



VERIFICATION REPORT FOR “IMPROVED COOKSTOVE PROGRAMME BY SDG13 IN INDIA”



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

Project Title	Improved Cookstove Programme by SDG13 in India
Version	03
Report ID	BELL_VCS_PoA_VER_14423

Report Title	Verification report for Improved Cookstove Programme by SDG13 in India
Client	SDG13 Ventures Pte Ltd
Pages	42
Date of Issue	09-Jan -2024

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Summary:

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by SDG13 Ventures Pte Ltd to conduct the verification of the VCS grouped project - “Improved Cookstove Programme by SDG13 in India”, VCS ID 2533 regarding the relevant requirements of VCS programme guidelines and standard (VCS standard version 4.5, & VCS program guide version 4.4. Relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting has been applied for verification.

The monitoring period covered under this verification is from 01/01/2023 to 30/06/2023 (both days included).

The verification includes confirming the implementation of the monitoring plan of the registered VCS PD and MR (VCS ID 2533) and the application of the monitoring methodology as per “VMR0006 Methodology for Installation of High Efficiency Firewood Cookstoves, Version 1.1”.

The purpose of the project activity is to provide access to clean and affordable energy to the rural households in Madhya Pradesh state, India. This group project involves promotion and dissemination of efficient cook stoves to households in India and enables the end users to switch from traditional mud stoves (chulhas) to rural households to a modern energy-efficient stoves.

Replacement of the traditional cooking stoves with ICS will reduce the exposure of the family members, specifically women, to the indoor air pollution and therefore result in reducing risk of health-related issues. Each stove disseminated under the project will potentially reduce the firewood consumption by half. The project involves promotion of improved cooking stoves (ICS) to the people of socially

deprived community, in Madhya Pradesh state. Thus, the project will reduce a significant number of emissions that would have been generated in the baseline scenario, where the traditional cookstoves would have been used.

A risk-based approach has been followed to perform this verification. During verification, 02 Corrective Action request (CARs) and 01 Clarification request (CLs) were raised and successfully closed and 01 Forward Action request (FARs) is open, shall be addressed during next verification period.

The review of the project design documentation, monitoring report and additional documents related to baseline and monitoring methodology; the subsequent background investigation, interviews and stakeholders have provided Applus+ Certification with sufficient evidence to validate the fulfillment of the stated criteria.

Applus+ Certification confirms that the project is implemented in accordance with the registered VCS PD. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the project's GHG emissions, and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the VCU from the project activity "Improved Cookstove Programme by SDG13 in India" in India during the period 01/01/2023 to 30/06/2023 (including both days) amount to 479,895 tons of CO₂e.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center, S.A.(Applus+ Certification) has been contracted by SDG13 Ventures Pte Ltd, to undertake the verification of the group project titled “Improved Cookstove Programme by SDG13 in India” (VCS ID-2533). The verifiers have reviewed the GHG data collected to date for the monitoring period from 01/01/2023 to 30/06/2023 (both days included) covered in this verification. The objective of this verification is a thorough and independent assessment of registered project activities against the applicable VCS requirement by the VVB. The verification process shall determine whether the proposed project activity complies with the requirements of latest VCS guidelines, applicability conditions of the selected methodology, relevant host country regulations and guidance issued by the VCS Board.

1.2 Scope and Criteria

The scope of verification is to assess the claims and assumptions made in the VCS monitoring report (MR) against the VCS criteria, including but not limited to, VCS standard, applied methodology and other relevant rules and requirements established for VCS project activities.

The Verification is not meant to provide any consulting towards the project participants. However, stated requests for clarification and/or correction actions request may have provided inputs for improvement of the project design.

1.3 Level of Assurance

The level of assurance of the verification report falls under reasonable assurance engagements. Reasonable assurance is a high level of assurance regarding material misstatements, but not an absolute one.

Reasonable assurance includes the understanding that there is a remote likelihood that material misstatements will not be prevented or detected on a timely basis. To achieve reasonable assurance, the auditor needs to obtain sufficient appropriate audit evidence to reduce audit risk to an acceptably low level. This means that there is some uncertainty arising from the use of sampling, since it is possible that a material misstatement will be missed.

The evidence used to achieve a reasonable level of assurance is specified in section 2.3 and 2.4 of this report.

1.4 Summary Description of the Project

The project activity is a grouped project, which employs the VCS methodology; VMR0006 version 1.1 /18/. The grouped project involves distribution and installation of fuel-efficient improved cook stoves (ICS) in Madhya Pradesh, India. The project will disseminate 500,000 fuel efficient (ICS) Greenway Jumbo Cookstove through 5 years and each year consist of 100,000 ICS.

During the current monitoring period 62,154 ICS were distributed and since the start date of project until the end of current monitoring period total 201,315 ICS distributed as verified through the sales database/13/.

The Greenway Jumbo Cookstove is made of a fuel chamber for combusting the renewable biomass. The pot-rest is above the fuel chamber. The stove has one air inlet and weighs approximately 3782 grams.

The Greenway Jumbo Cookstove will reduce the amount of non-renewable biomass used for cooking. PP has considered each ICS distributed as a project activity instance. The start date for the grouped project is 01/01/2022 /07/ which is the date of installation/registration of the first stove in the grouped project.

The project proponent for the project activity is SDG13 Ventures Pte Ltd and owns the rights to VCUs/10/. During the site visit the assessment team has verified the project contribution towards sustainable development is established in line with the sustainable development indicators framed by the host country DNA and has the benefits such as reduction in indoor air pollution, reduction in time spent and distance travelled for fuel wood collection, conservation of forest by reducing rate of forest degradation /deforestation and thereby reducing GHG emissions from the environment. There are other economic benefits such as opportunities for local communities involved in monitoring, training of users, undertaking periodic maintenance and post lifetime replacement.

The assessment team has verified the authorities and responsibilities for monitoring and reporting of all data related to the emission reductions were clearly defined under section 3.1 of the monitoring report. The allocation of the responsibilities is documented in a written form and is followed as described in the VCS PD /03/. Routines for the archiving of data are defined and documented.

The verification team has interviewed the personnel /23/ who are involved in the monitoring of the parameters that are used to determine the emission reductions of the VER project. It is confirmed based on the interviews /23/ that the team is competent enough to monitor the parameters as described in the monitoring plan.

In view of the above discussion, the verification team concludes that the management and operational system of the project is implemented and operated well. Thus, it ensures the quality of data which is required in calculating the emission reductions.

The total VCUs achieved from Project activity instances are 479,895 tCO₂e for this monitoring period from 01/01/2023 to 30/06/2023.

The project activity has been implemented as described in the registered VCS PD and the VCUs are calculated conservatively as per the applied methodologies /18/.

2 VERIFICATION PROCESS

The registered VCS project is undergoing third verification under VCS, the approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

The verification approach consists of two phases.

In the first phase, Applus+ Certification completed a strategic review and risk assessment of the project's activities and processes to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant.
- Protocols used to estimate or measure GHG emissions from these sources.
- Collection and handling of data.
- Controls on the collection and handling of data.
- Means of verifying reported data; and
- Compilation of the verification Report.

At the end of this phase, Applus+ Certification produced a Verification Checklist which, based on the risk assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

In the second phase using the Verification checklist, Applus+ Certification verified the implementation of the monitoring plan and the data presented in the VCS MR/04/ for the period in question. This involved on-site visit, interview of project proponent representative's, ICS users and a desk review of the Monitoring Report. This verification report describes the findings of this assessment.

