monitoring plan included in the registered Project Design Document, version 4.1 of 23 Sep 2021.

The value for the ex-ante is 31,983 tCO2e/year and the value achieved during the monitoring period of 1 year is less than the ex-ante which is conservative. Hence VKUis able to certify that the emission reduction from the project during the monitoring period 01 Nov 2020 to 31 Oct 2021 is 28,413tCO_2.

Verification period: From 01 Nov 2020 to 31 Oct 2021:

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)[1]	Net GHG emission reductions or removals (tCO_2e)
2020	4,748	0	0	4,748
2021	23,665	0	0	23,665
Total	28,413	0	0	28,413

[1]The leakage is considered using the factor 0.95 while calculating baseline emission in-line with the registered PD and hence leakage amount is taken as zero in the table.

APPENDIX A: ABBREVIATIONS

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CL	Clarification Request
CO2	Carbon dioxide
CO2e	Carbon dioxide equivalent
DNA	Designated National Authority
EF	Emission Factor
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MoV	Means of Verification
MR	Monitoring Report
PDD	Project Design Document
PP(s)	Project Participant(s)
Ref.	Document Reference
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VCU	Verified Carbon Unit
VKU	VKU Certification Ltd.
VVS	Validation and Verification Standard
VVB	Validation and verification body

APPENDIX B: AUDIT FINDINGS

Type			**Date**	**14/06/2022**
CL#01			**Reference**	Section of Ver protocol: 1.8
Description of the Non Conformance				
PP is requested to clarify whether any tools are applied in the MR and clarify transparently in section 1.8 of the MR in line with the guidance given in section 1.8 of the MR template.				
1st Response from PP			**Date**	14/06/2022
The tool used have been now mentioned in section 1.8 of the revised MR.				
1st Assessment by Audit Team	**Status**	Open/~~Closed~~	**Date**	09/07/2022
PP has specified Tool 30 in section 1.8 of MR however, the version number is not in line with registered PD. Also, registered PD has mentioned the use of Tool 21 as well. So, PP is requested to appropriately list out the Tools and corresponding versions as indicated in registered PD. CL is Open				
2nd Response from PP			**Date**	11/07/2022
All the tools have been now mentioned in the revised MR. The versions have been not mentioned in PD, hence it has been removed.				
2nd Assessment by Audit Team	**Status**	Open/~~Closed~~	**Date**	21/07/2022
The tools used have also been mentioned by PP in MR. But PP is requested to go through the registered PD as it has mentioned the version number of the tools in different sections. PP is requested to include the version number accordingly in MR and submit revised MR and ER sheet (updating the version and date). CL is Open.				
3rd Response from PP			**Date**	21/07/2022
The version of the tools have been now mentioned in the revised MR. The version and the date has been now revised in the MR as well.				
3rd Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	27/07/2022
The version of the tools are now mentioned in the MR. CL is closed.				

Type			Date	14/06/2022
CL#02			Reference	Section of Ver protocol: 1.10
Description of the Non Conformance				
PP is requested to substantiate by official commitment or official declaration in-line with the information given in section 1.10 of MR.				
1st Response from PP			Date	14/06/2022
This has been provided during the validation. The Project has been already approved by VERRA as well.				
1st Assessment by Audit Team	**Status**	Open/~~Closed~~	**Date**	09/07/2022
PP is requested to follow the guidelines given in MR template under section 1.10. The section clearly mentioned that "Emission Trading Programs and Other Binding Limits: Where the project reduces GHG emissions from activities that are included in an emissions trading program or any other mechanism that includes GHG allowance trading (as identified in the project description, or where such programs or mechanisms have subsequently emerged) demonstrate that net GHG emission reductions or removals generated during this monitoring period have not been used for compliance under such programs or mechanisms." This is applicable for this monitoring period and not for the validation**.** CL is open.				
2nd Response from PP			Date	11/07/2022
The declaration has been provided to confirm the same.				
2nd Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	21/07/2022
The official declaration is provided by PP. CL is closed.				

