



**Verified Carbon
Standard**

IMPROVED COKSTOVE PROGRAMME BY SDG13 IN INDIA



Document Prepared by KBS Certification Services Pvt. Ltd

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Summary:

SDG13 Ventures Pte Ltd. has commissioned KBS Certification Services Pvt. Ltd. to do validation of the VCS project activity: “Improved Cookstove Programme by SDG13 in India”, with regard to the relevant requirements of VCS Standard version 4.1.

The proposed project activity aims to increase access of households and communities to improved cookstoves by disseminating high thermal efficiency and low greenhouse gas emitting cooking stoves known as Improved Cook Stoves (ICS) to the rural and semi-urban households of India. The implementation of the project activity will result in replacement of low efficiency and high greenhouse gas emitting stoves in the households, thereby resulting in reduction of firewood consumption & consequent emissions from combustion. Overall objectives through the implementation of the project are reduction of greenhouse gases, conservation of forests leading to climate change mitigation in a sustainable manner, as well as improved health conditions of ICS users due to improved indoor air quality along with drudgery reduction in everyday cooking.

A risk-based approach has been followed to perform this validation. In the course of the validation 02 Clarification Request (CL) and 03 Corrective Action Request (CAR) were raised and successfully closed.

The validation is based on the VCS PD; the subsequent background investigation, follow-up interviews and supporting documents made available to the validation team by project proponent.

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

- The project fulfils criteria of VCS Standard Version 4.1.
- The project is in line with all relevant VCS requirements.
- The project baseline is sufficiently justified in the PD.
- The calculation of the baseline and project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 19,665,232 tCO₂e is most likely to be achieved within the 10 years of fixed crediting period.

No restrictions or uncertainties were identified related to the validation.

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1 INTRODUCTION

Validation Report: VCS Version 4.0

1.1 Objective

SDG13 Ventures Pte Ltd. has commissioned KBS Certification Services Pvt. Ltd. to do VCS validation of the project activity: “Improved Cookstove Programme by SDG13 in India”, with regard to the relevant VCS requirements of VCS Standard version 4.1; to attain real, measurable, additional and permanent emission reductions.

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

- The requirements of VCS Program guide Version 4.0 /10/
- The requirements of VCS Standard Version 4.1 /11/
- To assess the project's compliance with other relevant rules, including the project country (India) legislation and
- Other relevant rules are validated in order to confirm that the project description as documented is sound and reasonable and meet the stated requirements and identified criteria.

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

1.2 Scope and Criteria

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

The items covered in the validation are described below:

- VCS Criteria

- VCS Project Description
- Background investigation and follow up interviews
- Draft validation reporting with CARs & CLS, if any
- Final validation reporting

Validation Report: VCS Version 4.0

The validation is based on the information made available to KBS and on the contract conditions.

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

1.3 Level of Assurance

☒ Reasonable level of assurance

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

- is materially correct and is a fair representation of the actual project details, and
- is prepared in accordance with VCS requirements and the applied methodology for information pertaining to description, methodological deviations and reporting.

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

1.4 Summary Description of the Project

The proposed project activity aims to increase access of households and communities to improved cookstoves by disseminating high thermal efficiency and low greenhouse gas emitting cooking stoves known as Improved Cook Stoves (ICS) to the rural and semi-urban households of India. The implementation of the project activity will result in replacement of low efficiency and high greenhouse gas emitting stoves in the households, thereby resulting in reduction of firewood consumption & consequent emissions from combustion. Overall objectives through the implementation of the project are reduction of greenhouse gases, conservation of forests leading to climate change mitigation in a sustainable manner, as well as improved health conditions of ICS users due to improved indoor air quality along with drudgery reduction in everyday cooking.

As confirmed through the remote interview and through the documents, the technology deployed under the project activity shall be thermally efficient (in compliance with the methodological requirements) and having an average lifespan of 7 years. The currently eligible types of cookstoves to be distributed include the Greenway Jumbo stoves, Greenway stoves (Smart, prime, uno) and any additional type of ICS that meet the requirements of the methodology. Validation Report: VCS Version 4.0 Greenway Jumbo stove has been tested for thermal efficiency of 38% as per water boiling test/2/ according to ISO 19867 test Sequence protocol and certified by third party (KIRDI Stove Testing Centre). The efficiency of ICS has been estimated to be more than 3 times the efficiency of old cookstoves. The efficiency test report provided to assessment team was reviewed and it was concluded that the efficiency test/3/ was conducted in accordance with the procedure stipulated in the applied methodology VMR0006, version 1.1/09/

The start date of the project is 01-January-2022 which is the date of commissioning of the batch as verified through the project database. The duration of crediting period is of fixed 10 years i.e., it starts from 01-January-2022 and ends on 31-December-2031.

The individual households using ICS will sign an agreement with the PP will enter into contractual agreement with the beneficiaries by virtue of which, the end user will confirm use of cook stove as well as transfer the VCU right to the Project Participant. The estimated amount of emission reductions per annum are 1,966,523 tCO₂e and a total of 19,665,232 tCO₂e for the total crediting period.

2 VALIDATION PROCESS

2.1 Method and Criteria

The project activity applies approved VMR0006 version 1.1/09/, categorized under sectoral scope 3 “Energy Demand”. The validation consisted of the following phases:

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

Timeline of Validation:

Work order signed	03-June-2021
Onsite validation/Remote audit	09-August-2021
(Draft) Reporting	12-October-2021
(Final) Reporting	29-October-2021

2.2 Document Review

After the submission of the draft PD /1.1/ and supporting background documents related to the project design and baseline from the client, the completeness of information made available as per VCS standard version 4.1 /11/ requirements is reviewed. Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data available on public domain. The project has been listed in the VERRA (<https://registry.verra.org/app/projectDetail/VCS/2533>). A desk review is carried out to assess the following:

- the project details as per VCS PD template
- any methodological deviations applied
- compliance with relevant law and regulations
- conditions prior to project initiation/ baseline

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

2.3 Interviews

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the VVB offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB, email clarification for Verra guidance on site visits, notification of Covid-19 Travel Guidance for Projects <https://verra.org/covid-19-travel-guidance/> and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), the VVB has skipped the on-site visit. Further Email from VERRA dated 24/03/2020 from "Andrew Beauchamp" has been referred as per which *"The VCS Program does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per Section 4.1.2 of the VCS Standard, v4.1). Therefore, where a VVB can achieve a reasonable level of assurance without conducting a site visit, or through a remote site visit, this is in conformance with the VCS rules, and no request for an exemption or pre-approval from Verra is required. However, where a validation/verification has been conducted without a site visit, or through a remote site visit, please ensure that the applicable section of the validation/verification report includes a discussion of how a reasonable level of assurance was achieved without an in-person site visit"*.

Hence, the VVB has used other standard auditing techniques for validation as referred to in VCS Rules/requirements, VCS Validation and Verification Manual version 3.2.