Verification schedule is described in the below table:

Sr. No	Date	Milestones
1	26/06/2023	Contract signed
2	10/07/2023	Desk review
3	26/07/2023 to 28/07/2023	On-site visit
4.	11/09/2023	Draft verification report

2.2 Document Review

The verification is performed primarily as a document review of the registered VCS PD/01/, previous MR and Verification report/02/ and associated documents as stated in detail in appendix 1 of this document. The assessment is performed by a verification team using a protocol. The cross checks between information provided in the Monitoring report, VCS PD, and information from sources other than those used, if available, the team's sectoral or local expertise and, if necessary, independent background investigations.

2.3 Interviews

The site visit for the project location, by the assessment team, was conducted on 26/07/2023 to 28/07/2023 and the following stakeholders were interviewed.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Hussain	Tanfiz	Assistant Manager, Greenway Grameen Infra Pvt Ltd	26/07/2023 to 28/07/2023	Project implementation and its development, monitoring report.	Ravi Kant Soni
2	Nawani	Silkee	Project Manager, Greenway	26/07/2023 to 28/07/2023	Monitoring, Survey design, QA/QC procedures,	Ravi Kant Soni

			Grameen Infra Pvt Ltd		analysis of survey results, sales database, Data entry, reporting	
3	Sheikh	Asif	Project Manager, Greenway Grameen Infra Pvt Ltd	26/07/2023 to 28/07/2023	Survey Planning, Survey Implementation	Ravi Kant Soni
4	Malik	Shahrukh	Associate, Carbon Projects, Greenway Grameen Infra Pvt Ltd	26/07/2023 to 28/07/2023		Ravi Kant Soni
5	Saraf	Saurabh	Project Manager, Greenway Grameen Infra Pvt Ltd	26/07/2023 to 28/07/2023	ER Calculations, Sample size calculations, monitoring survey results analysis	Ravi Kant Soni
End users interviewed from: 26/07/2023 to 28/07/2023						
Sr.No	Last name	First	Affiliation	Cookstove ID:	VVB survey date	Team member
1	Bhalavi	Hanslata	End user	J22VF081811	26/07/2023	Ravi Kant Soni
2	-	Kali	End user	J23VD002322	26/07/2023	Ravi Kant Soni
3	Singh	Divan	End user	J23VD000604	26/07/2023	Ravi Kant Soni
4	Inwati	Kalavanti	End user	J23VE052213	26/07/2023	Ravi Kant Soni
5	-	Sampat	End user	J23VF082120	26/07/2023	Ravi Kant Soni
6	Choudhry	Aneeta Bai	End user	J23VA376127	26/07/2023	Ravi Kant Soni
7	Sahu	Bandi	End user	J23VC443570	27/07/2023	Ravi Kant Soni
8	Kumar	Mukesh	End user	J23VA376721	27/07/2023	Ravi Kant Soni
9	Adiwasi	Suniya	End user	J23VD014940	27/07/2023	Ravi Kant Soni

10	Raikvar	Shakuntala	End user	J23VD014814	27/07/2023	Ravi Kant Soni
11	Yadav	Sangeeta Yadav	End user	J22VL354143	27/07/2023	Ravi Kant Soni
12	Yadav	Savita	End user	J22VE031154	27/07/2023	Ravi Kant Soni
13	Raghuva nshi	Deepa	End user	J22VG097724	27/07/2023	Ravi Kant Soni
14	Bai	Santoshi	End user	J22VG099140	27/07/2023	Ravi Kant Soni
15	Namdev	Kalpana	End user	J22VH124677	28/07/2023	Ravi Kant Soni
16	Bhandari	Lalita	End user	J23VE059733	28/07/2023	Ravi Kant Soni
17	Chouhan	Ambika	End user	J23VF081427	28/07/2023	Ravi Kant Soni
18	Barde	Bati Bai	End user	J22VL330481	28/07/2023	Ravi Kant Soni
19	Wasave	Kinabai	End user	J23VC474384	28/07/2023	Ravi Kant Soni
20	Bai	Relki	End user	J22VH130733	28/07/2023	Ravi Kant Soni
21	Bhilala	Giyani Bai	End user	J23VA383948	28/07/2023	Ravi Kant Soni
22	Bai	Sevanti	End user	J22VD013590	28/07/2023	Ravi Kant Soni
23	-	Rajaram	End user	J22VI185700	28/07/2023	Ravi Kant Soni

The households were asked the following questions.

- Usage and functionality of ICS
- Whether any other type of stove is installed and if yes, its hours of operation
- Physical condition of stove or if any changes were made by the households after its installation that could affect the stove efficiency and maintenance is done as and when required.
- Hours of usage
- Do the users aware of grievance mechanism.
- Users were also asked about how the family has benefitted from the installation of Greenway Jumbo Cookstove , for example: reduction in smoke or indoor air pollution, efficient cooking, reduction in time spent for collection of firewood and the quantity of the firewood collected.

In general, the ICS were operational, and the user's informed cooking was much easier and cleaner by improvising the indoor air quality and has also helped in saving the time of the end-user by improvising the efficiency of the cookstoves. This project device has improved the working conditions of the women in the kitchen.

In short, positive feedback was received from the end-users regarding the ICS during the on-site visit conducted by the auditor.

2.4 Site Visits

No.	Activity performed on-site	Date	Team member
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1.	An assessment of the implementation and operation of the registered project activity as per the registered joint PD.	26/07/2023 to 28/07/2023	Ravi Kant Soni
2.	Assessment of data management system, QA/QC procedures. Comparison of end-user data/Warranty cards information in the database (dates, serial numbers, names, locations etc.) A review of information flows for generating, aggregating, and reporting the monitoring parameters	26/07/2023 to 28/07/2023	Ravi Kant Soni
3.	Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the joint PD.	26/07/2023 to 28/07/2023	Ravi Kant Soni
4.	A cross check between information provided in the monitoring report and data from other sources such as inventories, purchase records or similar data sources	26/07/2023 to 28/07/2023	Ravi Kant Soni
5.	A review of calculations and assumptions made in determining the GHG data and emission reductions	26/07/2023 to 28/07/2023	Ravi Kant Soni
6.	An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters	26/07/2023 to 28/07/2023	Ravi Kant Soni

The site visit was conducted to carry out the following.

- a) An assessment of the implementation and operation of the registered project activity as per the registered VCS PD and VCS MR;
- b) A review of information flows for generating, aggregating and reporting the monitoring parameters.
- c) Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PD.
- d) A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;
- e) A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline.
- f) A review of calculations and assumptions made in determining the GHG data and emission reductions.

- g) An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review and interaction with site personnel over phone. The verification team prepares and/or updates a verification protocol (internal document) that records the conformities and non-conformities, which may be of following types.

CAR (Corrective Action Request) is raised if one of the following occurs:

Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient.

Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants.

Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions.

Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants. Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CLs raised by the Applus+ Certification during verification shall be resolved prior to submitting a request for issuance.

FAR (Forward Action Request) is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period. During the current verification, 02 Corrective Action request (CARs) and 01 Clarification request (CLs) were raised and successfully closed. However, 01 Forward Action request (FARs) is raised during the current verification period and shall be closed during next verification. All the findings that are raised and communicated to project participant during the verification are included under Appendix 3. The section also includes the response, if provided, by the project participants and an assessment by the verification team if it was closed out or otherwise.