Type			Date	14/06/2022
CL#03			Reference	Section of Ver protocol: 3.1
Description of the Non Conformance				
PP is requested to clarify how the non-operational ICS reported during previous monitoring period were accounted for this monitoring period. The detail of this has to be provided in section 3.1 of the MR which is an events that may impact the GHG emission reductions and monitoring				

for this monitoring period.				
1st Response from PP			**Date**	**14/06/2022**
PP would like to clarify that the non-operational ICS in previous MP was due to some technical damage of ICS because of improper handling of the ICS while cooking. Further, they were repaired by the supplier and the ICS was operational once again. During the current MP, all the ICS surveyed were operational and hence it did not impacted the GHG emission reductions and the monitoring as can be cross-checked from the survey records. The same has been now mentioned in section 3.1 of the MR.				
1st Assessment by Audit Team	**Status**	Open/~~Closed~~	**Date**	09/07/2022
PP is requested to substantiate by the evidence of the repair/maintenance/replacement bills/vouchers in-line with PP's grievance/maintenance mechanism clearly mentioning the date of repair to account the applicable date for emission reduction for those ICS that are not operational. CL is open.				
2nd Response from PP			**Date**	11/07/2022
The repair reports have been now provided.				
2nd Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	21/07/2022
The evidence of repair/maintenance report are provided. CL is closed.				

Type	**Date**	**14/06/2022**
CL#04	**Reference**	Section of Ver protocol: 4.2
Description of the Non Conformance		
1. The operational percentage of the ICS for this monitoring are taken as 100% and indicated that the source for this is Annual ICS User Survey. PP is requested to clarify how 100% operational was observed with the measurement methods and procedures applied, any standards or protocols followed, and the person/entity responsible for the measurement in section 4.2 of the MR under the first table. 2. PP is requested to substantiate the result of the survey by providing Annual ICS Survey Report that comply with para 64 of the "Guideline: Sampling and surveys for CDM project activities and programmes of activities Version 04.0", any evidence of data collection (filled in survey forms), photographs during the survey. 3. PP is requested to clarify how "Adjustment to account for any continued use of pre-project devices during the year y" is monitored and calculated with the measurement methods and procedures applied, any standards or protocols followed, and the person/entity responsible for the measurement in section 4.2 of the MR under corresponding table.		

4. While monitoring the μ_y, PP has considered 1 for the household not operating pre-project device and 0.5 for the household operating pre-project device as given in data sheet. PP is requested to clarify the rationality and conservativeness to use 0.5 for the households using pre-project device for calculating adjustment factor.
5. Also, as per the data sheet under "MP2 survey" tab in ER sheet, some of the households indicated the use of LPG stoves during the time the project devices are not used. PP is requested to clarify how this has been accounted in ER calculation as the adjustment factor used is for pre-project device which is considered as traditional biomass based stoves.
6. PP is requested to clarify and substantiate the life of the stoves implemented in the project by availing the certificates certified by a national standards body or an appropriate certifying agent recognized by that body.
7. For the number of project devices implemented per households, PP has mentioned that the same is recorded at the time of commissioning/distribution of project device. PP is requested to substantiate this by availing the evidences such as commissioning reports for sampled households for 10 houses (5 each for each types of stoves)

1st Response from PP	**Date**	**14/06/2022**

1. During the annual users' survey, survey team inspected representative sample households to check if the devices are operating or not. Sample for this survey is drawn as per the "Guidelines for sampling and surveys for CDM project activities and programme of activities, version 3 (EB 75, annex 8)". During the survey, the respective field person checks the ICS whether it is operational or not as well. During the survey, in order to anticipate any low response rate and answers bias, 10% oversampling is applied. Refer section 4.3 for further details.

2. PP would like to clarify that the survey report is the monitoring report prepared by PP. The details of the survey and the results of the survey has been already mentioned in detail in the monitoring report itself. The survey records are the sample survey forms shared by PP and the data in ER sheet. Few photographs of the survey has been provided as well.

