



VALIDATION REPORT “BIOLITE AFRICA IMPROVED STOVE PROGRAM”



Document Prepared by Carbon Check (India) Private Ltd.

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Summary:

- **A brief description of the validation and the project**

Validation: BIOLITE, as the project proponent, has commissioned Carbon Check (India) Private Ltd., to carry out the validation of the grouped project “BIOLITE AFRICA IMPROVED STOVE PROGRAM”, with regards to the relevant requirements of VCS Standard Version 4.4 /B01/.

Project: The proposed grouped project is a large-scale project which employs VCS methodology; VMR0006 version 1.1 /B07/. The grouped project involves dissemination of energy-efficient improved cookstoves (ICS) in Sub-Saharan Africa. The project results in reducing the amount of non-renewable biomass used for cooking. Through reduction in non-renewable biomass consumption, the programme will decrease greenhouse gas emissions. The goal of the proposed grouped project is to distribute improved cookstoves (“ICS”) in the households/small and medium-sized enterprises (SMEs) in Sub-Saharan Africa, with the host countries being Rwanda, Malawi, Nigeria, Mali, Madagascar, Senegal, Côte d’Ivoire, Democratic Republic of the Congo, Zambia and Uganda.

The estimated total GHG emission reductions and removals over the first crediting period are ~4,731,116tCO_{2e} of 7 years from the host countries named Rwanda, Malawi, Nigeria, Mali, Madagascar, Senegal, Côte d’Ivoire, Democratic Republic of the Congo, Zambia and Uganda.

- **The purpose and scope of validation**

Purpose: The purpose of a validation is to have a thorough and independent assessment of the proposed large-scale grouped project against the applicable VCS requirements, in particular, the project’s baseline, monitoring plan and the project’s compliance with relevant VCS and host Party criteria. These are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions. Carbon Check’s objective is to perform a thorough, independent assessment of the validation of the large-scale grouped project.

Scope: The validation scope is defined as an independent and objective review of the Project Description (PD). The PD is reviewed against the relevant criteria and guidance documents provided by VCS which included the following: VCS Program Guide, version 4.3 /B02/, VCS Standard, version 4.4 /B01/, Program Definitions, version 4.3 /B05/, Registration & Issuance Process, version 4.3 /B04/ and in line with the VCS Validation and Verification Manual, version 3.2 /B03/ applicable at the time in order to confirm that the project meets the applicability conditions of the selected baseline and monitoring methodology, VMR0006, version 1.1 /B07/ and also assess the claims and assumptions made in the PD without limitation on the information provided by the project proponents.

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

Validation consists of the following four phases:

- I. A desk review of the project description documents

- A review of data and information;
 - Cross checks between information provided in PD and information from sources with all necessary means without limitations to the information provided by the project proponent;
 - II. On-site visit and follow-up interviews with project stakeholders
 - Interviews with relevant stakeholders in host country with personnel having knowledge with the project development via telephone, email or on-site visits;
 - Cross checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent;
 - III. Reference to available information relating to projects or technologies similar to project under validation and review based on the approved methodology being applied for the appropriateness of formulae and accuracy of calculations.
 - IV. The resolution of outstanding issues and the issuance of the final validation report and opinion.
- **The number of findings raised during validation**

During the course of validation, a total of **13 findings** were raised, which include:

09 Corrective Action Requests (CARs);

04 Clarification Requests (CLs);

00 Forward Action requests (FARs).

All the above findings have been resolved by the PP.

Any uncertainties associated with the validation

The PD /01/, emissions reduction calculations /02/ along with the supporting documents provided are considered to be in line with the VCS version 4 requirements. The validation team has detected no further uncertainties or quality restriction.
 - **Summary of the validation conclusion**

Carbon Check (India) Private Ltd. hereby confirms that the grouped project is fulfilling the criteria specified by VCS PD template version 4.2 /B06/, VCS Standard version 4.4 /B01/, applied methodology VMR0006, version 1.1 /B07/ and hence be successfully validated under VCS. Carbon Check confirms a positive validation opinion confirming the project complies with the applicable VCS requirements, thus recommending the project for registration.

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1 INTRODUCTION

BIOLITE has commissioned the VVB, Carbon Check (India) Private Ltd. to perform a validation of the VCS large-scale grouped project “BIOLITE AFRICA IMPROVED STOVE PROGRAM” This report summarises the findings of the validation of the project, performed on the basis of the VCS Program Guide, version 4.3 /B02/, VCS Standard, version 4.4 /B01/, VCS Program Definitions, version 4.3 /B05/, Registration & Issuance Process, version 4.3 /B04/ and VCS Validation and Verification Manual, version 3.2 /B03/. This report contains the findings and resolutions from the validation of the grouped project.

1.1 Objective

The purpose of a validation is to have a thorough and independent assessment of the proposed large-scale project against the applicable VCS requirements the project's baseline, monitoring plan and the project's compliance with relevant VCS and host Party criteria. These are validated to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions, VCU's.

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the Project Description (PD), project design, the project's baseline study and monitoring plan and other relevant documents. The PD is reviewed against the relevant criteria and decisions by the VCSA, including the approved baseline and monitoring methodology. Carbon Check has employed a risk-based approach in the validation, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The validation is not meant to provide any consulting towards the project proponents. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

The validation is carried out based on the following requirements, applicable for this large-scale project:

- VCS Program Guide (v4.3) /B02/
- VCS Standard (v4.4) /B01/
- Program Definitions (v4.3) /B05/
- Registration & Issuance Process (v4.3) /B04/

- VCS Validation and Verification Manual (v 3.2) /B03/
- VCS Methodology: VMR0006.: Methodology for Installation of High Efficiency Firewood Cookstoves" (Version 1.1). /B07/
- Other relevant rules, including the host country legislation.

1.3 Reasonableness of Assumptions

☒ Reasonable level of assurance

☐ Limited level of assurance

The threshold for quantitative materiality with respect to the aggregate of errors, omissions, and misrepresentations, relative to the total reported GHG emission reductions and/or removals was limited to one percent, as required by section 4.1.8 of the VCS Standard v. 4.4 /B01/.

1.4 Summary Description of the Project

The proposed grouped project is a large-scale project which employs of the VCS methodology; VMR0006 version 1.1 /B07/. The large-scale project involves distribution of energy efficient improved cook stoves (ICS) in Sub-Saharan Africa.

The purpose of this Grouped project is to disseminate energy-efficient improved cookstoves (ICS) to replace existing traditional Cookstoves in domestic households and communities in Rwanda, Malawi, Nigeria, Mali, Madagascar, Senegal, Côte d'Ivoire, Democratic Republic of the Congo, Zambia and Uganda as the host countries.

At present, following project activity (ies) are part of the grouped project which are as follows:

Project Activity 1: Dissemination of energy-efficient improved cookstoves (ICS) in domestic households and communities of Rwanda.

Project Activity 2: Dissemination of energy-efficient improved cookstoves (ICS) in domestic households and communities of Malawi.

Project Activity 3: Dissemination of energy-efficient improved cookstoves (ICS) in domestic households and communities of Nigeria.

Project Activity 4: Dissemination of energy-efficient improved cookstoves (ICS) in domestic households and communities of Mali.

Project Activity 5: Dissemination of energy-efficient improved cookstoves (ICS) in domestic households and communities of Madagascar.

Project Activity 6: Dissemination of energy-efficient improved cookstoves (ICS) in domestic households and communities of Senegal.

Project Activity 7: Dissemination of energy-efficient improved cookstoves (ICS) in domestic households and communities of Côte d'Ivoire.

Project Activity 8: Dissemination of energy-efficient improved cookstoves (ICS) in domestic households and communities of Democratic Republic of the Congo.

Project Activity 9: Dissemination of energy-efficient improved cookstoves (ICS) in domestic households and communities of Democratic Republic of the Zambia.

Project Activity 10: Dissemination of energy-efficient improved cookstoves (ICS) in domestic households and communities of Uganda.

The project aims to disseminate energy efficient (ICS) stoves in Sub-Saharan Africa. These improved cookstoves will reduce the amount of non-renewable biomass used for cooking. PP has considered distribution of the below mentioned ICS, namely Dura (Firewood ICS), Jiko Fresh (Charcoal ICS), MamaYao Charcoal ICS) and JikoMalkia (Charcoal ICS). The start date for the large-scale grouped project activity is 01 June 2022 (Date for installation of 1st ICS under the Grouped project as well as the PA-1 in Rwanda). The large-scale project activity adopts a renewable crediting period of 7 years which can be renewed twice in 21 years.

The project proponents for the large-scale grouped project activity is Biolite and the other entity is Climate Secure, who has been involved in activity of completion of project description. /07/.