2.5.1 Forward Action Requests

The project activity is undergoing third verification under VCS; there were no FARs raised during the validation or previous verification/06/.

2.6 Eligibility for Validation Activities

This section is not applicable for present verification, as Applus+ Certification holds the accreditation for Validation of projects under this Sectoral Scope.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The Project is registered under VCS only (VCS ID-2533).

The PP has submitted the declaration/15/ which states that the net GHG emission reductions generated by the project activity will not be used for compliance with any other emissions trading program or to meet binding limits on GHG emissions for the same monitoring period.

3.2 Methodology Deviations

There is no methodology deviation identified during the current monitoring period.

3.3 Project Description Deviations

No project deviation identified.

3.4 Grouped Project

The purpose of the project (grouped project) is to introduce Improved Cook Stoves (ICS) in household's premises that use traditional mud stoves (chulhas) for cooking. A total of 201,315 ICS was disseminated by the end of this 3rd monitoring period. There are new project activity instances added to the project in this verification period. The eligibility criteria of the current Project Activity Instance, was established at the group project validation in the registered VCS PD.

The assessment team has reviewed the evidence collected by the PP for each of the instances included in this verification and confirmed the following.

- (a) Implementation and operational status of the PAI
- (b) Monitoring and data collection
- (c) Flow of information; generating, aggregating, and reporting of the monitoring parameters
- (d) Conformance of the new project activity instances with the eligibility criteria set out in the project description.

The assessment team assessed the appropriateness of new project activity instances (against

the requirements of the following key elements:

Key Criteria	Requirements	VVB Assessment
The geographical boundary of the project instances includes any time-induced boundary. consistent with the geographical boundary set in the Project Description	VVBs must ensure that the project description clearly identifies the geographic areas within which new instances may be added. Geographic areas must be defined using geodetic polygons and provided in a KML file. Such geographic areas need not be contiguous and may be large or small, noting the grouped project	The verification team reviewed the sales record database /13/ and by further conducting interviews with representatives of PP to confirm that all new project activity instances are located within the geographical area identified in the registered VCS PD /03/. All new project activity instances are located within the state Madhya Pradesh. This is deemed appropriate to the verification team. Thus, the requirement of this key element is met.
Conditions that avoid double counting of emission reductions like unique identification of product and end-user locations	A unique numbering system for ICS will be applied in each project stances, assigning a unique number to each ICS and allowing to clearly identify for each ICS to which project instance/cluster it belongs. Provisions will be made to collect geo-coordinates.	During the site visit, it is confirmed that each ICS has unique serial number encrypted on the jumbo cookstove and is visible. Further, PP has the tool to enter the geo-coordinates of the stove location. Hence, it complies with the required criteria.
The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications	Project stances under this project will consist of the distribution of ICS with a thermal efficiency of at least 25% efficiency as per water boiling test or compliance with Tier II and above as per ISO to household users cooking with non-renewable biomass in the baseline scenario. The project instances will involve replacement of conventional firewood cook-stoves for biomass fired ICS as defined in the VCS PD. Stove types replaced and implemented is defined in the VCS PD, and hence appliances involving the efficiency improvements in the thermal applications of non-renewable biomass as per VMR0006.	The assessment team has checked the ICS test report /09/ and confirmed that the distributed single pot Green Jumbo cookstove having certified efficiency of 38%. Since the efficiency of the ICS is more than 25%, hence eligibility criteria are met.
The conditions that ensure that the project instances meet the requirements pertaining	Have characteristics with respect to additionality that are consistent with the initial instances for the	The verification team reviewed the sales record database /13/, conducted interviews with representatives of PP and further based on its sectoral expertise

to the demonstration of additionality.	specified project activity and geographic area.	confirms that baseline scenario for each project technology and geographic area, as identified in section 3.4 of the VCS PD /03/, is applicable to the corresponding new project activity instances under the specific technology. During the site visit the assessment team has observed that some households still make partial use of baseline stoves due to the following reasons. (a) Cultural and religious norms lead the households to cook vegetarian food on one stove device and non-vegetarian food on another, (b) Community functions, guests' gatherings, religious and cultural events require the households to cook more and during those days/time periods they tend to use the baseline stoves. The verification team assessed that the project incorporates a screening process for potential beneficiaries. This step is for ensuring alignment with the baseline and additionality conditions. The screening is enabled by demonstration events held in villages prior to ICS distribution. These events are held by the operations team (or Grameen Sahayaks) and serve the purpose of generating awareness and identifying potential beneficiaries. The potential beneficiaries are requested to register their interest in receiving the ICS, and this request is further approved or rejected by the Project Manager(s). The approval is based on the beneficiary household's adherence to baseline conditions. The PP is distributing ICS at a subsidized rate. This has been established through site visit, beneficiary interviews and the latest agreements signed between the Project Proponent and the beneficiary/10/. The verification team can confirm that each new project activity
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		instance included within the grouped project follows the additionality. Thus, it has been demonstrated that for each project activity instance included in grouped project. - Baseline scenario exists (corresponding to the project technology) - the requirements of additionality are being complied with for the entirety of geographic area (Madhya Pradesh) within which they are installed. This is deemed appropriate to the verification team. Thus, the requirements of this key element have been met by all the new project activity instances added to the grouped project.
Where applicable, the conditions related to sampling requirements for the project in accordance with the "Standard for sampling and surveys for CDM project activities and Programme of Activities".	VVBs must ensure that the project has an appropriate monitoring plan that includes a sampling plan to collect data from all project activity instances and information systems, allowing for centralized data collection. VVBs must ensure the sampling plan is able to generate statistically significant results.	The verification team reviewed the VCS MR /01/ and further conducted interviews with representatives of PP to confirm that the monitoring plan and procedures mentioned therein (which includes the sampling plan) is in conformance to the requirements laid out in the VCS PD /03/. Moreover, according to the monitoring plan the PP is responsible for collecting and storing data. The verification team further confirms that new project activity instances will conform to the monitoring plan requirements and procedures stated therein.
VER ownership	VVBs must ensure that a default distribution agreement for end users including the provision that emission reductions generated by the stove are owned by the PP is being signed by each individual end users.	During the on-site visit the assessment team verified that an agreement between the beneficiary households and the PP was available at the sampled beneficiary households. Hence, hence eligibility criteria are met.
Where a capacity limit applies to a project activity included in the project, no Project instance shall exceed	Applied methodology VMR0006, ver. 1.1 does not define any specified capacity limits for the grouped project, hence this	Based on the assessment of registered PD, applied methodology and on-site visit. It can be confirmed that the stated eligibility criteria are not applicable.

such limit. Further, no single cluster of project activity instances shall exceed the capacity limit, determined as follows: a) Each project activity instance that exceeds one percent of the capacity limit shall be identified. b) Such instances shall be divided into clusters, whereby each cluster is comprised of any system of instances such that each instance is within one kilometre of at least one other instance in the cluster. Instances that are not within one kilometre of any other instance shall not be assigned to clusters. c) None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any of the clusters to exceed the capacity limit	eligibility criteria are not applicable.	
Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance	The new project instance shall be required to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance	The assessment team interviewed the project representatives during the site visit and confirmed that no ODA is involved. Furthermore, the PP has submitted the declaration confirming that no funding from Annex-1 parties is received
The Grouped project-specific requirements stipulated by the project proponent including any conditions related to undertaking local stakeholder consultations and environmental impact analysis, have been met	The local stakeholder consultation was conducted at a group project. Each new project instance/project will be implemented in a similar social economic context. The key stakeholders of the program both at group project activity and new project instance level are the same. To check for actions needed at the new project instance level for satisfying this eligibility criteria.	The assessment team has checked the registered PD and confirmed that the stakeholder consultation was conducted at project level. The project database confirms that the new project instances are implemented in a similar social economic context, Hence, hence eligibility criteria are met.