Validation team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of validation. Along with desk review, audit team has conducted remote audit interview as follows:

- A complete desk review of the VCS PD /1.2/, as well as all applicable country legal requirement and supportive evidences have been checked by the validation team.
- Validation team has performed Skype interview with PP in order to check implementation, ownership, technology, thermal testing procedure, sampling and monitoring procedures etc.
- Cross-check evaluation, for information received from interviews, under the scope of all information and references provided in VCS PD and supporting documents.

Details of interviewees, topics covered and additional information are presented below:

Date:	09-August-2021 (Skype interviews)		
Key points discussed:	Name of person, interviewed	Designation, Organization	Team member
Host Country rule and regulations related to project activity, Project description, Ownership, Project start date, technology, Conditions prior to the Project initiation, Participation under other GHG program, sampling, procedure to avoid double counting, monitoring plan	Neha Juneja	Director, SDG13 Ventures Pte Ltd.	Shikha Sharma (Team leader), Sanjay Kandari (Technical expert 3.1)
	Ankit Mathur	PP representative, SDG13 Ventures Pte Ltd.	
	Phool Chand	Consultant	

2.4 Site Inspections

KBS has not conducted site inspection for the validation process, remote interviews were carried out and have been detailed in section 2.3 above.

2.5 Resolution of Findings

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

Corrective action request (CAR):

- the project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions
- the Voluntary Carbon Standard's requirements have not been met, or
- there is a risk that emission reductions cannot be monitored or calculated.

Clarification request (CL):

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

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

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

03 CARs and 02 CLs were found during validation.

2.5.1 Forward Action Requests

No FARs raised during the validation.

3 VALIDATION FINDINGS

3.1 Project Details

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

A typical project instance under project activity will target rural and semi- urban households using low efficiency and higher GHG emitting stoves. Replacement of conventional firewood stoves with higher efficiency ICS models will be carried out in the targeted households. ICSs are more efficient than conventional firewood stoves as they reduce heat loss and improve heat transfer and combustion efficiency. Fuel efficient ICS models with improved heat transfer and combustion efficiency will be deployed, resulting in a decrease in fuel use in comparison to conventional pre-project stoves, while also reducing particulate matter and carbon emissions.

As confirmed through the remote interview and through the documents/2//8/, the technology deployed under the project activity shall be thermally efficient single stove, improved cookstoves (in compliance with the methodological requirements) and having an average lifespan of 7 years. The currently eligible types of cookstoves to be distributed include the Greenway Jumbo stoves, Greenway stoves (Smart, prime, uno) and any additional type of ICS that meet the requirements of the methodology. Greenway Jumbo stove has been tested for thermal efficiency of 38% as per water boiling test according to ISO 19867 test Sequence protocol and certified by third party (KIRDI Stove Testing Centre). The efficiency of ICS has been tested/2/ to be more than 3 times the efficiency of old cookstoves. The efficiency test report provided to assessment team was reviewed and it was concluded that the efficiency test/2/ was conducted in accordance with the procedure stipulated in the applied methodology VMR0006, version 1.1/9/

The project involves energy efficient cookstove distribution which falls under the category of efficiency improvements in thermal applications, therefore it is eligible under the scope of VCS Program. The start date of the project is 01-January-2022; which is based on the date of commissioning of the batch. The duration of crediting period is of fixed 10 years i.e., it starts from 01-January-2022 and ends on 31-December-2031.

The individual households using ICS will sign an agreement with the PP will enter into contractual agreement with the beneficiaries by virtue of which, the end user will confirm use of cook stove as well as transfer the VCU right to the Project Participant. The sample agreement /7/ was validated by the assessment team for the cook stoves and found in line with the VCS-PD/01/. A record keeping system and unique identification of the ICS will be done by user's information collected through the Beneficiary Agreement and compiled in distribution records, as set out in the "distribution and data sharing agreement"/5/ between PP and distributor. This will include username, identification number and address/location of the user's house, stove unique serial code and distribution date. The record keeping system will ensure that each ICS can be traced to project to avoid double counting. The estimated total amount of emission reductions over the chosen 10-year "fixed crediting period" is 19,665,232 tCO₂e. The estimated amount of emission reductions per annum are 1,966,523 tCO₂e. The project activity falls under large-scale project category since the annual average GHG emission reductions are more than 300,000 tCO₂e.

The Validation team has checked all the above-mentioned details and confirms that all the information provided is accurate. CAR 01, CL 01 and CL 02 has been raised and successfully closed (Refer to Appendix 3 for further details).

- Project proponent

SDG13 Ventures Pte Ltd. is the Project proponent (PP), which is as per the submitted declaration¹ as the project activity has been developed by SDG13 Ventures Pte Ltd. Therefore, project proponent has sole right to use the generated Emission reductions. Validation team confirms that the managing director/authorized signatory is the same person (Ms. Neha Juneja), as mentioned in the section 1.5 of the VCS-PD. PP has been verified during remote interviews and accepted by the validation team.

Other entities involved in the project are:

Organization name	Role in the project
Jagurih Corporate Consultants Pvt. Ltd.	Project consultant responsible for the validation process

- Project start date

As per the project description (PD) /1/, the start date of the project activity is stated as 01-January-2022 which is based on the date of commissioning of the batch. Validation team has verified the same through the project database shared by the PP and confirmed that this is in accordance with section 3.7 of VCS standard, Version 4.1 /11/ and hence accepted.

CL 01 has been raised and successfully closed (Refer to Appendix 3 for further details).

- Project crediting period

The VCS Standard version 4.1 /11/ section 3.8.1 state that, “For non-AFOLU projects, the project crediting period shall be either seven years, twice renewable for a total of 21 years, or ten years fixed”. PP has chosen the crediting period of the 10 years for the project activity from 01-January-2022 to 31-December-2031(including both days) and is of fixed type which is accepted to the validation team.

CL 01 and CAR 01 has been raised and successfully closed (Refer to Appendix 3 for further details).

The validation team has confirmed that the same has been correctly mentioned in the VCS-PD.

- Project scale and estimated GHG emission reductions or removals

The estimated volume of emission reduction from the project activity is more than 300,000 tons of CO₂e per year. The validation team confirms that the project activity falls under the category 2 ‘Large Projects’ as per para 3.9.1 of the VCS standard version 4.1 /11/, as it has the potential to reduce GHG emission more than 300,000 tCO₂e/year.

¹ Dated 15-August-2021, signed by the authorized representative of the PP.

The estimated annual average and the total CO₂e emission reduction by the project activity over the fixed crediting period of 10 years are expected to be 1,966,523 tCO₂e and 19,665,232 tCO₂e respectively. The validation team confirmed that emission reduction forecast is reasonable if the underlying assumptions do not change.

- Project location

The grouped project will be hosted in the Republic of India and will cover the national boundary of the Republic of India. The project boundary is defined by the following GPS coordinates and is found to be consistent. Further, project location has been verified through the means of google earth software.

North-34°27'56"N, 75°43'54"E.