3. PP has conducted annual monitoring survey/users' survey to check the continued usage of pre-project devices and the same has been now mentioned in section 4.2 of the revised MR. Further, refer to section 4.3 for more details.
4. PP would like to clarify that the stated method is as per the applied methodology (Refer page 18 & 19 of the methodology). It has been stated that " if there was only one pre-project device per household and its use during the project period continues along with the project stove to meet 25% of the cooking needs of the household in which case the adjustment factor will be 0.75." Hence, we have assumed 0.5 which is more conservative since in some cases the HHs were using both ICS and the pre-project devices (50:50).
5. PP would like to clarify that the adjustment factor has been measured as per the number of meals cooked in project stove and other type of stove (which includes traditional stove or LPG stove). In cases where the HHs are using both the project stove and the other type of stove (LPG/Traditional stove), PP has considered no. of meals as 50-50 % each which is found to be conservative even though as per the responses provided by the HHs, the number of meals cooked is higher using the project ICS.
6. Certificate for life of the stoves has been already provided during validation.
7. Few sample installation certificates has been provided now.

1st Assessment by Audit Team	**Status**	Open/~~Closed~~	**Date**	09/07/2022

1. PP has submitted the filled in survey forms and photos to substantiate the survey conducted and the response on 100% operational by inspection and survey is justifiable. However, in PP's response, it is mentioned that 10% oversampling is done during the survey which is not justified in section 4.3 of the MR (less than 10% oversampled compared to sample calculated). PP is requested to reconfirm whether 10% oversampling was taken during the survey as indicated by PP in the response. CL is open. 2. The evidences (Photographs, survey forms, data compilation) of survey submitted by PP is sufficient to justify the information incorporated in monitoring report. CL is closed. However FAR is applicable for next monitoring onwards. 3. PP has provided the information in revised MR. CL is closed. 4. The justification provided by the PP is in-line with the conservativeness of the calculation of adjustment factor for using pre-project device during project activity. CL is closed. 5. The approach followed by PP is conservative as LPG is less GHG intensive fuel. Also, only few sampled households have used LPG as alternate fuel as evidenced in datasheet. Considering LPG as pre-project device in some houses is conservative while accounting the emission reduction. CL is closed. 6. Response is accepted and issue is closed. 7. The sample installation certificates are provided by PP. CL is closed.

2nd Response from PP	**Date**	11/07/2022
1. The sentence of the findings response has been revised above.		

2nd Assessment by Audit Team	**Status**	Open/~~Closed~~	**Date**	21/07/2022
1. PP is requested to keep the same response provided on 14/06/2022 rather than revising directly in the first response and provide the confirmation in 3rd response accordingly. CL is open.				

3rd Response from PP	**Date**	21/07/2022
1. PP would like to clarify that the actual number of samples calculated for each type of ICS is 31 (refer to tab: Sample size MP 02 of ER sheet). However, the number of samples surveyed for Greenway jumbo stoves is 33 and HPN JE-01ND is 32. Hence, we have done 3-5% oversampling since we were sure that the response rate will be high. PP will ensure that from the next MP 10% oversampling is done.		

3rd Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	27/07/2022
The response from PP is accepted. CL is closed.				

Type	**Date**	**14/06/2022**
CL#05	**Reference**	Section of Ver protocol: 4.3
Description of the Non Conformance		

1. PP has provided the section for trainings and capacity development in section 4.3 of MR. PP is requested to clarify if any trainings/capacity development activities were undertaken during the monitoring period and provide the evidence for the same. 2. In line with the registered PDMR, PP is requested to clarify and provide details whether annual monitoring frequency has been maintained? 3. PP is requested to clarify if the parameters of interest are subject to seasonal fluctuations or not and demonstrate the suitability in line with para 35 of the "Guideline: Sampling and surveys for CDM project activities and programmes of activities Version 04.0".				
1st Response from PP			**Date**	**14/06/2022**
1. The supportives for the training has been now shared. 2. The survey dates for the previous monitoring period are MP 01- Year 1 Oct 2019 and year 2 Sept 2020. During the current MP, the survey has been conducted between Sept-Oct 2021 which is falling under the annual frequency. 3. PP would like to clarify that the parameters of interest for this project activity are " Number of project devices that are operating" and "Adjustment to account for continued usage of pre-project devices". The results of both the parameters depend on the responses provided by the households and usage and not on seasonal variations.				
1st Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	**09/07/2022**
1. PP has provided the attendance sheet and the presentation slides for the training. CL is closed. 2. As justified by the PP, annual frequency has been maintained for the survey. The date of the field survey can also be evidenced from the survey forms.CL is closed. 3. The justification provided by PP is acceptable. CL is closed.				