The estimated GHG emission reductions over the crediting period, expected from the large-scale grouped project activity is as follows:

Project Activity #	Host Country	Duration of Crediting Period	Estimated Average Annual Emissions (tCO ₂ e)	Total Estimated Emissions over the Crediting Period (tCO ₂ e)
PA-1	Rwanda	01/06/2022 - 31/05/2029	265,156	1,856,093
PA-2	Malawi		79,649	557,545
PA-3	Nigeria		50,140	350,983
PA-4	Mali		39,767	278,366
PA-5	Madagascar		40,117	281,242
PA-6	Senegal		36,051	252,357
PA-7	Ivory Coast		49,953	349,670
PA-8	DRC		48,552	339,865
PA-9	Zambia		38,956	272,693
PA-10	Uganda		27,472	192,302

Despite efforts to increase global access to clean cooking, the Tracking SDG 7: Energy Progress Report 2023 /21/, Chapter-2 points to 2.3 billion people still without access to clean cooking as of 2021. Further, it is estimated that by 2050, 2.3 billion people in 91 low- and middle-income countries will still lack access to clean cooking. Among the 91 are 45 out of the 47 countries of Sub-Saharan Africa.

The study provides additional evidence that the population lacking access to clean cooking facilities is trending upward. Furthermore, according to the same report, in order to achieve 100% access by 2030, an extra 8–11 percentage point annual increase beyond current trends is required in 41 countries, most of which are in Sub-Saharan Africa. Moreover, 82 countries—45 of which are in Sub-Saharan Africa—will not have universal access to clean cooking by 2050 if availability does not improve by an additional 1-3 percentage points year.

Thus, traditional cooking methods are prevalent across the host countries. The use of the traditional inefficient biomass stoves is a significant driver of deforestation. Widespread usage of unsustainably sourced, non-renewable biomass (NRB) for cooking results in equivalent GHG emissions attributed to use of non-renewable biomass.

Additionally, the use of solid biomass fuels (e.g., wood) in inefficient traditional stoves and/or open three stone fires release large amounts of particulate matter (PM), creating hazardous levels of indoor air pollution (IAP). IAP generated by inefficient and poorly ventilated stoves burning biomass fuels is responsible for the deaths of an estimated 3.2 million people annually. Almost half of these deaths occur among children under five years of age. Exposure is high among women and children, who spend the most time near the domestic hearth. Reliance on polluting fuels and technologies also requires significant time for cooking on an inefficient device and gathering and preparing fuel. In developing countries with high mortality rates overall, indoor air pollution ranks fourth in terms of the risk factors that contribute to disease and death (World Health Organization).

Therefore, in absence of the project, the project households would cook primarily using traditional inefficient stoves, perpetuating environmental and health degradation. Concurrently, this is recognized as the group project's baseline situation. The project baseline pertains to use of non-renewable biomass only and does not include users with fossil fuel as their primary baseline fuel / technology for cooking. Furthermore, In appendix 2 of the PD, PP has demonstrated prevalence of wood and charcoal being used as a fuel along with evidence /23/, which has been checked and deemed acceptable to the VVB.

2 VALIDATION PROCESS

2.1 Method and Criteria

BIOLITE has commissioned Carbon Check (India) Private Ltd., to carry out the validation of the large-scale project “BIOLITE AFRICA IMPROVED STOVE PROGRAM”, with regards to the relevant requirements of VCS Standard, version 4.4 /B01/.

The validation includes a thorough and independent assessment of the proposed large-scale project against the applicable VCS requirements the project's baseline, monitoring plan and the project's compliance with relevant VCS and host Party criteria. The validation involves assessment of the project and to confirm that the project meets the applicability conditions of the selected methodology, VMR0006, version 1.1 /B07/ and also assess the claims and assumptions made in the PD without limitation on the information provided by the project proponents. The overall validation was conducted using Carbon Check's internal procedures.

The validation schedule, including key milestones is stated below:

Milestone description	Time
Listing of the project	10 th April 2023
Date of contract signing with the VVB	09 th March 2023
Submission of requisite documents to the VVB	10 th April 2023
Desk review	10 th April 2023 – 14 th April 2023
On-site Audit	24 th April 2023 – 26 th April 2023
Date of Issue of Draft Validation Report	27 th April 2023
Date of Issue of Final Validation Report	7 th June 2024

2.2 Document Review

The VCS project description, emission reduction calculation spread sheet and supporting documents related to the project design and baseline were reviewed, cross-checked, and compared with identified and stated as per VCS Standard, version 4.4 standard /B01/ requirements. The desk review included:

- A review of the data and information presented to verify completeness and consistency in accordance with VCS version 04 requirements;
- A review of the project description and monitoring methodology, paying particular attention to the applicability conditions of the methodology and baseline and additionality related requirements.
- A review of the monitoring plan and the project's compliance with relevant VCS criteria.

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.

2.3 Interviews

Interviews with the PP representatives, local stakeholders and household visits (end users where ICS distributed) were undertaken on 24-April-2023 to 26-April-2023 by onsite visit through local expert under virtual presence of other validation team members including team leader / technical expert to confirm the information presented in the VCS PD, information as outlined in the table below and to resolve issues identified in the document review.

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

1) Rwanda

	Date	Name	Organisation	Topic
/a/	24-April-2023	Erik Wurster	Biolite	• Project Design • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality
/b/	24-April-2023	Hesbon Nyangena		• Monitoring and reporting documentation • Quality Assurance – Management and operating system • Social and Environmental Impacts
/c/	24-April-2023	Hawa Mukami		• Compliance with relevant laws • ICS distribution plan • Technology used in project stove and its technical specifications
/d/	24-April-2023	Rohit Lohia	Climate Secure	• Project Design • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality
/e/	24-April-2023	Ashutosh Tiwari		• Monitoring and reporting documentation
/f/	24-April-2023	Rishabh Pathania		• Quality Assurance – Management and operating system

				- Social and Environmental Impacts - Compliance with relevant laws
/g/	24-April-2023	Mukantabasha Esperance	End-user	- Project stove model, and serial number - Fuel usage in baseline and project conditions - Project stove operation - Smoke reduction - Time savings due to ICS on cooking and fuel collection - Money savings on fuel - Usage of baseline stoves if any
/h/		Niyonsaba Anne Marie		
/i/		Rwabarinda Eric		
/j/		Uwimana Vestine		
/k/		Nyirabaziga Solange		
/l/		Ugiriwabo Chantal		
/m/		Mudacumura Emmanuel		
/n/		Kayiranga Callixte		
/o/	24-April-2023	Alain Christian	Stakeholder- Ruzindana, Scaling Innovations Lead at One Acre Fund Rwanda.	- Local Stakeholder Consultation - Social and Environmental Impacts - Local Stakeholders Grievance mechanism - Trainings and jobs provided to stakeholders
/p/		Dushimimana Marcel (Jimmy)	Stakeholder- Product Research and Data Specialist at One Acre Fund_Rwanda.	
/q/		Jean Pierre Hakizimana	Stakeholder – Founder and CEO IMENA RUFARM	

			TECH and YCTP Alumni	
/r/		Marie Louise Mujawayezu -	Stakeholder – Co-Founder and Program Manager of Rwanda Green Initiative (RGI)	

2) Malawi

	Date	Name	Organisation	Topic
/a/	24-April-2023	Erik Wurster	Biolite	• Project Design • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality
/b/	24-April-2023	Hesbon Nyangena		• Monitoring and reporting documentation • Quality Assurance – Management and operating system • Social and Environmental Impacts • Compliance with relevant laws • ICS distribution plan • Technology used in project stove and its technical specifications
/c/	24-April-2023	Hawa Mukami		
/d/	24-April-2023	Rohit Lohia	Climate Secure	• Project Design • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality
/e/	24-April-2023	Ashutosh Tiwari		

/f/	24-April-2023	Rishabh Pathania		- Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws
/g/	24-April-2023	Graciois Nkaombe	Stakeholder-Consultant and Community Worker	- Local Stakeholder Consultation - Social and Environmental Impacts - Local Stakeholders Grievance mechanism - Trainings and jobs provided to stakeholders
/h/		Wickson Mauambeta	Stakeholder-Promoter	
/i/		Esther Manduwa	Stakeholder – Promoter	
/j/		Charles	Stakeholder – Promoter	

3) Nigeria

	Date	Name	Organisation	Topic
/a/	24-April-2023	Erik Wurster	Biolite	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality
/b/	24-April-2023	Hesbon Nyangena		- Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts

/c/	24-April-2023	Hawa Mukami		- Compliance with relevant laws - ICS distribution plan - Technology used in project stove and its technical specifications
/d/	24-April-2023	Rohit Lohia	Climate Secure	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws
/e/	24-April-2023	Ashutosh Tiwari		
/f/	24-April-2023	Rishabh Pathania		
/g/	24-April-2023	Adebanke Shakirat	End-user	- Project stove model, and serial number - Fuel usage in baseline and project conditions - Project stove operation - Smoke reduction - Time savings due to ICS on cooking and fuel collection - Money savings on fuel - Usage of baseline stoves if any
/h/		Esther Amos		
/i/		Isah Sekinat		
/j/		Ibilolu Latifat		
/k/		Adijat Adediran		
/l/		Folasade Ogunseye		
/m/		Esther Oyekunle		
/n/		Joseph Ogadinma		
/o/		Fatimo Yekini		
/p/		Salami Iyabo		

/q/		Olawale Ajayi		
/r/	24-April-2023	Kolawole Oguntuase	Stakeholder-Promoter	- Local Stakeholder Consultation - Social and Environmental Impacts - Local Stakeholders Grievance mechanism - Trainings and jobs provided to stakeholders
/s/		Helen Wazhi	Stakeholder-Promoter	
/t/		Christopher Wazhi	Stakeholder Promoter –	
/u/		Ayodele Joshua	Stakeholder Promoter –	

4) Mali

	Date	Name	Organisation	Topic
/a/	25-April-2023	Erik Wurster	Biolite	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws - ICS distribution plan - Technology used in project stove and its technical specifications
/b/	25-April-2023	Hesbon Nyangena		
/c/	25-April-2023	Hawa Mukami		

/d/	25-April-2023	Rohit Lohia	Climate Secure	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws
/e/	25-April-2023	Ashutosh Tiwari		
/f/	25-April-2023	Rishabh Pathania		
/g/	25-April-2023	Nouhou koné	End-user	- Project stove model, and serial number - Fuel usage in baseline and project conditions - Project stove operation - Smoke reduction - Time savings due to ICS on cooking and fuel collection - Money savings on fuel - Usage of baseline stoves if any
/h/		Ramata N'Daou		
/i/		Isah Sekinat		
/j/		Kadiatou Traoré		
/k/		Sirantou Djigue		
/l/		Issa Traoré		
/m/		Mariam Macalou		
/n/		Fatoumata Koné		
/o/	25-April-2023	Amadou Kassambara	Stakeholder- Secretary General - Prema Mali (Promoter)	- Local Stakeholder Consultation - Social and Environmental Impacts - Local Stakeholders Grievance mechanism - Trainings and jobs provided to stakeholders
/p/		Oumar Diallo	Stakeholder- CEO - GROUPE YIRIMEX-SA (Distributor)	

5) Madagascar

	Date	Name	Organisation	Topic
/a/	25-April-2023	Erik Wurster	Biolite	• Project Design • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality
/b/	25-April-2023	Hesbon Nyangena		• Monitoring and reporting documentation • Quality Assurance – Management and operating system • Social and Environmental Impacts
/c/	25-April-2023	Hawa Mukami		• Compliance with relevant laws • ICS distribution plan • Technology used in project stove and its technical specifications
/d/	25-April-2023	Rohit Lohia	Climate Secure	• Project Design • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality
/e/	25-April-2023	Ashutosh Tiwari		• Monitoring and reporting documentation • Quality Assurance – Management and operating system • Social and Environmental Impacts
/f/	25-April-2023	Rishabh Pathania		• Compliance with relevant laws
/g/	25-April-2023	Mrs Sylvie	End-user	• Project stove model, and serial number • Fuel usage in baseline and project conditions
/h/		Hanitiana fidiarisoa Dynah		

/i/		Rasoazanamisa Borgeot		- Project stove operation - Smoke reduction - Time savings due to ICS on cooking and fuel collection - Money savings on fuel - Usage of baseline stoves if any
/j/		Ratovondrainy Julian		
/k/		Hendritsoa Joulisse Danorette		
/l/		Rahatamalala Voahanginirina Aimee		
/m/		Mariam Macalou		
/n/		Fatoumata Koné		
/o/	25-April-2023	VELONIRINA Dieu Donné Norbertino	Stakeholder-Cookstove End User	- Local Stakeholder Consultation - Social and Environmental Impacts - Local Stakeholders Grievance mechanism - Trainings and jobs provided to stakeholders
/p/		Niriavotra Randrianarivelo	Stakeholder-Baobab + country marketing & biz dev Director	
/q/		Mr Tolotra	Stakeholder-Distributor	

6) Senegal

	Date	Name	Organisation	Topic
/a/	25-April-2023	Erik Wurster	Biolite	- Project Design - Project start date and Project Location - Baseline Scenario

/b/	25-April-2023	Hesbon Nyangena		- Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws - ICS distribution plan - Technology used in project stove and its technical specifications
/c/	25-April-2023	Hawa Mukami		
/d/	25-April-2023	Rohit Lohia		
/e/	25-April-2023	Ashutosh Tiwari	Climate Secure	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws
/f/	25-April-2023	Rishabh Pathania		
/g/	25-April-2023	Saly seck	End-user	- Project stove model, and serial number - Fuel usage in baseline and project conditions - Project stove operation - Smoke reduction - Time savings due to ICS on cooking and fuel collection - Money savings on fuel
/h/		Tall Salamata		
/i/		Yarame Diagne		
/j/		Mayrame Dia		
/k/		Aliou Diop		
/l/		Oumy Mancadiang		

/m/		Awa Diaw		Usage of baseline stoves if any
/n/		Nogaye Ndiaye		
/o/	25-April-2023	Nadège Laure Faye	Stakeholder-Specialist - Ozone layer erosion	- Local Stakeholder Consultation - Social and Environmental Impacts - Local Stakeholders Grievance mechanism - Trainings and jobs provided to stakeholders
/p/		Teddy Kelian Esawe	Stakeholder-Promoting the use of Stove (Commercial)	
/q/		Denise Houndaleou	Stakeholder-Promoting the project	

7) Ivory Coast

	Date	Name	Organisation	Topic
/a/	25-April-2023	Erik Wurster	Biolite	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws - ICS distribution plan - Technology used in project stove and its technical specifications
/b/	25-April-2023	Hesbon Nyangena		
/c/	25-April-2023	Hawa Mukami		
/d/	25-April-2023	Rohit Lohia	Climate Secure	Project Design

				- Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws
/e/	25-April-2023	Ashutosh Tiwari		
/f/	25-April-2023	Rishabh Pathania		
/g/	25-April-2023	ANTHIA DIOUF	End-user	- Project stove model, and serial number - Fuel usage in baseline and project conditions - Project stove operation - Smoke reduction - Time savings due to ICS on cooking and fuel collection - Money savings on fuel - Usage of baseline stoves if any
/h/		BAMBA ISSA		
/i/		MAMINATA BAGUEL		
/j/		YOBOUE AMOIN ELENE		
/k/		KOUASSI KOUADIO ALPHONSE		
/l/		YEO BAKARI SIFOA		
/m/		KOUAKOU BANDAMA ALPHONE		
/n/		DIANE AÏCHA		
/o/		LAHON EVE		
/p/		Zahibo Djaza christine		
/q/		SOW IDRISSE		

/r/		Teddy Kelian		
/s/		Elisabeth Jacqueline De Billong Edima	Stakeholder- Baobab+ country marketing manager	- Local Stakeholder Consultation - Social and Environmental Impacts - Local Stakeholders Grievance mechanism - Trainings and jobs provided to stakeholders
/t/		Koffi Christophe	Stakeholder- Baobab+ country Business Development	
/u/		Teddy Kelian Esawe	Stakeholder- Promoting the project	

8) Uganda

	Date	Name	Organisation	Topic
/a/	26-April-2023	Erik Wurster	Biolite	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws - ICS distribution plan - Technology used in project stove and its technical specifications
/b/	26-April-2023	Hesbon Nyangena		
/c/	26-April-2023	Hawa Mukami		
/d/	26-April-2023	Rohit Lohia	Climate Secure	- Project Design - Project start date and Project Location - Baseline Scenario

/e/	26-April-2023	Ashutosh Tiwari		- Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws
/f/	26-April-2023	Rishabh Pathania		
/g/	26-April-2023	Ampeire Daphine	End-user	- Project stove model, and serial number - Fuel usage in baseline and project conditions - Project stove operation - Smoke reduction - Time savings due to ICS on cooking and fuel collection - Money savings on fuel - Usage of baseline stoves if any
/h/		Efumbi Godfrey Kifaro		
/i/		Akech Annie		
/j/		Fatuma Babita Birabwa Edith		
/k/		Specioza Neumbe		
/l/		Jackline Nangobi		
/m/		Namaka Ziida		
/n/	26-April-2023	Julius Mubiru	Stakeholder-Consultant with Clean Cooking Space	- Local Stakeholder Consultation - Social and Environmental Impacts - Local Stakeholders Grievance mechanism - Trainings and jobs provided to stakeholders
/q/		Hamidah Namatovu	Stakeholder- End User	
/r/		Arnold Basiime	Stakeholder-Coordinator with UNAC and also an end user	