Have a start date that is the same as or later than the grouped project start date	All future instances shall have the start date after the date of first instance.	The assessment team reviewed the MR, sample electronic sales records for new project activity instances, sales database and further conducted interviews with representatives of PP to confirm that start dates of new instance is after the date of first instance. Hence, hence eligibility criteria are met.
Applicability of VCS methodology	All future instances shall fulfil all-applicability criteria of VCS methodology VMR0006, v1.1.	The assessment team has reviewed the MR, registered PD and it can be confirmed that the new project activity instances comply with the requirements of applied methodology VMR0006, v1.1. Hence, hence eligibility criteria are met.
Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area	The new instance shall adhere the baseline requirements of the VMR0006, v1.1.	The assessment team reviewed the sales database conducted interviews with representatives of PP and further based on its sectoral expertise confirms that baseline scenario and geographic area, as identified in section 3.4 of the registered VCS PD, is applicable to the new instances under the grouped project. Hence, hence eligibility criteria are met.
Be eligible for crediting from the start date of the project activity instance through to the end of the project crediting period (only).	The project instance will be only eligible for the crediting from its start date through to the end of the project crediting period (only).	The crediting period for the grouped project starts on 01/01/2022, that is the project start date as stated in the Joint VCS PD. PP has considered the start date of commissioning of first ICS as project start date and hence the start date of crediting period. The assessment team confirms that the crediting period of the project activity instances lies within the lifetime of the grouped project activity. Hence, hence eligibility criteria are met.
Not be or have been enrolled in another VCS project	No project instance to be included which is part of another grouped or standalone VCS project	The assessment team has physically checked the ICS & sales database & confirmed that the ICSs distributed having unique identification number along with the end users name, address, geographical location and are

		clearly identifiable. Hence chances of enrolment of project instance with another VCS project can be ruled out. Hence, hence eligibility criteria are met.
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In view of the above assessment the verification team confirms that inclusion of project activity instances in the grouped project is valid.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project “Improved Cookstove Programme by SDG13 in India”, is a grouped project, which employs the VCS methodology; VMR0006 version 1.1 /18/. The grouped project involves distribution and installation of fuel-efficient improved cook stoves (ICS) in Madhya Pradesh, India. The project will disseminate 500,000 fuel efficient (ICS) Greenway Jumbo Cookstoves through 5 years and each year consist of 100,000 ICS, total ICS during this monitoring period is 201,315. The Greenway Jumbo Cookstoves will reduce the amount of non-renewable biomass used for cooking. The project proponent has considered each ICS distributed as a project activity instance. The start date for the grouped project is 01/01/2022 /07/ which is the date of installation/registration of the first stove in the grouped project.

The verification team confirms that there is no change of physical features from the registered VCS PD, which may impact the emission reductions of the project activity. This has been confirmed based on the review of sales records /13/, conducting interviews with representatives of PP as well as by carrying out on-site interviews with end users. Thus, the verification team concludes that all the physical features of the VCS grouped project in the registered VCS PD/03/ are in place.

The verification team confirms that during the current monitoring period (01/01/2023 to 30/06/2023) 62,154 ICS were distributed and since the start date of project until the end of current monitoring period total 201,315 ICS distributed as verified through the sales database/13/and further based on interviews with representatives of PP through on-site interviews.

During the on-site interviews for verification, QA/QC procedures were identified which demonstrate that: operational and management system of the grouped project is in place; data were centralized; monitoring data were crosscheck with the sales records stored and confirmation that all operational staff were trained before taking up positions. The verification team thus confirmed that the monitoring of the project activity has been implemented in accordance with the monitoring plan in the registered VCS PD.

The registered VCS PD clearly describes the monitoring and responsibility of monitoring is done by PP. During the on-site interviews, monitoring, data collection and reporting procedures were confirmed with the relevant staff and through document review of samples of all relevant records.

The verification team confirms that the monitoring plan is in accordance with VCS approved methodologies VMR0006 version 1.1 /18/. All data are collected and archived in accordance with the applied methodologies and included in the monitoring plan. This was confirmed based on the on -site interviews with representatives of PP and upon further review of samples of all relevant records.

All the ex-ante parameters which are used in the calculation of emission reductions are consistent with the VCS PD. It is confirmed that ex-ante parameters mentioned in section 4.1 of the MR /01/ are in line with the parameters mentioned in section 5.1 of the VCS PD. All the ex-post parameters have been monitored as per the monitoring plan and presented in section 4.2 of the MR /01/.

The VCU's achieved under this monitoring period 01/01/2023 to 30/06/2023 (including both days) is 479,895 tCO₂e.

Assessment team concludes the following:

- a) There are no material discrepancies between project implementation and the project description provided in the registered PD/01/.
- b) The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters) is appropriate.
- c) There are no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology/18/.
- d) The GHG emission reductions or removals generated by the project have not included in an emissions trading program or any other mechanism that includes GHG allowance trading/15/.
- e) The project has not received or sought any other form of environmental credit or has become eligible to do so since validation or previous verification/15/.
- f) The project is registered under VCS only.
- g) The project activity is complied with indicators for sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India as discussed under section 1.10 of MR.
- h) The audit history table is provided below:

Audit Type	Period	Program	VVB Name	Number of years

Validation	-	<u>VCS</u>	KBS Certification Services Pvt. Ltd	-
Verification	01-01-2022 to 30-04-2022	<u>VCS</u>	LGAI Technological Center S.A. (Applus+ Certification)	4 months
Verification	01-05-2022 to 31-12-2022	<u>VCS</u>	LGAI Technological Center S.A. (Applus+ Certification)	8 months
Verification	01-01-2023 to 30-06-2023	<u>VCS</u>	LGAI Technological Center S.A. (Applus+ Certification)	6 months
Total	01-01-2022 to 30-06-2023	-	-	1 year 6 months,

The assessment team has checked the information about the audit history as provided in the above table and confirmed that the information provided are accurate.

In view of the information's as verified above the assessment team can conclude that the project has been implemented as described in the project description.

4.2 Safeguards

4.2.1 No Net Harm

The project activity does not pose any potential negative environmental and socio-economic impact. The project does not coerce the population into any practice or habit which they are not

willing to take up as the cooking practice or habit on the project stove is like what was practiced before implementing this project activity, i.e., on the baseline stove.

The project activity promotes gender equality as it intends to reduce the burden on women in the most vulnerable communities by reducing the fuel wood consumption. The amount of time spent collecting fuel wood and cooking will be reduced. Women will have more time for other pursuits. The risk of being exposed to gender-based violence will also be reduced.

The project is neither involved in any activity that would bring environmental deterioration nor would it lead to any emission of toxic substances. The project stoves will rather reduce emissions due to the increased thermal efficiency compared to the baseline stoves.