Type			**Date**	**14/06/2022**
CAR#01			**Reference**	Section of Ver protocol: 1.2
Description of the Non Conformance				
The information in section 1.2 of the MR is not in-line with the guidelines given in MR template. PP is requested to incorporate the information in line with the guidance given in section 1.2 of the MR template appropriately.				
1st Response from PP			**Date**	**14/06/2022**
The details has been mentioned as per the template guidelines already.				
1st Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	09/07/2022
The information now is provided by PP in section 1.2 of revised MR in-line with the guidelines. CAR is closed.				

Type			Date	14/06/2022
CAR#02			Reference	Section of Ver protocol: 1.11
Description of the Non Conformance				
The project is already implemented and delivered the sustainable development benefit. However, the information provided in the section 1.11 of the MR does not indicate any results for this monitoring period. PP is requested to correct the sentences and the information in line with the guidance provided in section 1.11 of MR template including table 1 (Version 4.1).				
1st Response from PP			**Date**	**14/06/2022**
The section has been now revised as per the latest template guidelines.				
1st Assessment by Audit Team	**Status**	Open/~~Closed~~	**Date**	09/07/2022
PP has incorporated the SDG impact table in section 1.11 of the revised MR in-line with the guidelines. However, the texts in section 1.11 has not been revised. As the project has already been implemented, the term "Proposed Project" in first para "*The contributions of proposed project activity towards sustainable development…….":*Similarly, the para described for the indicators are provided in future terms. PP is requested to correct them in appropriately as the project has already started the contribution towards these indicators. CAR is open.				
2nd Response from PP			**Date**	11/07/2022
The corrections has been done in the revised MR.				
2nd Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	21/07/2022
The correction has been made appropriately. CAR is closed.				

Type			Date	14/06/2022
CAR#03			Reference	Section of Ver protocol: 3.1
Description of the Non Conformance				
1. The MR indicates that the ICS are implemented in 11 districts of Nepal. PP is requested to add the implementation detail (district-wise) in section 3.1 of the MR. 2. The section 3.1 of the MR does not specify the remaining life of implemented stoves to ascertain the claim applicable for the monitoring period.				

1st Response from PP			Date	14/06/2022
1. The district wise distribution has been now added in the section 3.1 of the revised MR. 2. The details have been now provided in the revised MR.				
1st Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	09/07/2022
1. The district-wise installation of stove is now provided in section 3.1 of the MR. CAR is closed. **2.** The life of the stoves is appropriately incorporated in section 3.1 of the MR. CAR is closed.				

Type	Date	14/06/2022
CAR#04	Reference	Section of Ver protocol: 4.1
Description of the Non Conformance		
The abbreviation for the efficiency is not in-line with the applied methodology in section 4.1 of the MR.		
1st Response from PP	**Date**	**14/06/2022**
The typo error has been now corrected in the revised MR.		

1st Assessment by Audit Team	Status	~~Open~~/Closed	Date	09/07/2022
PP has corrected the error in MR. CAR is closed.				