South-08°6'21"N, 77°32'30"E

West-22°15'58"N, 69°02'05"E

East-26°16'20"N, 94°58'04"E

Conditions Prior to Project Initiation

In the absence of the project, the existing common practice in the region was less efficient cook stoves to meet the cooking energy demand exists and a large amount of population depends on firewood and wood chips for the same. An estimated 50% to 60% of households in rural India still cook using traditional biomass stoves and open fires. The project aims to reduce the demand of non-renewable biomass and the environmental and social burdens caused by inefficient biomass cooking by introducing energy efficient wood and charcoal stoves to low- income households.

Compliance with Laws, Statutes and Other Regulatory Frameworks

The validation team confirms that there are no laws and regulations governing the use of improved cookstoves in India for households. The project is a voluntary effort by the project proponent. Though, the government of India promotes use of clean fuel e.g. LPG, however, the baseline scenario hasn't improved much as the use of LPG is associated with operational cost.

The validation team has also confirmed that the baseline scenario presented in the VCS PD/1/ is also in compliance with the laws and regulations of India. Validation team confirm that the project is a voluntary initiative and is not under any mandatory/compliance scheme of the host country.

Net GHG emission reductions or removals generated by this PA will not be used for compliance with any emissions trading program or to meet binding limits on GHG emissions as the host country i.e. India is not a participant in any emission trading programs or nor does it have any binding limits.

Validation Report: VCS Version 4.0

Ownership and other programs:

Project Ownership

the project ownership is with SDG13 Ventures Pte Ltd., Project proponent (PP). During the registration of ICS, the participating household will sign a declaration to transfer the ownership rights of the carbon assets generated from this project to the project proponent, the same has been confirmed from the sample beneficiary agreement submitted by the PP.

Additional Information Relevant to the Project

Eligibility Criteria

This is a grouped project activity.

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion	VWB Assessment
1	The geographical boundary of the project instances including any time-induced boundary consistent with the geographical boundary set in the Project Description	The project boundary corresponds to the boundaries of host country India. All distributed ICS in a project instance shall be located within geographical boundary of India.	Location and boundary specified in the project instances stating that the ICS location is limited to a region of India and is supported by Distribution records of ICS.	Through the remote interviews, it is confirmed that the geographical boundary included is consistent with the geographical boundary in the project Description.
2	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	The ICS installed in any project stance under this project shall be uniquely identifiable by unique numbering and will be supported by the distribution records.	Through the remote interviews and review of sample beneficiary agreement/7/, it is confirmed that the unique identification of the ICS will be done by user's

		project stance/cluster it belongs.	Each ICS distributed will have corresponding end user details (i.e. name, address etc.) Additionally, unique id shall be displayed on the stove itself. The unique numbering or identification regime will be verifiable by the DOE.	information collected through the Beneficiary Agreement and shall be compiled in distribution records. Distribution records shall include username, identification number and address/location of the user's house, stove unique serial code and distribution date. The record keeping system will ensure that each ICS can be traced to project to avoid double counting.
3	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	Type of conventional cook-stoves replaced and ICS type/s implemented and compliance with the technological requirements of VMR0006 to be met. Project product data sheets or specification or product information sheets from manufacturer / Stoves distribution records.	As confirmed through the remote interview and through the documents, the technology deployed under the project activity shall be thermally efficient (in compliance with the methodological requirements). The currently eligible ICS, Greenway Jumbo stove has been tested for thermal efficiency of 38% as per water boiling test according to ISO

		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.	Validation Report: VCS Version 4.0	19867 test Sequence protocol and certified by third party (KIRDI Stove Testing Centre). The efficiency test report/2/ provided to assessment team was reviewed and it was concluded that the efficiency test/2/ was conducted in accordance with the procedure stipulated in the applied methodology VMR0006, version 1.1/9/.
4	The conditions that ensure that the project instances meet the requirements pertaining to the demonstration of additionality	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	The additionality will be demonstrated using financial barrier option in line with applied approved methodology VMR0006 Step 1: The project implementation is not mandated by government policy or regulation in host country. Step 2: Not applicable Step 3: Revenue stream analysis to be done to prove that project activity is not financial attractive than at least one alternative.	PP has demonstrated that project is facing an investment barrier and hence is additional in line with CDM TOOL 1: Tool for demonstration and assessment of additionality” Version-7.0.0 EB 70 Annex-08.
5	Where applicable, the conditions related to sampling	Monitoring will adhere to all requirements	Specification of the sampling methods applied and compliance with the	As confirmed during the remote interviews, PP shall

	requirements for the project in accordance with the “Standard for sampling and surveys for CDM project activities and programme of activities”	related to sampling for a project instance in accordance with the sampling guidelines including all annexes and amendments till EB 86 Annex 04 and Sampling and surveys for CDM project activities and program of activities version 09.0	sampling requirements are established at the Project Description. For each project instances Sampling will be undertaken as part of the Project Description Sampling Plan.	undertake representative sampling in line with the requirements of the sampling standard ² and the guidelines on “Sampling and surveys for CDM project activities and programme of activities”, version 04.
7	VER ownership	End users receiving ICSs under the specific project instances contractually cede their rights to claim and own emission reductions under the VCS to the PP of the project.	A default distribution agreement for end users including the provision that emission reductions generated by the stove are owned by the PP will be provided for each instance.	During the remote interviews and through the review of sample beneficiary agreement/7/, it has been confirmed that an agreement will be signed between the users and the PP, which shall give the ownership of VCU to the PP.

Leakage Management

Not Applicable to this project activity.

Commercially Sensitive Information

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

² Sampling and surveys for CDM project activities and program of activities version 09.0

Sustainable Development

The following sustainable development benefits are envisaged from the project activity.

- Distribute 500,000 high-efficiency, clean burning Greenway Jumbo Cookstoves in India, to benefit over 2 million individuals. (SDG 7.1.2)
- Reduce the total fuelwood usage in the project area to generate approximately 19.6 million tco2e of emission reductions. (SDG 13)
- Significantly reduce Household Air Pollution (HAP) in rural households (SDG 3.9.1)
- Reduce instance of non-communicable respiratory disease, such as Chronic Obstructive Pulmonary Disease (COPD) among adult family members, particularly women and the elderly. (SDG 3.4.1)
- Reduce the risk of mortality among infants and children under five years of age due to (1) acute lower respiratory illnesses (ALRI), such as pneumonia and bronchitis, the cause of mortality in 12% of children under five, and (2) burns resulting from children falling into open cooking fires. (SDG 3.2.1, 3.2.2)
- Reduce the proportion of time women spend on unpaid domestic work related to collection of firewood, and cooking meals on inefficient traditional cookstoves. (SDG 5.4.1)

The validation team concludes that the project description is accurate, complete, and provides an understanding of the nature of the project.

3.2 Safeguards

3.2.1 No Net Harm

No potential negative environmental or socio-economic impacts have been identified for the project and has been confirmed through the review of project technology.