There are no threats anticipated in terms of negative effects on the local economy. Moreover, the locals will also be employed because of this project activity. Thereby improving the economic growth in the region where the project activity has been implemented.

4.2.2 Local Stakeholder Consultation

The Local Stakeholder Consultation meetings were held on 03/05/2021 at Mahua Vann Resort, village Kuppitola, district Seoni during the validation and are detailed in section 2.2 of the monitoring report /01/. The Local Stakeholder consultation was carried out at grouped project level, which was validated by the validation team during the VCS PD /03/ validation. The key comments made by the local stakeholders were all answered during the local stakeholder consultation meetings and have also been provided in the section of 2.2 the registered PD /03/ and MR /01/.

The local implementation partners have the responsibility to take grievances regarding the project activity and same will be conveyed to PP during operation of project activity. Thus, ongoing communication of stakeholders is followed through grievance mechanism. The audit team has checked through onsite audits with the end users, no grievance has been received during the third monitoring period. The Project Proponent has reported its feedback and grievance redressal procedure in Section 2.2 of the MR /01 /, and the policy is outlined in the document “Project Grievance Redress Mechanism” /24/. In the opinion of the assessment team, based onsite interviews and observations, the grievance redressal procedure will address issues that may arise during project planning and implementation.

The grievance redressal process has been designed where beneficiaries and stakeholders have PP contact information and the understanding that they should contact the organization with any problems, questions, or grievances.

The project proponent has implemented mechanism for ongoing communication with local stakeholders to allow stakeholders to raise concerns about potential negative impacts during implementation and operation of the project activity. The project proponent has placed a grievance register and a grievance box at respective site office/24/, where the local villagers can register their concerns.

The assessment team has checked the grievance register maintained at respective site office/24/ and confirmed that no formal complaints were received during the current monitoring period.

4.3 AFOLU-Specific Safeguards

Not applicable to the project activity.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The equations and choices provided in the methodology as well as all other methodological tools, are correctly quoted in the Monitoring report /01/. The emission reductions of the project instances of the grouped project and project activity instance are calculated using the formulae mentioned in the applied methodology; VMR0006 version 1.1/18/. The verification team reviewed the emission reduction spread sheets (ER sheets) and checked all the formulae, concluding that they are correct and in accordance with the monitoring plan of the PD and the applied monitoring methodology.

According to applied methodology VMR0006 (version 1.1) /18/ the emissions are calculated as below:

Baseline emission:

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

Where,

i = Indices for the situation where more than one type/model of improved cookstove is introduced to replace three-stone fire

j = Indices for the situation where there is more than one batch of improved cookstove of type i

ER_y = Emission reductions during year y in t CO₂e

ER_{y,i,j} = Emission reductions by improved cookstove of type i and batch j during year y in tCO₂e

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

Where,

B_{y,savings,i,j} = Quantity of woody biomass that is saved in tonnes per improved cookstove of type i and batch j during year y

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

$NCV_{wood\ fuel}$ = Net calorific value of the non-renewable woody biomass that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/tonne)

EF_{wf,CO_2} = CO₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO₂/TJ)

$EF_{wf,non\ CO_2}$ = Non-CO₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO₂/TJ)

$N_{y,i,j}$ = Number of improved cookstoves of type i and batch j operating during year y

0.95 = Discount factor to account for leakage

The quantify of woody biomass saved ($B_{y,savings,i,j}$) due to implementation of improved cook stoves can be estimated using the following equation:

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

Where,

η_{old} = efficiency of baseline cookstove (fraction)

$\eta_{new,i,j}$ = efficiency determined using equation 5 of applied approved methodology (%)

$B_{y=1, new,i,survey}$ = annual quantity of woody biomass used by improved cookstove in tonnes per device of type i and batch j, determined in the first year of the implementation of the project through a sample survey (tonnes/year/stove)

The efficiency of the project stoves can be estimated using the equation below.

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

Where,

η_p = efficiency of project stove (fraction) at the start of the project activity

$(DF_n)^{y-1}$ = discount factor to account for efficiency loss of project cookstove per year of operation (fraction).

0.94 = adjustment factor to account for uncertainty related to project cookstove efficiency test

Leakage Emissions: In accordance with methodology VMR0006 version 1.1, leakage is considered as default 0.95.

Sampling approach:

PP's Sampling Approach:

The monitoring of the project for verification includes parameters which require data related to operations of the cookstoves. Since it is not feasible to monitor all the cookstoves, the sampling-based approach is adopted by the PP. For sampling, the PP has followed the CDM guidelines for Sampling and surveys for CDM project activities and Programmes of activities version 4.0 which is in line to the registered PD. The confidence precision level applied by the PP for the sampling is 95/10, which is appropriate as per the requirement of cross-VPA sampling. The project proponent has applied simple random sampling approach across VPAs for different monitoring parameters. As the population is relatively homogeneous (same stove type, population, and cooking habits) with respect to the object of the sampling effort, simple random sampling method was found appropriate for the survey. The PP demonstrated to the satisfaction of the verification team that the survey conducted was free of any bias, calculation errors or any misinterpretation/misrepresentation of recorded data.

The proportional parameter will be estimated through a simple random sampling survey. To estimate the sample size for this parameter the following equation will be used:

$$n \geq \frac{1.96^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.96^2 p(1-p)}$$

Where:

n= Sample size

N = Total number of ICS installed under the project

p = expected proportion (0.5)

The PP has determined the sample size as 21 considering the values as provided in the below table:

Expected proportion, p	0.95
Confidence level	95%
z multiplier	1.960
Relative precision	10%
Population size, N	201,315
Predicted sample size, n	21

It is noted that the resulting sample size to achieve the desired confidence/precision levels is smaller than 30 ICSs, as per the applied methodology a minimum sample size of 30 is to be considered, hence there are total 202 samples were survey by the PP.

The reliability test results for applied sample size by the PP are summarized below:

Parameters	$N_{y,i,j}$
Sample size	202
Precision achieved	0%

The assessment team reviewed the sample size determination and Reliability Calculation of the surveys and reproduced the same result as per the Standard: Sampling and surveys for CDM project activities and programme of activities /20/, Guideline: Sampling and surveys for CDM project activities and programme of activities /21/, and Sample Size Calculator.

The actual number of ICS covered by the PP sample were clearly larger than the minimum size required. The precision achieved for the confidence level 95% is within the limit (<10%) for the parameter of interest. For the sampling of parameter " $N_{y,i,j}$ " simple random sampling has been applied, and 252 ICS have been randomly selected. The randomization was undertaken using Research Randomizer, and the same has been verified by the verification team. The samples were drawn from the database. Hence the verification team was able to confirm that the samples were representative of the total population. It is verified during the site visit that within the selected ICS, 202 household have been surveyed.

The reliability (demonstration of precision achieved after the survey results) is depicted in the ER spreadsheet /02/ corresponding to final Monitoring Report /01/, which were also found correct. Based on the verified results the assessment team found that the required precision was met and therefore the results were directly used in the calculation of ERs. The assessment team can conclude that the sampling approach complied with requirement of the Sampling and surveys for CDM project activities and programmes of activities guideline.