Type	Date	14/06/2022
CAR#05	Reference	Section of Ver protocol: 4.2
Description of the Non Conformance		
1. Calculation of $\mu_y$as given in ER sheet under “MP2 Survey” tab is not correct. PP is requested to check and revise in all sections appropriately. 2. The efficiency calculation for this monitoring period are not correct in-line with the AMS II G ver 11.1 para 37, (a) in section 4.2 of MR and ER sheet. PP is requested to include the default schedule of the efficiency calculation for whole life of the stove in MR to show how it reach to the terminal efficiency of 20% at the end of the life and select the efficiency for applicable years. The calculation detail in excel sheet is also requested.		
1st Response from PP	**Date**	**14/06/2022**

1. There has been a minor mistake in calculating the value for the user using all the three types of stoves i.e. LPG, ICS and traditional stove and PP has corrected the same and revised the ERs accordingly. 2. The calculation is correct and has been already calculated in tab: ER MP2- B1 & B2 as per the methodology which states that "A default schedule of linear decrease in efficiency up to the terminal efficiency assumed as 20 per cent shall be applied throughout the life span of the project device." In our case, the life span of project device is seven years and project device has an efficiency of 28.82 per cent during MP 01. Hence, 8.82 per cent (Subtracting 28.82 with 20) will be divided by 7 which comes out to be 1.26. Therefore, 1.26 decrease in efficiency has been applied during this MP.

1st Assessment by Audit Team	**Status**	Open	**Date**	04/07/2022

1. PP has corrected the value appropriately. CAR is closed. 2. PP is requested to re-visit the AMS II G ver 11.1 para 37, (a) wherein the example of efficiency reduction is provided. Since it has been a linear decrease, the efficiency has to be decreased by same percentage every year. PP is requested to calculate accordingly and correct in MR and ER sheet appropriately. CAR is open.

2nd Response from PP	**Date**	11/07/2022

3. The correction has been now done in the revised ER Sheet and MR.

2nd Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	21/07/2022

PP has corrected the efficiency appropriately in-line with the registered PD. CAR is closed.

Type	**Date**	**14/06/2022**
CAR#06	**Reference**	Section of Ver protocol: 4.3

Description of the Non Conformance
1. The registered project document of the project (section 5.3) mentioned that the expected proportion will be based on previous monitoring. However, the MR indicates the 90% and is for first monitoring but this is second monitoring period. PP has to justify in section 4.3 of MR how the sample calculation is in-line with the registered PD and correct accordingly if necessary. 2. As per the section 3.1 of the MR, the ICS are distributed in 10 districts. Also there are different batches of ICS with two different types of ICS. The section 4.3 of the MR does not specify in detail the on how the randomness and representativeness has been met during the sample selection and implementation of survey. PP is requested to tabulate the location of samples site based on districts/batches/types of stoves. 3. The explanation of the relative precision included in equation for calculation of samples in section 4.3 of MR is not consistent with para 12 of appendix 1, EB 86 Annex 4, Guideline: Sampling and surveys for CDM project activities and programmes of activities Version 04.0.

4. PP is requested to incorporate the survey results, precision assumed and the precision of the survey data in section 4.3 of the MR. PP is also requested to supplement the evidence of random sample selection by availing the random number generated for the sample selection and screenshot for the same.
5. The registered PD and MR for this MP indicates the 10% oversampling is followed to anticipate any low response and answers bias but how this has been complied is not included in the MR. PP is requested to substantiate this with detail sample calculation in section 4.3 of MR.
6. PP has mentioned in section 4.3 that the displacement of the "The project developer collects, compiles and analyses the data to derive the number of ICS disseminated, the percentage of ICS in operation, displacement of traditional cooking stove& Kerosene lamps by ICS users". PP is requested to justify the applicability of Kerosene Lamp replacement for the project.
7. PP has also mentioned that "The data collected is compiled in Excel sheets and/or other software and analysed to derive the percentage of ICS in operation and the efficiency of the ICS installed by households. The values of efficiency of ICS disseminated are used for emission reductions calculation." However section 4.2 of MR indicates that efficiency is calculated in linear decrease basis not monitored through survey. The inconsistency has to be corrected in respective sections.
8. PP is requested to clarify how the non-operational ICS found in previous monitoring are accounted while choosing individual sample households.
9. Section 4.3 of MR does not specify the date of data collection and how the quality of the data is ensured from the perspective of the qualifications and experience of personnel involved in monitoring and any instruments used to collect and analyse the data in-line with section 6 of the "Guideline: Sampling and surveys for CDM project activities and programmes of activities Version 04.0". PP is also requested to include the approach followed in avoiding any potential biasness of the data collection during the survey as data was collected by project developer not by third party.
10. PP is also requested to list out the any continuous complaints/grievances received during monitoring period and how those grievances are addressed. Also provide the evidence of the same.
11. PP is requested to provide the sample monthly reports submitted by the technicians as indicated in section 4.3 of MR under "Training and capacity Development and repair and maintenance of ICS".