3.2.2 Local Stakeholder Consultation

As confirmed through the remote interview and through supportive documents/6/, it was confirmed that the local stakeholder consultation for the grouped project activity was conducted on 03-May-2021 at Mahua Vann Resort, village Kuppitola, district Seoni from 11 a.m. to 2 p.m. Stakeholders (such as baseline stove users, representatives from local self-help groups, field assistants, NGOs) were invited through press release (on 17-April-2021) in the local newspaper “Dainik Lokdal” and therefore, stakeholders were invited almost 15 days prior to the meeting. Further, online participation of the stakeholders was encouraged and detailed contact information of the representative of the project implementer were also made available.

Details of the project technology, its impacts, benefits, environmental and socio-economic issues were discussed with the participants (26 in number) and their concerns if any were asked and the meeting

was concluded with no negative comments. Further, it was confirmed during the remote assessment that the stakeholders have been provided with access to the contact details of the project participant. Also, the stakeholders are well informed about the grievance redressal procedure announced during the stakeholder consultation and can reach out to the project participant or their local representatives in case of any concern. Therefore, in line with the requirements of section 3.16.3 of VCS standard version 4.1, it is confirmed that the project participant has established a mechanism for on-going communication with the stakeholders.

3.2.3 Environmental Impact

No negative environmental impacts, as the project involves dissemination of improved cookstoves, hence, environmental impact assessment (EIA) is not required for the project.

3.2.4 Public Comments

Validation team confirms that the project was listed on VCS website <https://registry.verra.org/app/projectDetail/VCS/2533> and was open for public comments from 30-June-2021 to 30-July-2021. No comments were received during the period.

3.2.5 AFOLU-Specific Safeguards

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

3.3 Application of Methodology

3.3.1 Title and Reference

Following approved baseline & monitoring methodology is applied;

Methodology: VMR0006- Methodology for Installation of High Efficiency Firewood Cookstoves

Version: 1.1

Sectoral Scope: 03

Tools:

“TOOL30: Calculation of the fraction of non-renewable biomass”; Version-03, EB 108, Annex-11

Findings: CAR 02 has been raised and successfully closed. (Refer to Appendix 3 for further details)

3.3.2 Applicability

S. No	VCS Methodology requirement	Project justification	VVB Assessment
1	The project stove is a single pot or multi pot portable or an in-situ cookstove using only woody biomass; Additional requirement	The proposed instances will distribute high efficiency single-pot improved cook stove for thermal application, which will replace	As confirmed through the remote interview and through the documents, the technology

	to demonstrate that the biomass used is solely renewable biomass in case project activities replacing baseline stoves using fossil fuel	inefficient traditional cookstove leading to saving of non-renewable biomass. The ICS to be distributed under the project activity is Greenway Jumbo stoves/greenway stoves. All ICS in this project will replace existing traditional wood based stoves; therefore, no greenfield installations are included. Further, the project activity will utilize only renewable biomass under project scenario. This criterion will be checked from data recorded on the baseline stove used prior to ICS installation.	deployed under the project activity shall be thermally efficient single stove, improved cookstoves (in compliance with the methodological requirements) and having an average lifespan of 7 years/8/. The currently eligible types of cookstoves to be distributed include the Greenway Jumbo stoves, Greenway stoves (Smart, prime, uno) and any additional type of ICS that meet the requirements of the methodology.
2	Project activities shall be implemented in domestic premises or in community-based kitchens	The project activity will replace traditional fossil fuel-based stove in individual households or community-based kitchens in rural/semi urban areas.	As confirmed from the remote interviews, replacement of conventional firewood stoves with higher efficiency ICS models will be carried out in the targeted households or community-based kitchens of rural/semi urban areas.
3	The project stove shall have specified high-power thermal efficiency of at least 25% per the manufacturer's specifications and shall exclusively use woody biomass and can be single pot or multi-pot; in case of project stove replacing fossil fuel	The Greenway or Greenway Jumbo single pot portable improved cooking stoves planned to be distributed have a specified efficiency of 38% as per water boiling test in compliance with Tier II and above as per ISO as tested and certified by third party.	Based on the remote interviews and through the review of efficiency test report VVB confirms that the Greenway Jumbo stove/8/ has been tested for thermal efficiency of 38%/2/ as per water boiling test

	baseline stove, it shall exclusively use renewable biomass	Validation Report: VCS Version 4.0	according to ISO 19867 test Sequence protocol and certified by third party (KIRDI Stove Testing Centre). Therefore, all the distributed cookstove types shall have specified high-power thermal efficiency of at least 25% as per the manufacturer's specifications, in line with methodological requirements.
4	Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics	Proof that biomass has been used in the project region, i.e., in the host country India since 31 December 1989 is available through widespread documentation. Report by National sample survey organization (NSSO), department of statistics, Government of India reveals that 79% of the rural households in India were dependent of firewood and chips in the year 1987-88 ³ . The same article reported 78% of rural households to be dependent on firewood and chips in the year 1993-94. National sample survey organization, Government of India reveals that 75% of the rural households in	Based on the remote interviews and through the review of report by National sample survey organization (NSSO), department of statistics, Government of India ³ VVB confirms that the non-renewable biomass was being used in the project region since 31 December 1989.

³ http://mospi.nic.in/sites/default/files/publication_reports/410_2_part2_final.pdf

		rural India were primarily dependent of fuelwood and chips⁴. Fuel wood is the main source of energy in rural areas. Wood energy is mainly used as fuel for cooking at household. The above clearly shows that the rural areas in the host country are dependent on biomass since and before 1989 with not much change in the trend which clearly depicts the dependence of the people of the host country on woody biomass as fuel for meeting thermal energy requirement for cooking at households.	
5	For the specific case of biomass residues processed as a fuel (e.g. briquettes, wood chips), it shall be demonstrated that: (a) It is produced using exclusively renewable biomass (more than one type of biomass may be used). (b) The consumption of the fuel should be monitored during the crediting period and (c) Energy use for renewable biomass processing (e.g. shredding and compacting in the case of briquetting) may be considered as	The ICS is introduced as energy efficiency measure to replace baseline stoves and reduce the use of non-renewable biomass for combustion. The consumption of the fuel used in the project activity will be monitored. If briquettes utilization in project case the energy consumption for manufacturing of briquettes and transportation of briquette will be monitored to calculate project emissions	Through the remote interviews it is confirmed that the grouped project activity shall disseminate energy efficient biomass based cookstoves to replace the baseline stoves and these stoves shall not be fired with any other type of fuel. However, if any other type of fuel is used, then project emissions shall be calculated accordingly. Monitoring of the consumption of the

⁴ http://mospi.nic.in/sites/default/files/publication_reports/511_final.pdf

	equivalent to the upstream emissions associated with the processing of the displaced fossil fuel and hence disregarded		fuel will also be done for the crediting period.
6	The project description shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo).	A record keeping system and unique identification of the project device will be used. This will include user name, user identification number and address/ location of the user's house and distribution date. The record keeping system will ensure that each ICS can be traced to project instances to avoid double counting.	The validation team by means of remote interviews confirms that the proposed method for distribution of project devices includes the method to avoid double counting of emission reductions such as unique identifications of product and end-user details (name, address etc). Therefore, the validation team confirms that the record keeping system will eliminate double counting.
7	The project description shall also explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	The project proponent will sign an end user agreement with individual household/user to ensure only PP can claim the emission reduction. A default distribution agreement for end users including the provision that emission reductions generated by the stove are owned by the PP will be provided for each user.	During the remote interview and the review of sample beneficiary agreement, it has been confirmed that an agreement will be signed between the users and the PP, which shall give the ownership of VCU to the PP.