9) DRC

	Date	Name	Organisation	Topic
/a/	26-April-2023	Erik Wurster	Biolite	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws - ICS distribution plan - Technology used in project stove and its technical specifications
/b/	26-April-2023	Hesbon Nyangena		
/c/	26-April-2023	Hawa Mukami		
/d/	26-April-2023	Rohit Lohia	Climate Secure	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws
/e/	26-April-2023	Ashutosh Tiwari		
/f/	26-April-2023	Rishabh Pathania		
/g/	26-April-2023	Balingo Botokwa Marie	End-user	- Project stove model, and serial number - Fuel usage in baseline and project conditions - Project stove operation
/h/		Fataki Omari		
/i/		Anaclet Mambu		

/j/		Desire Otshudi		- Smoke reduction - Time savings due to ICS on cooking and fuel collection - Money savings on fuel - Usage of baseline stoves if any
/k/		Louise Nguva		
/l/		Chantal Isombwa		
/m/		Yves Tekomile		
/n/		Ngoyi Mbaku		
/o/	26-April-2023	Hubert Fataki	Stakeholder- Baobab plus Commercial advisor	- Local Stakeholder Consultation - Social and Environmental Impacts - Local Stakeholders Grievance mechanism - Trainings and jobs provided to stakeholders
/p/		Patrick Mukaba - Baobab plus	Stakeholder- Director of operations	
/q/		Blaise Tshitoko Kasongo	Stakeholder Promoter	
/r/		Aimerance Riba Riba	Stakeholder Distributor	

10) Zambia

	Date	Name	Organisation	Topic
/a/	26-April-2023	Erik Wurster	Biolite	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts
/b/	26-April-2023	Hesbon Nyangena		

/c/	26-April-2023	Hawa Mukami		- Compliance with relevant laws - ICS distribution plan - Technology used in project stove and its technical specifications
/d/	26-April-2023	Rohit Lohia	Climate Secure	- Project Design - Project start date and Project Location - Baseline Scenario - Baseline Identification and Additionality - Monitoring and reporting documentation - Quality Assurance – Management and operating system - Social and Environmental Impacts - Compliance with relevant laws
/e/	26-April-2023	Ashutosh Tiwari		
/f/	26-April-2023	Rishabh Pathania		
/g/	26-April-2023	DIANE AÏCHA	Stakeholder- Country Head	- Local Stakeholder Consultation - Social and Environmental Impacts - Local Stakeholders Grievance mechanism - Trainings and jobs provided to stakeholders
/h/		LAHON EVE	Stakeholder- NGO Head	
/i/		Zahibo Djaza christine	Stakeholder Promoter	
/j/		SOW IDRISSA	Stakeholder Distributor	

2.4 Site Visits

Site Locations: Sub-Saharan Africa is as follows:

PA-1:

Host Country: Rwanda

Region/State/Province etc.: All regions of Rwanda

City/Town/Community etc.: All cities and towns in Rwanda

Physical/Geographical location:

<i>Project Location</i>	<i>Geodetic Coordinates</i> <i>(Northernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Southernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Easternmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Westernmost Point)</i>
Rwanda	01°03' S	02°51' S	30°53' E	28°52' E

The site visit was made in households in Huye district, Rwanda. The site selection was based on VVB team's assessment of ICS distribution database.

PA-2:

Host Country: Malawi

Region/State/Province etc.: All regions of Malawi

City/Town/Community etc.: All cities and towns in Malawi

Physical/Geographical location:

<i>Project Location</i>	<i>Geodetic Coordinates</i> <i>(Northernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Southernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Easternmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Westernmost Point)</i>
Malawi	09°22' S	17°07' S	35°55' E	32°40' E

The project proponent has not started ICS distribution for this project activity yet. Therefore, VVB interviewed PP representatives and local stakeholders to confirm on the information presented in section 2.3 of this report.

PA-3:

Host Country: Nigeria

Region/State/Province etc.: All regions of Nigeria

City/Town/Community etc.: All cities and towns in Nigeria

Physical/Geographical location:

<i>Project Location</i>	<i>Geodetic Coordinates</i> <i>(Northernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Southernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Easternmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Westernmost Point)</i>
Nigeria	13°53' N	4°16' N	14°40' E	2°42' E

The site visit was made in households in Egbeda, Lagos, Nyanyan, Sango-Ota regions of Nigeria. The site selection was based on VVB team's assessment of ICS distribution database.

PA-4:

Host Country: Mali

Region/State/Province etc.: All regions of Mali

City/Town/Community etc.: All cities and towns in Mali

Physical/Geographical location:

<i>Project Location</i>	<i>Geodetic Coordinates (Northernmost Point)</i>	<i>Geodetic Coordinates (Southernmost Point)</i>	<i>Geodetic Coordinates (Easternmost Point)</i>	<i>Geodetic Coordinates (Westernmost Point)</i>
Mali	25 °00' N	10 °09' N	4 °00' E	12 °00' W

The site visit was made in households in Bamako region of Mali. The site selection was based on VVB team's assessment of ICS distribution database.

PA-5:

Host Country: Madagascar

Region/State/Province etc.: All regions of Madagascar

City/Town/Community etc.: All cities and towns in Madagascar

Physical/Geographical location:

<i>Project Location</i>	<i>Geodetic Coordinates (Northernmost Point)</i>	<i>Geodetic Coordinates (Southernmost Point)</i>	<i>Geodetic Coordinates (Easternmost Point)</i>	<i>Geodetic Coordinates (Westernmost Point)</i>
Madagascar	11 °57' S	25 °37' S	50 °40' E	43 °30' E

The site visit was made in households in Ambodivona, Maevantanana, Maevatanana, Mahajanga, and Tanjombato regions of Madagascar. The site selection was based on VVB team's assessment of ICS distribution database.

PA-6:

Host Country: Senegal

Region/State/Province etc.: All regions of Senegal

City/Town/Community etc.: All cities and towns in Senegal

Physical/Geographical location:

<i>Project Location</i>	<i>Geodetic Coordinates</i> <i>(Northernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Southernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Easternmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Westernmost Point)</i>
Senegal	16° 41' N	12° 18' N	11° 22' W	17° 27' W

The site visit was made in households in Dakar, Grand Yoff, Mbour, and pikin regions of Senegal. The site selection was based on VVB team's assessment of ICS distribution database.

PA-7:

Host Country: Côte d'Ivoire

Region/State/Province etc.: All regions of Côte d'Ivoire

City/Town/Community etc.: All cities and towns in Côte d'Ivoire

Physical/Geographical location:

<i>Project Location</i>	<i>Geodetic Coordinates</i> <i>(Northernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Southernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Easternmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Westernmost Point)</i>
Côte d'Ivoire	10° 44' N	4° 21' N	2° 29' W	8° 36' W

The site visit was made in households in Agboville, Bouake, and Grand Bassam regions of Ivory coast. The site selection was based on VVB team's assessment of ICS distribution database.

PA-8:

Host Country: Democratic Republic of Congo

Region/State/Province etc.: All regions of Democratic Republic of Congo

City/Town/Community etc.: All cities and towns in Democratic Republic of Congo

Physical/Geographical location:

<i>Project Location</i>	<i>Geodetic Coordinates</i> <i>(Northernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Southernmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Easternmost Point)</i>	<i>Geodetic Coordinates</i> <i>(Westernmost Point)</i>
DRC	5° 23' N	13° 27' S	30° 56' E	12° 12' E

The site visit was made in households in Bandal, Gombe, Kingasani, UPN, and Victoire regions of DRC. The site selection was based on VVB team's assessment of ICS distribution database.

PA-9:

Host Country: Zambia

Region/State/Province etc.: All regions of Zambia

City/Town/Community etc.: All cities and towns in Zambia

Physical/Geographical location:

<i>Project Location</i>	<i>Geodetic Coordinates (Northernmost Point)</i>	<i>Geodetic Coordinates (Southernmost Point)</i>	<i>Geodetic Coordinates (Easternmost Point)</i>	<i>Geodetic Coordinates (Westernmost Point)</i>
Zambia	08° 14' S	18° 05' S	32° 50' E	22° 00' E

The project proponent has not started ICS distribution for this project activity yet. Therefore, VVB interviewed PP representatives and local stakeholders to confirm on the information presented in section 2.3 of this report.

PA-10:

Host Country: Uganda

Region/State/Province etc.: All regions of Uganda

City/Town/Community etc.: All cities and towns in Uganda

Physical/Geographical location:

Project Location	Geodetic Coordinates (Northernmost Point)	Geodetic Coordinates (Southernmost Point)	Geodetic Coordinates (Easternmost Point)	Geodetic Coordinates (Westernmost Point)
Uganda	04° 14' N	01° 29' S	35° 02' E	29° 34' E

The site visit was made in households in Bugiri region of Uganda. The site selection was based on VVB team's assessment of ICS distribution database.