VVB sampling approach:

To meet the requirements of Standard for Sampling and surveys for CDM project activities and Programmes of activities version 09.0, the verification team applied acceptance sampling in the verification (in accordance with para 28). The verification team selected random samples of PP's sampled records, checked the acceptability (or otherwise) of the data for each such record with PP's sample records, and then based on the number of records where there is an agreement, determined if the CME's sample records meet the requirements.

The verification team has thus determined the sample size for acceptance sampling by evaluating the following, using guidance in the Standard 'Sampling and surveys for CDM project activities and programme of activities':

- The proportion of discrepancies between the PP'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): 1% was considered in this verification.
- The proportion of discrepancies between the PP'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: 5% was considered.
- The consumer risk: 10% was considered.

Considering the above input values, a sample size of 18 was required as per Table (Sample size and acceptance number based on AQL, UQL, and producer and consumer risks) in the referred Standard.

Accordingly, the acceptance number (c) thus determined for the sample size is 01.

AQL	AQL:1%
UQL	UQL:20%
Producer risk	5%
Consumer risk	10%
Sample size	18
Acceptance Number (c)	01

The VVB has picked 21 samples from the household user category for verification sampling. The samples to be surveyed by the verification team were randomly selected from the list of monitored samples using the random sample generator on Microsoft excel.

It was observed that out of the 21 samples, all the 21 stoves were found to be operational, and this matched with the PP's records and hence no discrepant records were observed with the MR /01/ and ER sheet/02/ and thus $c=0$. Thus, CME's set of records has been accepted in line with § 33 of the sampling standard, version 09 /20/. Verification team has cross verified these sample documents.

The monitoring parameters required to be monitored through the sampling plan are:

1. Number of project devices operating during year y ($N_{y,j,j}$)

Simple random sampling was applied by the PP for selection of the monitoring samples with 90/10 confidence/precision for determining the sampling for all the parameters which is deemed acceptable as per the VCS PD /15/.

As per paragraph 25 of the Sampling Standard, version 09 /B04/, the verification team has to verify whether the project participants entity 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.

The sampling plan implemented by the PP is in accordance with the applied approved monitoring methodology /18/ and the VCS PD /03/. The PP has appropriately performed Simple random Sampling procedure in line with the applied methodology. As the VCS PD /03/ mentions the option for Simple random Sampling procedure, it is acceptable to the verification team.

The necessary confidence / precision of 95/10 each of the parameters are met. This has been cross verified by the verification team from the supporting documents submitted.

Emission reductions have been calculated in accordance with the applied methodology VMR0006 version 1.1 /18/, and VCS PD /03/. The PP has used monitored data and ex -ante fixed data including default values as mandated/permitted by the applied methodology. The values used for calculation of GHG emission reductions have been thoroughly checked by the verification team and was found appropriate and correct.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

During the verification, all relevant monitoring parameters of the registered monitoring plan have been verified regarding the appropriateness of the verification method; the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. All monitoring parameters have been measured / determined without material misstatements and are in line with all applicable standards and relevant requirements. It is confirmed that the monitoring mechanism is effective and reliable.

Parameters monitored ex-post:

The following parameter has been verified for current monitoring period:

Parameter 1: Number of project devices of type I and batch j operating during year y ($N_{y,i,j}$)

Means of verification	Criteria/Requirements	Assessment
	Measuring /Reading /Recording frequency	At least once every two years
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered VCS PD/03/ and applied methodology/18/.
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The total number of ICS reported in the monitoring report is 201,315. PP keeps records of sale of each system on its online portal as checked during the current audit

		through the review of online systems. Each ICS has unique ID, which is listed in the database, the entries in database were checked to confirm the total number of project devices presented in the MR. Also, the assessment team interviewed 21 samples to confirm that the details of the end-users in the database/13/ are correct.
	If applicable, has the reported data been cross-checked with other available data?	Yes. The sampled entries (23) were checked with the installation invoices /17/ and the details were found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable.
Findings	CL #1 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/03/ (as per measurement methods and procedures to be applied) and applied methodology/18/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/03/.	

Parameter 2: Efficiency of the device of each type i and batch j implemented as part of the project activity ($\eta_{new,i,j}$)

Means of verification	Criteria/Requirements	Assessment
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered PD/03/ and applied methodology/18/.
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	Value of the parameter is 38 % (As per WBT result and used for the current monitoring period. Efficiency is determined using equation 5 of the applied methodology (VMR0006). $\eta_{new,i,j} = \eta_P \times (DF_n)^{y-1} \times 0.94$

		Value is calculated in the ER spread sheet and found to be in line with the procedure as described in the registered monitoring plan.
	If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the ER sheet.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
Findings	CAR #2 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/03/ (as per measurement methods and procedures to be applied) and applied methodology/18/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/03/.	

Parameter 3: Life Span

The operating lifetime of the project device. The lifespan should be reported if the methodology equation 5 is adopted to determine the project stove efficiency (Years)

Means of verification	Criteria/Requirements	Assessment
	Measuring /Reading /Recording frequency	Once at the time of installation of batch of type of stove
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered VCS PD/03/ and applied methodology/18/.
	Monitoring equipment	Value obtained from Manufacturer specification/08/.
	How were the values in the monitoring report verified?	Value of the parameter is considered as 7 years.
	If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been compared with the ER sheet and manufacturer specification.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable.
Findings	No finding was raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/03/ (as per measurement methods and procedures	

	to be applied) and applied methodology/18/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/03/.
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Parameter 4: Date of commissioning of batch j

To establish the date of commissioning, the PP may opt to group the devices 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.

Means of verification	Criteria/Requirements	Assessment
	Measuring /Reading /Recording frequency	Once at the time of commissioning/distribution of the last project device in the batch
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered VCS PD/03/ and applied methodology/18/.
	Monitoring equipment	Not applicable
	How were the values in the monitoring report verified?	First batch was commissioned on 01/01/2022 as verified through the project database /07/,/13/.
	If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR has been cross checked with the installation invoices /17/ and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data from monitoring survey /12/ and reporting of emission reductions and all necessary QA/QC processes are in place.
Findings	CL #1 was raised and resolved.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/03/ (as per measurement methods and procedures to be applied) and applied methodology/18/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/03/.	

Parameter 5: Adjustment to account for any continued use of pre-project devices during the year y (μ_y)

Means of verification	Criteria/Requirements	Assessment
	Measuring /Reading /Recording frequency	At least once every two years
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered VCS PD/03/ and applied methodology/18/.

	Monitoring equipment	Not applicable
	How were the values in the monitoring report verified?	This parameter is determined based on the monitoring survey and in line with the registered PD/03/ the sample size was calculated as per the latest version of Standard for sampling and surveys for CDM project activities and programme of activities. As demonstrated in the ER sheet the samples size is 21 and was determined with 95% confidence level and 10% precision. However, the PP has taken a sample of 202 which is more than the required sample size. Value of this parameter is verified as 0.891.
	If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR/ER sheet has been cross checked with the monitoring survey records and found to be appropriate.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data from monitoring survey /12/ and reporting of emission reductions and all necessary QA/QC processes are in place.
Findings	No finding was raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/03/ (as per measurement methods and procedures to be applied) and applied methodology/18/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/03/.	