Findings: CL 01 was raised and successfully closed. Refer to Appendix 3 for further details.

3.3.3 Project Boundary

The validation team was able to confirm that all the identified emission sources which are impacted by the project activity are addressed by the approved methodology and can be seen in the Table below.

Validation Report: VCS Version 4.0

Source		Gas	Included?	Justification/Explanation
Baseline	Emission from use of non-renewable biomass/Fossil fuel	CO ₂	Yes	Major source
		CH ₄	No	It has not been considered as baseline scenario is the continued use of non-renewable wood fuel (firewood)
		N ₂ O	No	It has not been considered as baseline scenario is the continued use of non-renewable wood fuel (firewood)
Project	Emission from use of non-renewable biomass	CO ₂	Yes	Major source
		CH ₄	No	As verified through remote interviews and through technical specifications of the ICS/8/, CH ₄ usage is not expected in project scenario
		N ₂ O	No	As verified through remote interviews and through technical specifications of the ICS/8/, N ₂ O usage is not expected in project scenario
	Emission from manufacturing of briquettes	CO ₂	No	As verified through remote interviews and through technical specifications, briquettes usage is not expected in project scenario
		CH ₄	No	Not applicable as briquettes usage is not expected
		N ₂ O	No	Not applicable as briquettes usage is not expected

3.3.4 Baseline Scenario

The baseline scenario is the continued use of non-renewable wood fuel (firewood) by the target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity.

Findings: No findings were raised.

3.3.5 Additionality

PP has demonstrated additionality based on the activity method of applied methodology VMR0006 version 1.1, as per which the following steps have been followed:

Validation Report: VCS Version 4.0

Step 1: Regulatory Surplus

Through the review of related policies and validation team's sectoral expertise, it is confirmed that there is no mandated government programme or policy in host country ensuring the distribution of domestic fuel-efficient cookstoves. Also, PP has declared voluntary participation in the project as it is not mandated by any law, statute or other regulatory framework.

Step 2: Positive List

As confirmed through the remote interviews, the cookstoves will be distributed at a subsidized rate, hence there will be revenue stream apart from the sale of GHG credits. Therefore, PP chosen option 3 for demonstration of additionality.

The project is not implemented as part of government schemes or supported by multilateral funds. The project did not apply any methodology deviations.

Step 3: Project Method

PP has used "Tool for demonstration and assessment of additionality" Version-7.0.0 EB 70 Annex-08" to demonstrate the additionality through the project method. As per the step one of the tool, project alternatives have been accurately considered as per paragraph 20 a) and c) of the applied tool⁵ i.e. Alternative 1: The project activity carried out without registration under VCS and Alternative 2: Continuation of the baseline scenario. Based on the sectoral expertise of the validation team, the two alternatives considered have been evaluated to be the most credible scenarios for the grouped project. Validation team also confirmed that there are no laws and regulations governing the use of improved cookstoves in India for households. The project is a voluntary effort by the project proponent. Though, the government of India promotes use of clean fuel e.g. LPG, however, the baseline scenario hasn't improved much as the use of LPG is associated with operational cost.

Further, confirmed through the remote interviews, distribution of cookstoves at a subsidized rate (60%) shall be carried out therefore, no economic benefit except from the sales of the Verified carbon units is envisaged. So, simple cost analysis, as per option 1 method under sub step 2b has been applied by the PP, which is accepted to the validation team. As confirmed during the remote interview, the financial return from the grouped project shall be lower than cost incurred, also a team for supply chain, maintenance and repair shall be hired and therefore, carbon revenue is

⁵ "Tool for demonstration and assessment of additionality" Version-7.0.0 EB 70 Annex-08

required to support the project. Moreover, there is no direct financial return to the users and hence, will create a barrier to the rural/semi-urban consumers for procuring ICSs requires. The actions under the project will alleviate these barriers by promoting distribution of ICSs to end-users at an affordable price. Hence, the project faces investment barrier and is considered to be additional.

Validation Report: VCS Version 4.0

Barrier analysis method has not been chosen by the PP as the additionality has been demonstrated by simple cost analysis. Based on the sectoral expertise of the validation team in the host country, it is confirmed that there is very low penetration of improved cookstoves, and it is therefore, not a common practice. Hence, the demonstration of additionality by the PP is verified to be accurate.

Findings: CAR 02 has been raised and successfully closed. (Refer Appendix 3 for further details)

3.3.6 Quantification of GHG Emission Reductions and Removals

Baseline Emissions

The improved cookstove is introduced as energy efficiency measure in the project, therefore equations 1 and 2 of the methodology will be applied to calculate the net GHG emission reductions.

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

Where:

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

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

ER_y = Emission reductions during year y in t CO₂e

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

and;

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

Where,

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

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

$fNRB$ = Fraction of woody biomass that can be established as non-renewable biomass ($fNRB$ value= 0.901)

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 cook stoves 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 will be estimated using Equations 4 of applied approved methodology:

$$B_{y,savings,i,j} = B_{y=1, new,i,survey} \times ((\eta_{new,i,j}/\eta_{old})-1) \dots\dots\dots Eq.4$$

Where,

Validation Report: VCS Version 4.0

η_{old} = Efficiency of baseline cookstove (10%)

$\eta_{new,i,j}$ = Efficiency of the improved cookstove type i and batch j determined through water boiling test (WBT) during year y, Alternatively, efficiency may be determined using Equation 5 of applied approved methodology (Assumption 38%)

$B_{y=1, new,i,survey}$ = Annual quantity of woody biomass used by improved cook stoves 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. (Assumption 1.35 tonnes/year/stove)

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

$$\eta_{new,i,j} = \eta_P \times (DF_n)^{y-1} \times 0.94 \dots\dots\dots Eq.5$$

where,

η_P = Efficiency of project stove (fraction) at the start of project activity

$(DF_n)^{y-1}$ = Discount factor to account for efficiency loss of project cookstove per year of operation (fraction). This value may be based on actual monitoring or based on manufacturer's declaration on expected loss in efficiency or through publicly available literature on relevant industry standards Alternatively default value of 0.99 efficiency loss per year can be considered.

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

In order to address the potential source of leakage which can be attributed to diversion of non-renewable biomass saved by project devices to non-project households which previously used renewable biomass; a net to gross adjustment factor of 0.95 is applied to $ER_{y,i,j}$.