The geographical location for the same has been included in the VCS PD/ 1/ and confirmed from the KML file /24/ provided by the PP.

Based on video interviews and review of VCS PD /01/, assessment team of CCIPL verified the location of the project activity and the correctness of the location of the project activity and project boundaries.

A site visit was undertaken by the validation team on 24-April-2023 to 26-April-2023 to carry out the following:

- An assessment of the project design, project location, status of the grouped project activity as per the PD.
- Interviews with relevant personnel to determine whether the existing scenario is in accordance with the baseline scenario provided in PD.
- A cross check between information provided in the PD and relevant data sources.
- A review of calculations and assumptions made in determining the GHG data and emission reductions.

The on-site audit visits were conducted in a hybrid mode (including physical as well as remote assessment by the validation members). During the audit visits on 24th, 25th, and 26th April 2023, the VVB team conducted interviews with the PP representatives, local stakeholders, and end-users. These were undertaken physically by the local experts in respective countries stated above, under virtual presence of other validation team members including team leader / technical expert, using audio + video calls. Thus, the VVB team was able to confirm the relevant project information as outlined in the table above in section 2.3 and resolve issues identified in the document review.

In addition to the hybrid onsite visit conducted by the local expert and the team leader, additional means and independent checks were adopted by the VVB team to validate the information in the VCS PD. The validation team leader /technical expert reviewed all necessary information, received as documentary evidence, to validate the project facilities and equipment (e.g., supply agreement, end user agreement, distribution database, other records, etc). This helped the VVB team to gain a clear and precise understanding of the project activity, considered sufficient for the purpose of the validation.

In line with above, VVB reached a reasonable level of assurance, based on the audit approach described below, via a hybrid onsite visit through local expert and virtual presence of the validation team leader/ technical expert.

- a. Ensuring adequate competence of the local expert - CCIPL ensured that the local experts of respective countries for 10 PAs had the following minimum competencies:
 - i. Basic knowledge of the local context
 - ii. Knowledge and well versed with the electronic modes selected for remote assessment
 - iii. Interview techniques
 - iv. Speak the language of the interviewees
 - v. Sufficiently speak a language spoken by the Team Leader (English)

These minimum competencies of the local expert provided reasonable degree of confidence to the VVB team leader on the ability of the local experts to physically conduct the audit under remote supervision of the team leader.
- b. Training of the local expert before the audit - The Team Leader provided training to the local experts on the following:
 - i. Project-specific and relevant standard-specific requirements,
 - ii. Project audit plan
 - iii. Interviewing techniques

- iv. Relevant checks and information to be collected on-site
 - v. The mode of transferring information collected on site to the VVB team
- The training on the aforesaid points ensured that the local experts had considerable understanding of the project, the audit objectives, and the audit plan to execute an effective assessment of the project during on-site audit.
- c. Maintaining independence and accountability – the VVB team ensured complete independence, accountability, and reasonableness of assessment decision via the following:
 - i. Mandating the local expert to work entirely under explicit directions of the Team Leader & Technical Expert
 - ii. Not involving the local experts in forming validation opinions, even on specific topics
 - iii. Not involving the local experts in the drafting of the validation report
 - d. Taking additional measures – the following additional measures were taken to ensure reasonable degree of assurance on the validation assessment:
 - i. Cross checks on information provided in the VCS PD with independent information from third-party, publicly available sources other than those used in the project;
 - ii. Cross checks on information provided by interviewed personnel with other independent sources or other interviews;
 - iii. Telephonic / Video interviews with external relevant stakeholders, such as personnel with knowledge of the similar other project and its implementation.
 - iv. Review of available information relating project technologies similar to the Project proposed under validation.

Given the baseline scenario established in the PD, is based on credible published literature, hence, acceptance sampling during validation on-site audit, to assess any baseline survey sample data was not applicable to the project. Further, by virtue of its design, the project has necessary provisions to ensure that baseline fuel and technology of each project user is captured and only those using inefficient solid biomass-based cooking in baseline are included in the project. Thus, the validation site visit was aimed at validating the physical implementation of the project and confirming if users who received the project ICS pertain to the correct baseline (fuel / technology) as reported in the ICS database. The site selections for each project activity was based on VVB team's assessment of ICS distribution database, the logistics available and professional knowledge and experience available with the VVB team w.r.t. to prevailing baseline cooking practices in the 10 countries stated above. The VVB team's visit to these households, interviews conducted with beneficiaries, review of their baseline and assessment of their information in the ICS distribution database, gave enough objective evidence, to reduce audit risk to an acceptably low level as requisite to achieve reasonable level of assurance.

The assessment team has verified sufficient appropriate audit evidence, to reduce audit risk to an acceptably low level as requisite to achieve reasonable level of assurance.

2.5 Resolution of Findings

This section summarizes the findings from the validation of the large-scale project activity. In this section the findings from the document review, site visit, assessments and interviews are provided.

Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

Corrective action requests (CAR) are issued, where:

- i. mistakes have been made with a direct influence on project results requiring adjustments of the VERs/VCUs monitoring report;
- ii. applicable methodological specific requirements have not been met.

A **Clarification request (CL)** may be used where additional information is needed to fully clarify an issue or where the information is not transparent enough to establish whether a requirement is met.

A **forward action request (FAR)** should be issued, where:

- i. the actual project monitoring and reporting practices requires attention and /or adjustment for the next consecutive verification period, or
- ii. an adjustment of the MP is recommended.

In the context of FARs, risks have been identified, which may endanger the delivery of high-quality emissions reductions in the future, i.e. by deviations from standard procedures as defined by the MP. Therefore, such aspects should receive a special focus during the next consecutive verification. A FAR may originate from lack of data sustaining claimed emission reductions.

A total of 09 CARs and 04 CLs were raised and closed successfully for the validation of the large-scale project activity. Please refer to Appendix 4 below for the details of the CARs/CLs and their closure.

2.5.1 Forward Action Requests

No Forward action requests have been raised during the course of validation.

3 VALIDATION FINDINGS

3.1 Project Details

The grouped project “BIOLITE Africa Improved Stove Program”, is a large-scale project which employs baseline and monitoring methodology; VMR0006 version 1.1 /B07/. The large-scale grouped project involves dissemination of fuel-efficient improved cook stoves (ICS) in Rwanda, Malawi, Nigeria, Mali, Madagascar, Senegal, Côte d’Ivoire, Democratic Republic of the Congo, Zambia and Uganda as the host countries. The project activity includes dissemination of Dura (Firewood ICS), Jiko Fresh (Charcoal ICS), MamaYao Charcoal ICS) and JikoMalkia (Charcoal ICS).

In addition to stove models mentioned above project proponent forecasts to include other ICS models under the project as other ICS models may need to be distributed during the project lifetime, depending upon availability, customer demand and preference, prevailing costs etc. This is imperative for continuous improvement and sustainability of the project. As a control measure, only those ICS models that objectively meet the required eligibility criteria of the applied methodology (VMR 0006, v1.1) shall be allowed under the project.

Thus, inclusion of other models in the project (over its crediting period) shall remain under compliance with the applied methodology as well as VCS standard 4.4 and shall not be deemed as change to the project registration.

The grouped project results in reducing the amount of non-renewable biomass used for cooking. Through reduction in non-renewable biomass consumption, the programme will decrease greenhouse gas emissions. Section 1.1. of the VCS PD contains a clear summary description of the project. The completeness and accuracy of the project description was validated through on-site visit interviews.

The project proponent is Biolite. /07/

PP (Biolite) has demonstrated the ownership of the project activity and documents showing proof of title and ownership of the emission reductions /13/

The start date of the large-scale grouped project is 01-June-2022 (Date for installation of 1st ICS under the Grouped project as well as the PA-1 in Rwanda).

The start date of the first crediting period is 01-June-2022 and end date of 31-May-2029. PP has chosen a renewable crediting period of 7 years, twice renewable for a total of 21 years.

According to section 3.10.1 of the VCS Standard (v 4.4) /B01/, “Project size categorizations are as follows: 1) Projects: Less than or equal to 300,000 tonnes of CO₂e per year. 2) Large projects: Greater than 300,000 tonnes of CO₂e per year.” Therefore, the scale of the project activity is “Large Project” as it is expected to generate more than 300,000 tonnes of CO₂e of GHG emission reductions. The estimated emission reductions over the crediting period is as follows/02/

Project Activity #	Total Estimated Emissions over the Crediting Period (tCO ₂ e)
PA-1	1,856,093
PA-2	557,545
PA-3	350,983
PA-4	278,366
PA-5	281,242
PA-6	252,357
PA-7	349,670
PA-8	339,865
PA-9	272,693
PA-10	192,302

The large-scale project location and geographic boundaries are those of Sub-Saharan Africa, as stated in section 1.12 of the PD with the geodetic coordinates. The compliance with paragraph 3.6.8 of the VCS standard version 4.4 /B01/ will be checked at verification stage when, which requires each project activity of the grouped project including multiple project activity instances from any country from SSA is another instance of the project activity and with the same project proponent.