Parameter 5: Annual quantity of woody biomass used by improved cookstoves in tons per device of type i and batch j ($B_{y=1,new,i,j,survey}$)

Means of verification	Criteria/Requirements	Assessment
	Measuring /Reading /Recording frequency	In the first year of project implementation
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered VCS PD/03/ and applied methodology/18/.
	Monitoring equipment	Not applicable
	How were the values in the monitoring report verified?	1.245 tonnes/ device /year (As per survey report and KPT conducted from 28/06/ 2022 to 31/08/ 2022.

		It is to be noted that to ascertain the seasonal variations in the parameter and assess the impact of awareness campaigns to get beneficiaries to stop using baseline stoves. The PP has conducted another KPT from 19/02/2023 to 10/03/2023, considering 24 samples and value of the parameter was determined as 1.368 tonne/device/year. As per the applied methodology the parameter is determined during the first year of the introduction of the devices (e.g. during the first year of the crediting period, $y=1$). Hence In line with methodology requirements for the parameter, the PP has used the value of parameter $B_{y=1,new,i,j,survey}$ 1.245 tonnes/device /year for the current verification.
	If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data in MR/ER sheet has been cross checked with the KPT survey records and found to be appropriate.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data from monitoring survey /12/ and reporting of emission reductions and all necessary QA/QC processes are in place.
Findings	No finding was raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan/03/ (as per measurement methods and procedures to be applied) and applied methodology/18/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/03/.	

Parameters Determined ex-ante:

The following parameters are determined ex-ante and mentioned in the registered VCS PD:

Parameter	Unit	Value	VVB Assessment
NCV _{wood fuel}	TJ/tonne	0.0156	Default values from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 1 Introduction have been used/22/.
f _{NRB}	fraction	0.901	The value is referred from registered PD/03/ and determined in line with the applicable methodological CDM Tool 30, version 4.0.

$EF_{wf,non\ CO_2}$	tCO ₂ e/TJ	26.23	Default values from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion have been used/22/.
EF_{wf,CO_2}	tCO ₂ e/TJ	112	Default values from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Volume 2 Energy, Chapter 2 Stationary Combustion have been used/22/.
η_{old}	fraction	10%	Default values as per the methodology/18/.
$\eta_{new,i,j}$	fraction	38%	The disseminated cookstoves were found to be more efficient than the traditional stoves. The thermal efficiency as per the KIRDI test report/09/ was found to be 38%.

The spread sheet submitted by the PP clearly and transparently mentions values of the data parameters used for calculation of emission reductions. The input values have been verified from reliable and authentic sources including monitoring records (distribution records) /13/, Monitoring Report /01/, and applied methodology /18/. The emission reductions calculated were compared with the emission reduction spread sheet /02/ and found to be correct. No significant reporting risks have been identified for the data reported.

4.6 Non-Permanence Risk Analysis

Not applicable for the project activity.

5 VERIFICATION OPINION

Applus+ Certification, contracted by SDG13 Ventures Pte Ltd, to perform the independent verification of the emission reductions for the VCS grouped project activity “Improved Cookstove Programme by SDG13 in India” (VCS ID- 2533) in India for the monitoring period 01/01/2023 – 30/06/2023 as reported in the Monitoring Report Version 04 dated 31/12/2023 .The SDG13 Ventures Pte Ltd is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity. Applus+ Certification commenced the verification based on the baseline and monitoring methodology VMR0006 version 1.1, the monitoring plan contained in the registered VCS PD Version 03, dated 18/10/2021 and VCS guidelines version 4.4, Monitoring Report Version 04 dated 31/12/2023 as per the process described under Section 2 of this report. Applus+ Certification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these.

Applus+ Certification planned and performed the verification by obtaining evidence and other information and explanations that Applus+ Certification considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 01/01/2023 – 30/06/2023 (both days included) are fairly stated in the Monitoring Report Version 04 dated 31/12/2023. The GHG emission reductions were calculated correctly based on the approved baseline and monitoring methodology VMR0006 version 1.1, and the VCS standard version 4.5.

As summary the verification team able to conclude that:

- The project is in line with all relevant host country criteria (India) and all relevant VCS version 4 program guidelines requirements.
- Verification of the GHG statement was conducted in accordance with ISO 14064-3:2019
- A reasonable level of assurance has been applied.

Verification period: From 01/01/2023 – 30/06/2023 (including both days)

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

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)
2023 (01/01/2023 – 30/06/2023)	479,895	0	0	479,895

Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PD:

Year	Ex-ante emissions reductions/removals	Achieved emissions reductions/removals	Percent difference	Justification for the difference

2023 (01/01/2023 – 30/06/2023)	531,631	479,895	(-) 9.7%	Please refer justification below this table:
Total	531,631	479,895	(-) 9.7%	-

The PP has calculated the emission reductions using the following methods:

Approach 1:

Parameter	Value	Source of data	Remark
By=1, new,i,survey (Tonne/HH/year)	1.245	KPT conducted during first year of operation from 28/06/2022 to 31/08/2022	This is in line with the methodology
By,savings,l,j (Tonne/HH/year)	3.189	Calculated	
μ_y (fraction)	0.891	Determined based on survey conducted for current monitoring period	As per the applied methodology is not required to account μ_y as the PP uses equation 4 (By=1, survey method) to compute By,savings. Hence $\mu_y=1$ is considered for ER Calculations.

Using the values of the parameters as per above table, the actual emission reductions achieved during the current monitoring period as 490,281 tCO₂e that is 7.8% lower than the estimated ex-ante emission reductions for comparable period based on the parameters provided in the registered PD.

Approach 2:

Parameter	Value	Source of data	Remark
By=1, new,i,survey (Tonne/HH/year)	1.368	Latest KPT conducted during from 19/02/2023 to 10/03/ 2023	This is not in line with the methodology. However the KPT was conducted to account the seasonal variations in the parameter By=1,new,l,j,survey,

			and assess the impact of awareness campaigns to get beneficiaries to stop using baseline stoves.
$B_{y,savings,i,j}$ (Tonne/HH/year)	3.505	Calculated	
μ_y (fraction)	0.891	Determined based on survey conducted for current monitoring period	As per the applied methodology is not required to account μ_y as the PP uses equation 4 ($B_y=1$, survey method) to compute $B_{y,savings}$. However, following the conservative approach μ_y is considered for ER Calculations.

The value of 479,895 tCO₂e was conservatively computed using the most recent KPT value (to reflect seasonal variations and PPs efforts in stopping baseline stove use) and an additional discount of μ . The PP has conservatively discounted their VCU claims using the μ factor i.e. usage factor to account for use of baseline cookstoves. This has been observed as well as reported in the previous two monitoring periods and PP has deliberately chosen a more conservative approach (despite them not needing to do so as per the Methodology).

Conclusion:

The PP has decided to claim the VCUs 479,895 tCO₂e (9.7% lower than ex-ante) determined following the approach 2 instead of 490,281 tCO₂e. The approach followed by the PP is found to be satisfactory and conservative, hence accepted.

The PP conducts periodic demonstration events and maintains connect with the beneficiaries (Section 2, Table 4 and Appendix II of MR). These events have helped the purpose of generating awareness and educating beneficiaries on the problems associated with the use of baseline stoves. This has led to households reducing or stopping the use of baseline stoves. The same was reflected in the higher KPT values, from the measurement campaigns which were conducted in 2023. Furthermore, FAR is raised for the next verification period and verifying VVB shall check the use of baseline stoves and explain what action was taken by the PP to decommission baseline cookstoves.