For projects opting for $B_{y=1,new,i,j,survey}$, it shall be demonstrated that the consumption of biomass for individual project stoves can be measured exclusive of one another.

$$B_{y,saving,i} = 1.35 \times ((38\% / 10\%) - 1) \\ = 3.380 \text{ tonnes/year}$$

$$\text{Hence, } ER_y = 3.380 \times 0.0156 \times (112 + 26.23) \times 100000 \times 0.901 \times 0.95$$

$$ER_y = 697,812 \text{ tCO}_2\text{e}$$

The efficiency of the project stoves is estimated using equation below taking $DF_n = 0.99$ default value per annum

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

Hence,

$$\text{Year 1} = 0.38 \times (0.99) \times 0.94 = 0.357$$

$$\text{Year 2} = 0.38 \times (0.99)^{2-1} \times 0.94 = 0.354$$

$$\text{Year 3} = 0.38 \times (0.99)^{3-1} \times 0.94 = 0.350$$

$$\text{Year 4} = 0.38 \times (0.99)^{4-1} \times 0.94 = 0.347$$

Year 5= $0.38 \times (0.99)^{5-1} \times 0.94 = 0.343$

Year 6= $0.38 \times (0.99)^{5-1} \times 0.94 = 0.340$

Year 7= $0.38 \times (0.99)^{5-1} \times 0.94 = 0.336$

Therefore, the annual emission reduction considering 5 phase implementation i.e. 100,000 each year is estimated as below considering 10% dropouts of ICS distributed

Project Emissions

The methodology does not account for baseline emissions separately, but instead quantifies net emission reductions achieved by the project

Leakage

Leakage is already accounted in calculation of emission reduction by adjusting with default value of 0.95.

Emission Reduction

Year	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
2021-22	697,812	0	0	697,812
2022-23	1,274,703	0	0	1,274,703
2023-24	1,843,582	0	0	1,843,582
2024-25	2,404,530	0	0	2,404,530
2025-26	2,957,625	0	0	2,957,625
2026-27	2,805,134	0	0	2,805,134
2027-28	2,765,868	0	0	2,765,868
2028-29	2,196,989	0	0	2,196,989
2029-30	1,636,042	0	0	1,636,042
2030-31	1,082,947	0	0	1,082,947
Total	19,665,232	0	0	19,665,232

The total emission reduction is 19,665,232 tCO₂e over 10 years renewable crediting period.

Through the validation process KBS has confirmed that:

- All the assumptions and data used by the project participants are listed in the PD including their references and sources;
- All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PD;
- All values used in the PD are considered reasonable in the context of the VCS project activity;
- The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;

All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PD

Finding: CAR 02 was raised and successfully closed. Refer to Appendix 3 for further details.

3.3.7 Methodology Deviations

The project activity has used the VMR0006 version 1.1 /9/ and the PP has completely followed the methodology for the development of the VCS PD /1/. The validation team has confirmed that the PP does not make any deviations from the applied methodology.

3.3.8 Monitoring Plan

The monitoring plan is in line with the applied methodology VMR0006, version 1.1/9/. The monitoring plan will give opportunity for real measurement of emission reductions achieved. Since the project is distribution of ICS, the methodology does not account for baseline emissions separately but instead quantifies the emission reductions achieved in the project and the leakage is accounted in calculation of emission reduction by adjusting the default value of 0.95. The monitor-able action plan for the same has been included in section 4.3 of the VCS PD/1.2/. It is KBS's opinion, that the project participant is able to implement the monitoring plan.

- Data and parameters available at validation

The net calorific value of non-renewable woody biomass that is substituted or reduced **NCV_{woodfuel}** has a fixed value of 0.0156 TJ/tonne as per the approved methodology. The CO₂ emission factor for the use of wood fuel in baseline scenario **EF_{wf,CO2}** has a default value of 112 tCO₂/TJ as per methodology. The non CO₂ emission factor for the use of wood fuel in baseline scenario **EF_{wf,non CO2}** has value of 26.23 tCO₂/TJ. The value of Efficiency of baseline cookstove **η_{old}** is 0.1. The Efficiency of project stove at the start of project activity **η_P** has a value of 0.38 as per manufacturer's specification. These parameters are fixed for the entire crediting period.

- Data and parameters monitored

The parameters that are to be monitored ex-post are:

Parameter	Unit	Source/Justification
$N_{y,i,j}$ Number of project devices of type i and batch j operating during year y	Number Validation Report, November 2010	The value will be checked from the Stove distribution record and monitoring survey records as verified from the remote audit (Skype video conferencing). The surveys will be conducted at least once every two years (biennial) and the sample size shall be determined based on 95/10 confidence/precision in compliance with the latest version of sampling standard. The number of operating stoves for each device i and batch j shall be determined on a sampling basis through a sampling survey.
$\eta_{new,i,j}$ Efficiency of the device of each type i and batch j implemented as part of the project activity	Fraction	The value will be checked from the Manufacturer's Specification or/and Certification by a national standards body or an appropriate certifying agent recognized by that body as verified from the remote interviews. In line with equation 5 of the applied methodology, loss in efficiency per year shall be calculated. Therefore, this parameter is not monitored"
$B_{y=1,new,i,j,survey}$ Annual quantity of woody biomass used by improved cookstoves 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	As confirmed during the remote interviews, the annual quantity of woody biomass used by ICS shall be determined in the first year of the implementation of the project through a sample survey. The monitoring survey shall be conducted based on standard for sampling and surveys for CDM project activities and programme of activities or guidelines provided in methodology Section 8.4 option (b).

Life span The operating lifetime of the project device. The life span should be reported if the methodology equation 5 is adopted to determine the project stove efficiency	Years	Through the remote interviews, it has been confirmed that the operating lifetime of the project device shall be based on the manufacturer specifications.
Date of commissioning of batch j To establish the date of commissioning, the Project Participant 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	Date	The date of commissioning of the batch has been taken as (01-January-2022), which is the date of commissioning/distribution of the last project device in the batch. The distribution of project devices has been confirmed from the submitted project database.
μ_y Adjustment to account for any continued use of pre-project devices during the year y	Fraction	The number of stoves still operating will be determined based on the biennial monitoring surveys. The surveys would capture information related to cooking habits and stove usage of the region. The PP confirmed through interview that the monitoring will be done once in two years (biennial) and will apply one of the below methods for monitoring as per the applied methodology: 1. If the pre-project devices are decommissioned and no longer used, as determined by the monitoring survey its value is 0. 2. If both the improved cookstove and baseline cookstoves are used together then surveys shall be conducted to record the average continued operation of baseline cookstoves in a sample of households. 3. A 95/10 confidence/ margin of error shall be achieved for the sampling

	Validation Report: VCS	parameter irrespective of monitoring frequency as per para 22 of Standard: Sampling and surveys for CDM project activities and programmes of activities, Version 09.0. In case of failure to achieve the desire 95/10, lower bound values shall be used to ensure conservativeness.
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Sample Plan:

As confirmed during the remote interview, the sampling shall be carried out based on the latest Guideline for Sampling and Surveys for CDM Project Activities and Programme of Activities, version 04. PP has opted for representative sampling due to the dissemination of large number of ICS under the project, which will involve grouping and sampling across project instances. The confidence and precision as per Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities shall be applied at the time of sampling. The sampling shall be done to obtain an unbiased and reliable estimate of the proportion (in the case of the parameter $N_{y,i,j}, \mu_y$) and of the mean values (in the case of the parameter $B_{y=1,new,i,j,survey}$). Assessment team confirms that the sampling method is clearly described in line with the description of the population and the sampling plan transparently describes how the samples are selected.