The VCS PD clearly indicates the project scope, which is scope 3: Energy demand, and more specifically demand – side energy efficiency project. The project is a large-scale project with multiple project activity instances, this is indicated in sections 1.1 and 1.2. of the VCS PD/01-5/ from multiple SSA countries.

The proposed grouped project is an energy efficiency project, and the project activities are located in a non-Annex I countries. Therefore, the ER generated would not be part of an emission trading program, nor it is located in a jurisdiction or sector with binding limits. The project proponent intends to claim carbon credits under the VCS programme only for the emission reductions achieved. The PP states in the VCS PD that the emission reductions generated by this project will not be used for compliance with an emission-trading program or to fulfil binding commitments. In fact, at the time of validation, no binding targets have been set by Sub-Saharan Africa under the Kyoto protocol, as indicated in the UNFCCC website /B08/.

Eligibility criteria of the grouped project activity

The eligibility criteria have been provided clearly in section 1.4 of the PD /01/ and then justification provided for inclusion of project activities for the VCS methodology.

Eligibility criterion	Description/Required condition	Means of Verification / Supporting evidence for inclusion	Assessment by the validation team
Applicability Conditions	The project activity shall meet applicability conditions for methodology (VMR 0006 version 1.1) as defined in section 3.2.	PA shall demonstrate compliance with VMR 0006 version 1.1 in the PD or Joint PD MR, as applicable. MoV: PD/ Joint PD MR section 3.2 justifying the applicability criteria of applied methodology.	The validation team based on document review and on-site visit interviews by local expert confirms that the project activities to be included in the grouped project will meet the applicability conditions of VMR0006 (version 1.1) which is satisfactorily demonstrated in section 3.2 of the PD.
Geographical Area	The project activity instance shall be located within the physical / geographical boundary of countries	All ICS implemented / distributed in a PAI shall be within the Geographic boundary of Grouped Project.	The start date of the grouped project is 1-June-2022 (Date for installation of 1st ICS under the Grouped

	covered under the grouped project as specified in 1.1 and 1.4 above.	MoV: ICS installation database showing ICS location to be limited in the corresponding host country.	project as well as the first PA i.e., in Rwanda) which was confirmed during document review and on-site visit interviews. The location will be confirmed by checking the ICS installation database and location coordinates during the inclusion of each PA.
Baseline Scenario	The project activity shall have the baseline as usage of non-renewable fuel (wood/charcoal) to meet equivalent thermal energy needs.	PA shall capture the baseline fuel of project ICS beneficiaries to show that the baseline scenario is the use of non-renewable biomass. MoV: ICS installation database / user registration records showing baseline fuel for ICS distributed.	The Validation team, through document review and on-site visit interviews analyze that the baseline is demonstrated in the section 3.4 and Appendix 2 of the PD. PP will install ICS within the project boundary of SSA and will replace the baseline cookstoves. This has also been mentioned in the PD.
Technology Type	The project activity shall involve distribution of ICS devices with more than 25% rated efficiency	Only ICS having more than 25% rated thermal efficiency shall be allowed to register in the project activity. MoV: Manufacturer specifications / Manufacturer Certificate / laboratory testing WBT certificates for ICS	The Validation team through document review and on-site visit interviews analyze that PP will be using ICSs having efficiency more than 25% which will replace the baseline traditional cookstoves, under this grouped project which has also been mentioned in the PD.

Additionality	The project activity shall demonstrate additionality as per the following: Step 1: Regulatory Surplus and either of Step 2: Positive list Or Step 3: Project Method	The PA shall be demonstrated as additional via the following: 1. Demonstrate that the PA is not mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework. 2. PA installs or distributes stoves at subsidized cost to the end-user and/or has no other source of revenue other than the sale of GHG credits as confirmed by the PP. Or 3. Where ICS are not provided at subsidized cost / free to the end-user or has a source of revenues other than the sale of GHG credits, demonstrate that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or	The validation team confirms that the PAs to be included in the grouped project will demonstrate additionality via Regulatory surplus and either of positive list or project method which is indicated in section 3.5 of the PD.
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		financially feasible using investment analysis.	
Start Date	The project activity shall start on or after the start date of the Grouped Project.	The start date of grouped project is considered as 01/06/2022 which is also the expected start date of first PA (the date of distribution of first ICS). The start date of all other PAs to be included in the grouped project shall be after this date. MoV: Distribution record / user agreement showing the date of distribution for the first ICS under PA.	To confirm the start date of the grouped project, i.e., 01-June-2022, Distribution record / user agreement for PA-1 showing the date of distribution for the first ICS under the activity shall be checked.
Crediting Period	The project activity shall have a renewable crediting period.	Refer PA PD / Joint PD and MR section 1.9	The validation team confirms that the crediting period (renewable) of the grouped project is indicated in section 1.9 of the PD.
Double Counting	The project activity shall confirm that: 1. It is not registered as a project activity in any other mechanism. 2. The project activity is not leaving any other program to join the Grouped Project.	MoV: Declaration by the Project Owner / Project Developer	The validation team by the review of declaration /06/ submitted by the PP and on-site visit interviews confirms that this eligibility criterion has been met for the group project.

Project Ownership	The ownership of the PA shall be clearly demonstrated by virtue of the following: - End user agreements transferring the ownership of credits from the use of project ICS to the CME/PP. Or - Disclaimer on the product packaging/warranty card assigning the rights of ownership of credits to the PP directly	MoV: End user agreement for ICS under the PA Or Product packaging/warranty card template	The validation team has reviewed the end user agreement template which states that the Biolite owns the right to carbon credits generated from the used of project ICS/13/. Therefore, this eligibility criterion has been met for the group project.
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Eligibility criteria for project activity 1 to 10

Eligibility criterion	Means of Verification / Supporting evidence for inclusion	Justification	Assessment by the validation team
Applicability Conditions	PA shall demonstrate compliance with VMR 0006 version 1.1 in the PD or Joint PD MR, as applicable. MoV: PD/ Joint PD MR section 3.2 justifying the applicability criteria	The Initial PA-1 to 10 meets all applicability conditions for methodology (VMR 0006 version 1.1) as defined in section 3.2 below.	The validation team based on document review and on-site visit interviews confirms that the project activity 1 to 10 meets the applicability conditions of VMR0006 (version 1.1) which is satisfactorily demonstrated in section 3.2 of the PD.

	of applied methodology.		
Geographical Area	All ICS implemented / distributed in a PA shall be within the Geographic boundary of Grouped Project. MoV: ICS installation database showing ICS location to be in corresponding country	All ICS envisaged to be distributed under PA-1 to PA-10 will be in the respective host countries of the project activity and within the Geographic boundary of Grouped project. The ICS installation database shall be checked at the time of verification for all ICS to be within the boundary of the respective country to which the PA belongs.	The expected start date of the grouped project is 1-June-2022 which was confirmed during document review and on-site visit interviews. The location will be confirmed by checking the ICS installation database and location coordinates during the inclusion of each PA.
Baseline Scenario	PA shall capture the baseline fuel of project ICS beneficiaries to show that the baseline scenario is the use of non-renewable biomass. MoV: ICS installation database / user registration records showing baseline fuel for ICS distributed.	The ICS installation database shall be checked at the time of verification for all the baseline fuel of the project ICS.	The Validation team through document review and on-site visit interviews analyze that the baseline is demonstrated in the section 3.4 and Appendix 2 of the PD. PP will install ICS within the project boundary of SSA and will replace the baseline cookstoves. This has also been mentioned in the PD. Thus, the eligibility criterion has been met for PA-1 under this group project.
Technology Type	Only ICS having more than 25% rated	The Project Activity (ies) involves distribution of	The Validation team has reviewed the technical