1st Response from PP	**Date**	**14/06/2022**

1. PP would like to clarify that during the last MP, the monitored operating fractions were 93-95%. Hence, to be conservative, PP has used 90% expected proportion during the current MP which is found to be in line with the registered PD. The same has been now mentioned in section 4.3 of the revised MR.
2. PP would like to clarify that the samples have been selected randomly using RAND function in ER sheet. The screenshots of the same has been added in section 4.3of the revised MR. Also, the table has been added based on location of the samples.
3. The typo error in the MR has been revised.
4. PP would like to clarify that the samples have been selected randomly using RAND function in ER sheet. The screenshots of the same has been added in section 4.3 of the revised MR. The survey results and the precision has been already mentioned in the ER sheet (Tab: Sample size MP02 & Tab: MP2 survey)
5. PP would like to clarify that the actual number of samples calculated for each type of ICS is 31 (refer to tab: Sample size MP 02 of ER sheet). However, the number of samples surveyed for Greenway jumbo stoves is 33 and HPN JE-01ND is 32. Hence,

we have done 3-5% oversampling since we were sure that the response rate will be high. PP will ensure that from the next MP 10% oversampling is done.
6. It is a typo error which has been now removed.
7. The typo error has been now corrected in the revised MR.
8. PP would like to clarify that the non-operational ICS in previous MP was due to some technical damage of ICS because of improper handling of the ICS while cooking. Further, they were repaired by the supplier and the ICS was operational once again. During the current MP, all the ICS surveyed were operational and hence it did not impacted the GHG emission reductions and the monitoring as can be cross-checked from the survey records. The same has been now mentioned in section 3.1 of the MR.
9. PP would like to clarify that a training was given to the field representatives who conducted the survey. The training records have been attached for the same. Further, the samples for the survey were selected randomly using the RAND function in order to avoid any biasness.
10. There were no grievances during the current MP. The copy of the same has been provided.
11. PP has provided sample monthly reports provided by the technicians.

1st Assessment by Audit Team	**Status**	Open/~~Closed~~	**Date**	09/07/2022

1. Expected proportion taken by PP for the calculation of sample size is less than the proportion operational of ICS in previous monitoring and hence is conservative. CAR is closed.
2. PP has addressed the CAR appropriately by providing the screenshot of the random sampling and detail of the sample taken from different districts in section 3.4 of MR. CAR is closed.
3. PP has revised the typo error for relative precision however the correction is not in-line with the “Guideline: Sampling and surveys for CDM project activities and programmes of activities”. For the clarity 10% precision means 5% either side of the p. PP is requested to correct appropriately. CAR is open.
4. PP has provided the screenshot of the random samples in section 4.3 of MR and the precision calculation for the survey result complied with assumed precision. CAR is closed.
5. As explained by PP, the minimum sample that should be maintained are calculated for both stoves and 3-5% oversampling is done. PP has maintained the minimum samples to be taken and there is 100% response rate. So, for this monitoring, in principle, this can be acceptable however 10% oversampling has to be maintained as stipulated in registered PD in from next verification onward. CAR is closed however the FAR is applicable for this from next monitoring onwards.
6. The error has been corrected by PP in section 4.3 of MR which is acceptable. CAR is closed.
7. PP has corrected the information in section 4.3 of the MR appropriately. CAR is closed.
8. PP has included all the stoves while drawing the sample during this MP. The reason for including all the stoves including the stoves that were non-operational while drawing the samples is acceptable as PP has claimed that all those ICS were repaired by supplier. However, PP is requested to substantiate it through an evidence of the repair/maintenance done for those particular stoves by providing the maintenance records of the supplier. CAR is open.
9. PP has indicated in the section 4.3 of MR that training has provided to the field representative who conducts the survey. The training record has also been provided. Also the randomness of sampling has also been followed and indicated clearly in MR