APPENDIX 1: DOCUMENT REFERENCES

S. No	Title of Document	Version	Date
1.	Monitoring report	Version 01	01/08/2023
		Version 02	25/08/2023
		Version 03	25/10/2023
		Version 04	31/12/2023
2.	ER calculation spread sheet	Version 02	31/12/2023
3.	Registered VCS-PD	Version 03	18/10/2021
4.	Declaration of ICS life	-	-
5.	ICS installation database	-	-
6.	Verification report (MP02: 01/05/2022 to 31/12/2022)	Version 04	11/10/2023
7.	Evidence for the start date of the grouped project		
8.	Technical specifications of the Greenway Jumbo Stove including the life span.	-	-
9.	Result of performance test of ICS (Greenway Jumbo Stove)	-	-
10.	Sample copies of end user agreement between PP and end user (Proof of right of VCUs.)	-	-
11.	Monitoring survey questionnaire template	-	-
12.	Monitoring Survey records	-	-
13.	ICS sales Database	-	-
14.	Employment records	-	-
15.	Declaration regarding no participation in other GHG program for the concerned monitoring period	-	-
16.	Evidence for the random sample selection for the parameters opted for monitoring survey	-	-
17.	Sample sales records/warranty cards for the stove	-	-
18.	Applied baseline and monitoring methodology. VMR0006. "Methodology for Installation of High Efficiency Firewood Cookstoves"	Version 1.1	-
19.	VCS Standard	Version 4.5	29/08/2023
	VCS Program Guide	Version 4.4	29/08/2023
	VCS Validation and Verification Manual version	v3.2	19/10/2016
20.	"Standard for sampling and surveys for CDM project activities and programme of activities"	Version 09.0	-
21.	Guidelines for sampling and surveys for CDM project activities and Programme of Activities	Version 04	-
22.	2006 IPCC Guidelines for National Greenhouse Gas Inventories volume 2, chapter 1	-	-

	https://www.ipccnggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf		
23.	On-site visit observation and interviews with PP, ICS users	-	26/07/2023 to 28/07/2023
24.	Grievances Redressal policy	-	-

APPENDIX 2: ABBREVIATIONS

Abbreviations	Full texts
BEF	Baseline Emission Factor
BM	Build Margin
CAR	Corrective Action Request
CL	Clarification Request
CO2	Carbon dioxide
EB	Executive Board
FAR	Forward Action Request
GHG	Green House Gas
ICS	Improved Cookstove
IPCC	Intergovernmental Panel on Climate Change
ISO	International Standards Organization
MR	Monitoring Report
MWh	Megawatt-hour
PD	Project Description
PLF	Plant Load Factor
PP	Project Proponent
QA/QC	Quality Assurance and Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Voluntary Carbon Standard
VCSA	Voluntary Carbon Standard Association
VCUs	Voluntary Carbon Units

APPENDIX 3: FINDINGS OVERVIEW

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

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

Table 2. CL from this verification

CL ID	01	Section no.	2.2	Date : 07/08/2023
Description of CL				
Please submit the following documents: i. Project ICS database ii. Employment records iii. Carbon waiver form cum warranty card as required by the project proponent to surrender their rights to carbon credits generated by the project. Please clarify why the information about current monitoring period is not included under project history table.				
Project participant response				Date : 25/08/2023
i) Project ICS database – Submitted ii) Employment records – Submitted iii) Carbon waiver form – Submitted Information about current monitoring period has been included under project history.				
Documentation provided by project participant				
i) Project ICS database ii) Employment records iii) Carbon waiver form				
DOE assessment				Date: 09/09/2023
The PP has submitted the requested documents and found them to be satisfactory. CL #1 Closed				

Table 1. CAR from this verification

CAR ID	01	Section no.	4.2	Date : 14/08/2023
Description of CAR				
Please clarify how the discount factor to account for any continued use of pre-project devices during the monitoring period is calculated. Also, the value of this parameter as mentioned in MR is not consistent with the ER sheet.				
Project participant response				Date : 25/08/2023
Firstly, the discount factor is calculated for each ICS included in the monitoring survey (202 households) by dividing the total number of meals cooked on ICS per week by the total number of meals cooked per week by each ICS user. Then, the average of all results is taken to arrive at the final discount factor. (179.90 /202 = 0.891) The value in the MR has been corrected.				
Documentation provided by project participant				
i) Calculation of the discount factor				
DOE assessment				Date: 09/09/2023
The approach followed by the PP for determination of discount factor to account for any continued use of pre-project devices during the monitoring period is found to be appropriate, hence accepted. CAR #1 is closed.				

CAR ID	02	Section no.	3.2	Date : 07/08/2023
Description of CAR				
Please clarify how the sample size considered for monitoring survey is representative with reference to the ICS ages.				
Please submit the WBT records.				
Project participant response				Date : 25/08/2023
Sample size has been chosen to achieve 95/10 confidence/precision per the requirements of the standard used for calculation (Standard – Sampling and surveys for CDM project activities and programmes of activities, Version 9.0) using the random sampling approach.				
The project has distributed the ICS devices in the state of Madhya Pradesh, India and the target beneficiaries of the project represent the same socio-economic conditions which prevail across the state. Simple random sampling is suited to populations that are homogeneous, such as in the project. In doing random sampling, the PP has been conservative and have considered 252 samples instead of the required minimum 30. In the 252 samples, a buffer of 20% was maintained to accommodate for non-responses. Therefore, PP considers that the ICS ages are adequately represented through randomized sample selection.				
Documentation provided by project participant				
i) WBT record				
DOE assessment				Date: 09/09/2023
PP has provided the clarification of the sample size considered for monitoring the survey with reference to age during this monitoring period in the revised monitoring report & PP has also provided the WBT results with supporting evidence & found satisfactory.				
CAR #2 Closed				

Table 2. FAR from this verification

FAR ID	01	Section No.	PRR	Date : 31/12/2023
Description of FAR				
During the next verification period, the verifying VVB shall verify the use of baseline stoves and explain the actions taken by the PP to decommission baseline cookstoves.				
Project participant response				Date : DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

APPENDIX 4: COMPETENCY STATEMENTS

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

The composition of audit team shall be approved by the Applus+ Certification ensuring that the required skills are covered by the team. The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

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

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

Name	Qualification	Coverage of scope	Coverage of technical Area	Financial aspect	Host country Experience	Attendance to the On-Site Assessment
Ravi Kant Soni	Lead Auditor (LA)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Ravi Kant Soni	Technical Expert (TE)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Simon Shen	Technical Reviewer (TR)	Yes (1)	Yes (1.2)	N/A	Y	N

Ravi Kant Soni is a certified lead auditor for Lead Auditor ISO 14001:2004&Lead Auditor ISO 14064:2006 GHG Inventory and verification. He has more than 10 years of work experience across Climate Change, Environmental Management & Monitoring, Health & Safety Management, and Statutory Compliance. He was involved in more than 100 CDM validation and verifications activities and Gold Standard, VER projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1 technical area 1.2. He has done Master in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from M.I.T.S Gwalior Jiwaji University Gwalior, India.

Simon Shen (master's degree in Thermal Energy Engineering, bachelor's degree in environmental engineering) is a Lead Auditor appointed by Applus+ Certification for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ Certification, he had been worked for TÜV SÜD as a GHG Validator/Verifier and ISO 9001/14001 Lead Auditor for 5.5 years.