Findings: CL 01, CAR 02 and CAR 03 was raised and successfully closed. Refer to Appendix 3 for further details.

3.4 Non-Permanence Risk Analysis

Non-permanence risk analysis is not applicable.

4 VALIDATION CONCLUSION

Validation Report: VCS Version 4.0

SDG13 Ventures Pte Ltd. has commissioned KBS Certification Services Pvt. Ltd. to do VCS validation of the project activity: “Improved Cookstove Programme by SDG13 in India” having VCS ID 2533, with regard to the relevant requirements of VCS Standard version 4.1; to attain real, measurable, additional and permanent emission reductions.

The proposed project activity seeks to increase access of households and communities to improved cookstoves by disseminating high thermal efficiency and low greenhouse gas emitting cooking stoves known as Improved Cook Stoves (ICS) to the rural and semi-urban households of India. The improved cook stoves through replacement of inefficient traditional cook stove will contribute towards reduction of greenhouse gas emission resulting in the reduction of firewood consumption leading to climate change mitigation in a sustainable manner.

A risk-based approach has been followed to perform this validation. In the course of the validation 03 Corrective Action Request (CAR) and 02 Clarification Request (CL) were raised and successfully closed.

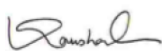
The validation is based on the VCS PD, additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and supporting documents made available to the validation team by project proponent.

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

- The project fulfils criteria of VCS Standard Version 4.1.
- The project is in line with all relevant VCS requirements.
- The project baseline is sufficiently justified in the PD.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 19,665,232 tCO_{2e} is most likely to be achieved within the 10 years of fixed crediting period.
- No restrictions or uncertainties were identified related to the validation.

Location: Faridabad, Haryana, India

Date: 29-October-2021



Kaushal Goyal

Managing Director (KBS Certification Services Pvt. Ltd.)

APPENDIX 1: REFERENCES

No.	Document
1	Validation Report: VCS Version 4.0 /1.1/ Initial VCS- PD Version 01, dated 20-May-2021 /1.2/ Final VCS-DD Version 02, dated 18-October-2021
2	Efficiency (38%) test report of ICS as per water boiling test according to ISO 19867 test Sequence protocol and certified by third party (KIRDI Stove Testing Centre)
3	Spread sheets for Emission Reduction Calculations
4	Undertaking for not availing other forms of environmental credit for the same crediting period under consideration (dated 15-August-2021)
5	Distribution and data sharing agreement between the PP(SDG13 Ventures Pte Ltd) and Avichal Ventures(Distributor of ICS) dated 01-October-2021
6	Stakeholder consultation records (list of participants and pictures)
7	Sample beneficiary agreement: Tripartite agreement between PP (M/s SDG13 Ventures Pte Ltd)
8	Technical specifications of the ICS (Greenway Jumbo stove) as per manufacturer specification
9	VMR0006- Methodology for Installation of High Efficiency Firewood Cookstoves, version-1.1 dated 22 July 2021
10	VCS Program guide Version 4.0
11	VCS Standard, Version 4.1
12	VCS_Validation_Verification_Manual_v3.2

APPENDIX 2: Competence of team members and technical reviewers

Validation Report: VCS Version 4.0

Personnel Name:		Ms. Shikha Sharma	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☐
Technical Reviewer	☐	Local Expert	☐
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure		
Approved by (Manager C & T)	Sanjay Kandari		
Approval date:	14/01/2021		

Personnel Name:		Sanjay Kandari	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		

Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
Energy demand	TA 3.1. Energy Demand
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure
Approved by (Manager C & T)	Akhilesh Joshi
Approval date:	11/12/2015

Personnel Name:		Tushar Chaudhari	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Energy demand	TA 3.1. Energy Demand		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal		
Approved by	Manager Competency & Training		
Approval date:	02/09/2020		

APPENDIX 3: Findings

Table 1. CLs from this validation

CL ID	01	Section no.	Date: 21/07/2021
Description of CL			
- Under section 1.8 of the submitted VCS PD, the expected date of commissioning has been mentioned as 01-June-2021. Since the date has already elapsed, PP shall provide the evidence of commissioning of the project activity. - In the submitted VCS-PD, it has been mentioned that 600,000 ICS shall be distributed over next five years. However, as per the ER sheet distribution of 500,000 ICS has been considered. PP shall clarify on the actual number of ICS to be distributed. - PP to clarify the role of Greenway Grameen in the project activity, as the entity has not been mentioned in the relevant section 1.5 and 1.6 of the submitted VCS PD. - Under section 1.11 of the submitted VCS PD, it has been mentioned that several biomass ICS would be included, however the currently eligible types are mentioned to be Greenway Jumbo Stoves and Greenway Stoves (e.g. Smart, Prime, Uno). PP to clarify whether any stove other than these would be included? Further, how shall the distributed stoves meet the applicability conditions of the methodology w.r.t efficiency?			
PP response			Date: 28/07/2021
- The expected start date of the project has been shifted from 01/06/2021 to 20/08/2021 as the project activity has not yet been started. - For the whole crediting period a total amount of 500,000 ICS will be distributed in 5 phases. There was typo error in the VCS-PD which has been corrected in the updated PD. - Greenway grameen is an entity which facilitated LSC for the PP. The entity has no major role in the project activity. - As per now, the eligible ones, that is, Greenway Jumbo stoves and Greenway stoves will only be distributed. However, if any other stoves are considered eligible. the same will be intimated and included as per the VCS Guidelines. Both the Greenway stoves and Greenway Jumbo stoves have an efficiency of about 38% which meets the applicability condition of the methodology w.r.t efficiency.			
Documentation provided by PP			
VCS-PD version 02			
VWB assessment			Date: 28/09/2021
The revision in the expected start date of the project activity has been confirmed during the remote interviews, as it there is no ICS distribution till date.			

2. Validation team confirms that the total amount of ICS to be distributed (i.e 500,000) are now consistent throughout the VCS PD.
3. The clarification provided by PP for the role of Greenway grameen has been accepted by the validation team.
4. As confirmed during the remote interview, currently eligible types of cookstoves to be distributed include the Greenway Jumbo stoves, Greenway stoves (Smart, prime, uno). However, any additional type of ICS that meet the requirements of the methodology may also be included.

Hence, CL 01 is closed.