now. So CAR is closed. 10. As indicated by PP there is no grievances during the MP and the template for the grievance book is provided. CAR is closed. 11. PP has provided the sample monthly reports of technicians and are accepted. CAR is closed.

2nd Response from PP	**Date**	11/07/2022
4. The correction has been now done in the revised MR. 8. Few repair reports have been now provided.		

2nd Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	21/07/2022
4 The correction has been made appropriately. CAR is closed 8 The repair reports have been provided and hence is accepted. CAR is closed.				

Type	**Date**	**14/06/2022**
CAR#07	**Reference**	Section of Ver protocol: 5.1
Description of the Non Conformance		
1. In the section 5.1 of the MR, the step-wise quantification of the baseline emissions and/or removals, providing sufficient information to allow the reader to reproduce the calculation need to be provided rather than just copying the ER calculation sheet. 2. The efficiency applied in the ER sheet is not correct in line with para 37 (a) of AMS II.G. version 11.1. PP is requested to clarify how the efficiency applied is in-line with the methodology and revise the ER calculation as appropriate throughout the MR and ER sheet. 3. The baseline emission calculation is not in-line with the applied methodology. The equation 1 in the MR represents the net emission reduction. The baseline emission should be quantify before accounting the project emission and leakage. The section 5.1 of the MR and ER sheet has to be corrected accordingly.		
1st Response from PP	**Date**	**14/06/2022**
1. The equation used to calculate the emissions have been already mentioned in the MR and the format has been approved in the previous monitoring period as well which is self-explanatory. **2.** PP has already addressed the raised comment in CAR#05. 3. The emission reduction equation is as per the applied methodology only. PP is requesting VVB to check the methodology once again and the baseline emission is calculated using the equation 2 of the methodology only as approved by VERRA in other projects as well.		

1st Assessment by Audit Team	**Status**	Open/~~Closed~~	**Date**	09/07/2022
1. As indicated by PP, the equation to calculate the emissions has been provided in section 5.1. But for transparent information, how the value of By,savings,i,j is arrived and how efficiency has been considered for the MP has to be provided in the section.				

The electronic spreadsheets has to be provided separately to facilitate the verification of the results. The separate electronic spreadsheet is provided which is in-line with the requirement. However, transparent explanation is required in section 5.1 as provided in the guidance of MR template. Please see guidance provided in the MR template. CAR is open. 2. The justification provided by the PP in CAR#05 regarding the efficiency loss is still not in-line with the applied methodology. PP is requested to revisit the same and provide transparent explanation of selection of efficiency for ER calculation in section 5.1 of MR. CAR is open. 3. The baseline emission reduction calculated by PP also includes the consideration of leakage with 95% adjustment. This has neither been clarified in equation provided in section 5.1 of MR nor has explained in the section. PP is requested to indicate this in section 5.1 of MR clearly. CAR is open.				
2nd Response from PP			**Date**	11/07/2022
1. The equations and explanations for By,savings and efficiency loss has been now added in the revised MR. 2. The efficiency loss has been now considered in line with the VVB's finding. Refer to revised MR and ER sheet. The ERs have been revised accordingly. **3.** The details regarding 95% adjustment has been mentioned in section 5.3 of the MR already.				
2nd Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	21/07/2022
1. The explanation in MR is added. CAR is closed 2. The efficiency loss calculation is corrected in-line with requirement and applied the same for ER calculation. CAR is closed. 3. The adjustment for leakage is considered in calculation table. CAR is closed.				