	thermal efficiency shall be allowed to register in the grouped project. MoV: Manufacturer specifications / Manufacturer Certificate / laboratory testing WBT certificates for ICS	ICS (Dura - wood fuel) with rated efficiency of 38.1 % and ICS (Jiko Fresh, Mama Yao and JikoMalkia - Charcoal) with rated efficiencies of 45.7%, 55.1% and 50.07% respectively. Manufacturer specifications / Manufacturer Certificate / laboratory testing WBT certificates for ICS distributed under PA-1 to PA-10. In case additional models are included under these PAs in future, they shall be evaluated at the time of verification to ensure that their design rated thermal efficiency is >25%.	specifications of stoves /04/ which will replace the baseline traditional cookstoves under PA-1 to 10. This confirms that the efficiency of the project stoves is more than 25%. Thus, the eligibility criterion has been met for PA-1 under this group project.
Additionality	The PA shall be demonstrated as additional via the following: 1.Demonstrate that the PA is not mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute	As per section 7 of VMR 0006 version 1.1: There are no laws and regulations governing the use of improved cookstoves in PA countries households. The project is a voluntary effort by the project proponent. Under the proposed grouped project, PA-1 to PA-10 will distribute ICSs at a subsidized price to	The Validation team through document review /09/ and on-site visit interviews analyze that PP has demonstrated additionality as per the methodology VMR0006 version 1.1, section 7, which states that activity method is used to demonstrate the additionality. This has also been mentioned in the PD. PP has demonstrated that the project is not

	or other regulatory framework. 2. PA installs or distributes stoves at subsidized cost to the end-user and/or has no other source of revenue other than the sale of GHG credits as confirmed by the PP. Or Where ICS are not provided at subsidized cost / free to the end-user or has source of revenues other than the sale of GHG credits, demonstrate that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible using investment analysis.	the end users. Although some revenue will be generated from the distribution of ICS, it is relatively small compared to the total cost to CME for delivering ICS to a beneficiary (including product cost, distribution and logistics cost, data collection cost etc.). Thus, the PA-1 to PA-10 are not financially viable without the support of carbon revenues from sale of VCUs and are additional.	mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework. Furthermore, the project activity 1 to 10 meets all the applicability conditions of the applied methodology VMR0006, version 1.1 and distributes stoves at subsidized cost to the end-users and has no other source of revenue other than the sale of GHG credits. The grouped project is not implemented as a part of any government scheme or supported by multilateral funds. The additionality has been demonstrated via NPV analysis. Thus, the eligibility criterion has been met for the project activity 1 to 10 under this grouped project.
Start Date	The start date of the grouped project is considered as 01/06/2022 which is also the expected start date of first PA (the date of distribution of first	The PA-1 in Rwanda has started on 01/06/2022 (the date of distribution of first ICS). The Distribution record / user agreement for the	To confirm that the start date of the PA 1 is on 01-06-2022, start date of the grouped project, Distribution record / user agreement showing the date of distribution for the first ICS under the

	ICS). The start date of all other PAs to be included in the grouped project shall be after this date. MoV: • Distribution record / user agreement showing the date of distribution for the first ICS under the instance.	first ICS under PA-1 substantiates the same.	instance (Rwanda) is checked during validation.
Crediting Period	Refer PA PD / Joint PD and MR section 1.9	The crediting period for the PA-1 to 10 is renewable (7 years, renewable twice). Refer section 1.9 below	The validation team by document review and on-site visit interviews confirms that that crediting period for the PA 1 to 10 is renewable (7 years, renewable twice), which is also demonstrated in section 1.9 of the PD. Thus, the eligibility criterion has been met for the project activity 1 under this group project.
Double Counting	MoV: Declaration by the Project Owner / Project Developer	The Declaration by the Project Owner / Project Developer is submitted to the validation team	The validation team by the review of declaration submitted by the PP and on-site visit interviews confirms that this eligibility criterion has been met for the project

			activity 1 to 10 under this grouped project.
Project Ownership	MoV: End user agreement for ICS under the PA Or Product packaging/warranty card template	Refer end user agreement template / warranty card template / product packaging for condition/statement that transfers the rights to ownership of credits to Biolite.	The validation team has reviewed the end user agreement template which states that the BioLite owns the right to carbon credits generated from the use of project ICS /13/. Therefore, this eligibility criterion has been met for the project activity 1 under this group project.

The project proponent has declared that the project is not in registration under any other GHG program. The validation team has checked the UNFCCC Clean development mechanism (CDM), Gold standard (GS), and Global carbon council (GCC) database of registered projects or projects under validation / submitted projects and was able to confirm that the listed projects are not the proposed project activity.

In line with sections 3.5.2 and 3.5.3 of VCS standard v4.4, all information in the project description is presumed to be available for public review and there is no commercially sensitive information that has been protected.

In line with section 4.1.11 of VCS standard v4.4, the evaluation of the project's stakeholder engagement found to be done in a culturally appropriate manner, and individual stakeholders and/or stakeholder groups are interviewed and selected by the CCIPL auditor team independently in advance of the site visit. CCIPL planned and conducted interviews in a manner that demonstrates that the stakeholder interviews are free from bias or influence from the project proponent. Refer section 2.3 in this regard. During the meeting and document review with PP and other project stakeholder's, it is being found that PP has invited all said countries stakeholders, however very few of them attended the actual LSC meeting.

The proposed large-scale project does not generate another form of environmental credit. The project proponent indicates in the VCS PD that the project does not intend to generate any other form of GHG related environmental credit other than those claimed under this VCS project.

ICS not only reduces non-renewable biomass consumption, resulting in emission reductions but also contributes to sustainable development in Sub-Saharan Africa, which is demonstrated in section 1.17 of the PD.

3.2 Safeguards

3.2.1 No Net Harm

As identified by PP, the grouped project has no negative impact. The potential negative environmental and socio-economic impacts identified by the project proponent and have been listed in section 2.1 of the PD.

The validation team confirms that the project does not pose any potential negative environmental and socio-economic impacts. A local stakeholders meeting was conducted for the project and there was no negative feedback.

3.2.2 Local Stakeholder Consultation

Stakeholders had been directly asked to comment on the project through virtual meetings held as below:

The local stakeholder consultation (LSC) for PA-1 to PA-10 were conducted batchwise virtually from 22/08/2022 to 10/11/2022 as follows:

S. No.	E mail Invitations sent Date	Date on which LSC was concluded	Batch	Country (ies)
1	08/08/2022	22/08/2022	Batch 1	Uganda, Rwanda, Malawi, and Zambia
2	24/08/2022	05/09/2022	Batch 2	Nigeria
3	25/08/2022	06/09/2022	Batch 3	Democratic Republic of Congo
4	09/10/2022	21/10/2022	Batch 4	Madagascar
5	09/10/2022	10/11/2022	Batch 5	Senegal, Mali, Côte d'Ivoire

The project countries were organized into 5 batches based on shared language, geographical proximity, and common practices. This grouping ensured that consultations conducted within each batch remained culturally appropriate and sensitive to gender considerations. This ensures compliance to section 3.18.20 of the VCS Standard, version 4.4.

The stakeholders were invited through various means to provide their feedback: an email invitation /11/ was sent to various stakeholders during 08/08/2022 to 09/10/2022 to Government officials, NGOs, local association leaders etc. An invitation letter /11/ was also published in the local newspaper on 08/08/2022 to 09/10/2022 to invite local stakeholders that are affected and interested in the project. Credible evidence for the invitations has been provided by the PP and assessed by the validation team which was found to be true. All comments

are positive in nature. No adverse comments were received, and this is addressed in the PD. This was also confirmed by the validation team during the on-site visit interview.

Section 2.2 of the VCS-PD identifies the stakeholders who were invited to participate. The VVB team confirmed that approximately 800 stakeholders received invitations to engage in the series of stakeholder communications associated with this grouped project, demonstrating the extensive outreach of this consultation event. Furthermore, as indicated in VCS-PD, invitations were publicly broadcasted through newspapers, the company's website, and social media platforms to maximize public interest. Meetings were held remotely to accommodate participants from diverse locations, enabling them to join from their homes or offices. Each invitation (email, newspaper notice, posters, public media adverts) included contact details (phone number and email) for the primary point of contact (PP), allowing interested stakeholders to address any concerns related to the remote meetings. Invitations were distributed more than 10 days prior to the meetings to provide ample time for stakeholders to prepare. Stakeholders who expressed difficulty attending remote meetings were offered the option to participate from the local representative's office, with contact details provided for accessibility. These stakeholder meetings were designed to be fully inclusive, providing an appropriate platform for stakeholders to voice any concerns they may have. The LSC meeting was attended by representatives from all stakeholder groups, and the consultation sessions were both productive and engaging. Representatives from BioLite and Climate Secure were also present to answer any questions or concerns raised by the participants.

As a part of on-going communication with local stakeholders, end users were informed during the stakeholder consultation about the grievance mechanism i.e., feedback register (for ongoing communication) which is maintained at the local office locations of the PP. Also, during the stakeholder consultation, the PP shared the contact details (phone number and email id) to facilitate ongoing communication with the stakeholders.

The validation team confirms on the procedure and method for engagement, method for documenting the outcomes of local stakeholders' consultation and account of all inputs received. The validation team confirms that the project proponent has taken due account of all input (no negative comments were received for the project). The VVB has assessed all LSC related objective evidence during validation (including but not limited to invitation's, posters, LSC attendance sheet, photos, videos, feedback forms, etc.) for each batch to confirm that the information in the VCS PD has been fairly presented with respect to consultations conducted and the approach and method for LSC is inclusive and appropriate.