VVB re-assessment of CL 01(1)

Date: 22/10/2021

1. During the submission of documents for the Technical Review, the expected start date (i.e., 20/08/2021, as per the response of PP above) of the project had already elapsed, therefore, a comment had been raised by technical reviewer regarding the project start date. PP had then furnished the agreement with the distributor dated 01-October-2021 and revised the start date of the project in response to the TR comment. Therefore, the revision in the start date from 20/08/2021 to 01/10/2021 has been accepted by the validation team as it is in accordance with section 3.7 of VCS standard, Version 4.1.

Hence, CL 01 remains closed.

CL ID	02	Section no.	Date: 21/07/2021
Description of CL			
1. As per the project description, biomass-based ICS shall be disseminated to the rural households. However, throughout the PD it has also been mentioned that the distribution will also occur in semi-urban and urban areas. PP shall clarify the target population for the dissemination. 2. In section 1.13 of the submitted VCS PD, it has been stated that <i>"The project aims to reduce the environmental and social burdens caused by inefficient biomass cooking by introducing energy efficient wood and charcoal stoves to low- income households"</i> Here, PP shall clarify: (a) Whether biomass-based ICS will replace traditional wood stoves and charcoal-based ICS will replace traditional charcoal stoves (b) Whether ICS shall require a specific fuel (e.g. briquettes, pellets, woodchips), considering the justification of applicability condition number 5 in section 3.2 of the VCS PD.			
PP response			Date: 28/07/2021
1. The project activity will be targeting households living in rural and semi-urban areas supplying biomass based ICS. The relevant parts in the PD have been updated with the same. 2. (a) The project activity will only replace traditional biomass based cookstoves with new and energy efficient biomass cookstoves. Charcoal based cookstoves are neither in baseline			

scenario not in the project scenario. The corrections for the same have been done in the updated VCS-PD. (b) The project ICS don't specifically require any specific kind of fuel like briquettes. However, if anywhere, for a certain period of time briquettes are used, the energy consumption of manufacturing and transport of the same will be monitored to calculate the project emissions	
Validation Report: VCS Version 4.0	
Documentation provided by PP	
VWB assessment	
Date: 28/09/2021	
1. Through the remote interviews, it has been confirmed that the dissemination of the eligible stove types shall be done in rural and semi-urban areas, hence the revision done by PP is acceptable to the validation team. 2. Through the remote interviews and as well as the clarification provided by the PP, it is concluded that the grouped project activity shall disseminate energy efficient biomass based cookstoves to replace the baseline stoves and these stoves shall not be fired with any other type of fuel. However, if any other type of fuel is used, then project emissions shall be calculated accordingly.	
Hence, CL 02 is closed.	

Table 2.CARs from this validation

CAR ID	01	Section no.		Date: 21/07/2021
Description of CAR				
- Under section 1.1 of the Submitted VCS PD, PP shall provide the estimated value of total GHG emission reductions and removals in compliance with the VCS template filling requirements. - Under section 1.9 of the submitted VCS PD, the end date of crediting period (01 June 2021 to 31 May 2030) was found to be inconsistent, as it does not cover the entire 10 years fixed crediting period chosen by the PP.				
PP response				Date: 28/07/2021
- The estimated value of the total GHG emission reduction for the whole crediting period has been included in the updated VCS-PD. - The crediting period for the project activity has been revised and updated in the revised VCS-PD.				
Documentation provided by PP				
VCS-PD version 02				
VVB assessment				Date: 28/09/2021
- Validation team confirms that the estimated value of total GHG emission reductions (i.e 19,665,232 tCO₂e) and removals in compliance with the VCS template filling requirements have now been added in the revised PD and are consistent with the value calculated in the ER sheet. - Validation team confirms that the end date of crediting period has now been corrected and covers the entire crediting period of 10 years.				
Hence, CAR 01 is closed.				

CAR ID	02	Section no.		Date: 21/07/2021
Description of CAR				
PP shall revise the following: - Under section 3.3 of the submitted VCS PD, the reference to the tool 30 has been provided. However, the latest available version of the tool has not been used. - Under section 4.4, value of the parameter $B_{y=1, new, i, survey}$ has been assumed as 1.35 tonnes/year/stove. However, no link for the assumption has been provided. - Under section 4.4, inconsistent value (0.95 instead of 0.94) of adjustment factor has been used for the calculation of $\eta_{new, i, j}$.				
PP response				Date: 28/07/2021
- The latest version of tool 30 has been referred and the reference has been corrected in the updated VCS-PD. - The value of $B_{y=1, new, i, survey}$ is just an assumption. the real value will only be obtained after the site survey after the start of the project activity. - There was a typo error. The same has been corrected in the updated VCS-PD.				
Documentation provided by PP				

VCS-PD version 02	
VVB assessment	Date: 28/09/2021
1. Validation team confirms that the correction has been done and latest version of the Tool has been used. 2. The justification provided by PP has been accepted as the actual value shall be added after the survey. 3. Validation team confirms that the use of adjustment factor is now consistent through the VCS-Pd and the ER sheet. Hence, CAR 02 is closed.	

CAR ID	03	Section no.		Date: 21/07/2021
Description of CAR				
PP shall revise the following in the submitted VCS PD: 1. Under section 5.1, for the fixed parameter "η_{old}" a default value of 0.1 has been mentioned to account for the efficiency of baseline firewood cookstove. However, efficiency of baseline charcoal cookstoves has not been accounted. 2. Under section 5.2, the monitoring parameters Ny, $B_{renewable,y}$ and $\eta_{PJ/BL}$ were found to be missing. 3. As per template filling instructions, PP shall ensure consistent font type, colour and size throughout the PD. 4. Blank page at the end of the document shall be removed.				
PP response				Date: 28/07/2021
1. The baseline scenario doesn't include charcoal cookstoves. Thus, there is no need for adding the value of efficiency of old charcoal cookstoves. 2. The parameters are used for calculation for replacement of fossil fuel cookstoves with renewable biomass ICS. As the baseline scenario doesn't reflect any fossil fuel cookstoves, the use of these parameters is not relevant. 3. Font type, colour and size throughout the PD is now consistent. 4. The blank page in the end of the project document has been removed from the updated VCS-PD.				
Documentation provided by PP				
-				
VVB assessment				Date: 28/09/2021
1. Through the remote interviews and as well as the clarification provided by the PP, it is concluded that the grouped project activity shall disseminate energy efficient ICS to replace the baseline wood stoves and hence, no value of efficiency of old charcoal stoves has been added. 2. The justification provided by PP is accepted as calculation for replacement of fossil fuel cookstoves with renewable biomass ICS has not been carried out. 3. Validation team confirms that the font type, colour and size is now consistent. 4. Blank page at the end of the VCS- PD is now removed. Hence, CAR 03 is closed.				

Table 3.FARs from this validation

No FAR raised from this validation.

Validation Report: VCS Version 4.0

FAR ID	**	Section No.	Date: DD/MM/YYYY
Description of FAR			
PP response			Date: DD/MM/YYYY
Documentation provided by PP			
VVB assessment			Date: DD/MM/YYYY