Type			**Date**	**14/06/2022**
CAR#08			**Reference**	Section of Ver protocol: 5.3
Description of the Non Conformance				
Leakage emission is section 5.3 has to be incorporated in line with applied methodology (i.e 5% of the baseline emission).				
1st Response from PP			**Date**	**14/06/2022**
PP would like to clarify that the net to gross adjustment factor i.e. 0.95 has been already accounted in the ER calculations (Kindly refer to tab: ER MP 2- B1 - Cell A19).				
1st Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	09/07/2022
The adjustment of the leakage has been done as mentioned in the applied methodology in ER sheet. The final ER calculation comply with the applied methodology. CAR is closed.				

Type			Date	14/06/2022
CAR#09			Reference	Section of Ver protocol: 5.4
Description of the Non Conformance				
The net emission reduction achieved during the monitoring period has to be tabulated in section 5.4 accordingly in line with the guidance provided in MR template (version 4.1). Also, the breakdown of GHG emission reductions by vintages is required where the intent is to issue each vintage separately in the Verra Registry. Clarify and correct if necessary.				
1st Response from PP			**Date**	**14/06/2022**
The ERs have been already mentioned in vintage order and tabulated as per the MR template in section 5.4 of the MR.				
1st Assessment by Audit Team	**Status**	~~Open~~/Closed	**Date**	09/07/2022
The ER has been provided in-line with the template. CAR is closed.				

FAR from this verification:

Type		Date	04/07/2022
FAR#01		Reference	Section of Ver protocol:
Description of the FAR from this verification			
1. The registered PD indicates the 10% oversampling will be followed to anticipate any low response and answers bias. From next monitoring, PP is recommended to maintain the 10% oversampling while doing the user survey for monitoring the parameters indicated in registered PD appropriately and verifying body will check the conformity of the same. 2. In monitoring plan of the registered PD (section 5.3), PP has mentioned that “monitoring report” will be prepared based on “survey report”. Similarly, the sampling and survey guidelines also recommends to prepare a survey report compiling the information related to the qualification of the survey team, methodology of the survey conducted, sampling design, and result of the survey. This will help in improving the documentation and record keeping. Survey records are sufficient to substantiate the results however, PP is requested to prepare the User Survey Report (different than the monitoring report) compiling those information and aligning with sampling and survey guidelines from next monitoring for improving QA/QC in information and documentation management.			

APPENDIX C: COMPETENCE STATEMENTS

Verification Team:

Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Abhishek Kumar Srivastava
Nationality	India
Countries of Experience	India, Uganda
Education Qualification	M. Tech- Energy Management M. Sc. -Physics
Year of Experience	14 Years
Area of Expertise	Climate Change & Environment / Industry
Eligible Sectoral Scope	1. GHG emission reductions from fuel combustion

Roles

Team Leader	YES
Validator	YES
Verifier	YES
Financial Expert	YES
Technical Reviewer	YES
TA Expert (TA1.1, TA1.2 and TA3.1)	YES

Reviewed by	Ayushi Garg (Quality Manager)	Date	25/04/2022
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	26/04/2022

Technical Reviewer Team:

Certification Pvt. Ltd. VKU.FSDW. Competence Statement

COMPETENCE STATEMENT

Name	Sanjay Kumar
Nationality	Indian
Countries of Experience	India
Education Qualification	B.E. (Civil Engineering) M. Tech (Environmental Engineering)
Year of Experience	20 Years +
Area of Expertise	Climate Change & Environment Sustainable Development GHG Footprints
Eligible Sectoral Scope	TA 1.1 - Thermal energy generation and Renewables TA 1.2 - Renewables TA 3.1 - Energy Demand TA 6.1 - Construction TA 13.1 - Solid waste and wastewater TA 13.2 - Manure

Roles

Team Leader	YES
Validator	YES
Verifier	YES
Financial Expert	YES
Technical Reviewer	YES
TA Expert (1.1, 1.2, 3.1, 6.1, 13.1, 13.2)	YES

Reviewed by	Ayushi Garg (Quality Manager)	**Date**	11/07/2022
Approved by	Vivek Kumar Ahirwar (Technical Manager)	**Date**	11/07/2022