Hence the validation team deemed the local stakeholders meeting procedure including the inputs received as appropriate. The same is verified by the validation team through provided evidence related to LSC by PP /11/.

3.2.3 Environmental Impact

No negative environmental impacts have been identified from the project and environmental impact assessment (EIA) is not required for the project.

3.2.4 Public Comments

The public commenting period for the project was from 10-April-2023 till 10-May-2023. No public comments were received for the grouped project.

3.2.5 AFOLU-Specific Safeguards

Not Applicable.

3.3 Application of Methodology

3.3.1 Title and Reference

The Large-scale Project provides for projects one of the VCS approved methodology:

- VMR0006. “Methodology for Installation of High Efficiency Firewood Cookstoves, (Version 1.1)” /B07/

The associated tools and guideline documents in the Large-scale Project include:

- CDM TOOL30 “Calculation of the fraction of non-renewable biomass” version 04.0 /B09/
- For demonstration of Additionality “Tool 1: Tool for demonstration and assessment of additionality”, Version-7.0.0”
- “Tool 27: Investment analysis”, Version- 11.0.

3.3.2 Applicability

The project applies VCS methodology; VMR0006, version 1.1/B07/. Applicability criteria for the baseline line methodology are assessed by the validation team by means of document review and interview. The Validation team confirms that the project activity meets the criteria of the applied methodology.

S N	Relevant applicability condition	Compliance with project	Means of validation
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1.	Project activities shall be implemented in domestic premises, or in community-based kitchens.	The proposed grouped project involves deployment of ICS in domestic households and communities of Sub-Saharan Africa, with the target host countries being Rwanda, Malawi, Nigeria, Mali, Madagascar, Senegal, Côte d'Ivoire, Democratic Republic of the Congo, Zambia and Uganda. The PA-1 to PA-10 comprises distribution of ICS in domestic households and communities of the respective host countries of the project activity and within the Geographic boundary of Grouped project.	The Validation team through document review and on-site visit by LE and interviews by other team members can confirm that the improved cook stoves will only be distributed in the domestic households and communities thereby confirming the methodology applicability condition.
2.	The project stove shall have specified high-power thermal	The rated efficiencies of ICS planned to be distributed under the grouped project are more than 25%. The same has been developed as an eligibility criterion (#4) for inclusion of project activity instances in the grouped project.	The validation team has reviewed the technical

	efficiency of at least 25% per the manufacturer's specifications and shall exclusively use woody biomass and can be single pot or multi-pot;		specifications of stoves to be distributed under the project activity /4/ which confirms that the ICS distributed to the end users has more than 25% efficiency. This is deemed appropriate to the Validation team.
3.	Both 'Projects' and 'Large Projects' can use this methodology	The proposed project is a large-scale project as the annual emission reduction is more than 300,000 tonnes of CO₂e per year which is in line with the section 3.9.1 of VCS standard version 4.4.	The validation team has reviewed the calculation used to determine the estimated average annual GHG emission reduction for the

			proposed project which is more than 300,000 tCO ₂ e /2/. Therefore, the project is Large Project as per section 3.10.1 of the VCS standard (Version 4.4).																													
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	Non-renewable biomass has been in use since 31 December 1989 as evidenced by various FAO statistical data given below. PA-1: Rwanda The Global Forest Resources Assessment 2020 (FRA) indicates that forest areas declined yearly between 1990 to 2020. <table border="1"> <tr> <th rowspan="2">FRA 2020 categories¹</th> <th colspan="4">Area (1000 hectares)</th> </tr> <tr> <th>1990</th> <th>2000</th> <th>2010</th> <th>2020</th> </tr> <tr> <td>Forest</td> <td>317.00</td> <td>287.00</td> <td>265.00</td> <td>276.00</td> </tr> <tr> <td>Other wooded land</td> <td>261.00</td> <td>261.00</td> <td>261.00</td> <td>261.00</td> </tr> <tr> <td>Other land</td> <td>1,889.00</td> <td>1,919.00</td> <td>1,941.00</td> <td>1,930.00</td> </tr> <tr> <td>Total Land</td> <td>2,467.00</td> <td>2,467.00</td> <td>2,467.00</td> <td>2,467.00</td> </tr> </table> Rwanda lost an average of 1,366 hectares of forest per year with average annual deforestation rate of 0.43% between	FRA 2020 categories ¹	Area (1000 hectares)				1990	2000	2010	2020	Forest	317.00	287.00	265.00	276.00	Other wooded land	261.00	261.00	261.00	261.00	Other land	1,889.00	1,919.00	1,941.00	1,930.00	Total Land	2,467.00	2,467.00	2,467.00	2,467.00	The validation team reviewed the Global FRA 2020 Report Sub-Saharan Africa /16-2/ which demonstrates the use of non-renewable biomass since 1989 in Sub-Saharan Africa. This is deemed
FRA 2020 categories ¹	Area (1000 hectares)																															
	1990	2000	2010	2020																												
Forest	317.00	287.00	265.00	276.00																												
Other wooded land	261.00	261.00	261.00	261.00																												
Other land	1,889.00	1,919.00	1,941.00	1,930.00																												
Total Land	2,467.00	2,467.00	2,467.00	2,467.00																												

¹ <https://www.fao.org/3/ca9878fr/ca9878fr.pdf>

	1990 and 2020. In total, Rwanda lost 12.93% of its forest or 41,000 hectares. PA-2: Malawi The Global Forest Resources Assessment 2020 (FRA) indicates that forest areas declined yearly between 1990 to 2020. <table><tr><th rowspan="2">FRA 2020 categories²</th><th colspan="4">Area (1000 hectares)</th></tr><tr><th>1990</th><th>2000</th><th>1990</th><th>2020</th></tr><tr><td>Forest</td><td>3,501.70</td><td>3,081.70</td><td>2,661.70</td><td>2,241.70</td></tr><tr><td>Other wooded land</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td></tr><tr><td>Other land</td><td>5,926.30</td><td>6,346.30</td><td>6,766.30</td><td>7,186.30</td></tr><tr><td>Total Land</td><td>9,428.00</td><td>9,428.00</td><td>9,428.00</td><td>9,428.00</td></tr></table> According to latest data, the forest annual forest loss in Malawi is estimated at 1.20%, which correspond to approximately 42,000 hectares. PA-3: <i>Nigeria</i> The Global Forest Resources Assessment 2020 (FRA) indicates that forest areas declined yearly between 1990 to 2020. <table><tr><th rowspan="2">FRA 2020 categories³</th><th colspan="4">Area (1000 hectares)</th></tr><tr><th>1990</th><th>2000</th><th>2010</th><th>2020</th></tr><tr><td>Forest</td><td>26,526.09</td><td>24,893.04</td><td>23,259.98</td><td>21,626.95</td></tr><tr><td>Other wooded land</td><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td></tr><tr><td>Other land</td><td>64,550.91</td><td>66,183.96</td><td>67,817.02</td><td>69,450.05</td></tr></table>	FRA 2020 categories ²	Area (1000 hectares)				1990	2000	1990	2020	Forest	3,501.70	3,081.70	2,661.70	2,241.70	Other wooded land	0.00	0.00	0.00	0.00	Other land	5,926.30	6,346.30	6,766.30	7,186.30	Total Land	9,428.00	9,428.00	9,428.00	9,428.00	FRA 2020 categories ³	Area (1000 hectares)				1990	2000	2010	2020	Forest	26,526.09	24,893.04	23,259.98	21,626.95	Other wooded land	0.00	0.00	0.00	0.00	Other land	64,550.91	66,183.96	67,817.02	69,450.05	appropriate to the Validation team.
FRA 2020 categories ²	Area (1000 hectares)																																																						
	1990	2000	1990	2020																																																			
Forest	3,501.70	3,081.70	2,661.70	2,241.70																																																			
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² <https://www.fao.org/3/cb0032en/cb0032en.pdf>

³ <https://www.fao.org/3/cb0037en/cb0037en.pdf>

		<table><tr><td>Total Land</td><td>91,077.00</td><td>91,077.00</td><td>91,077.00</td><td>91,077.00</td></tr></table>	Total Land	91,077.00	91,077.00	91,077.00	91,077.00																											
Total Land	91,077.00	91,077.00	91,077.00	91,077.00																														
		Nigeria lost an average of 163,304 hectares of forest per year with average annual deforestation rate of 0.61% between 1990 and 2020. In total, Nigeria lost 18.46% of its forest or 4,899,140 hectares. PA-4: Mali As per Global Forest Watch (database by World Resources Institute), From 2001 to 2021, Mali lost 3.79kha of relative tree cover, equivalent to a 15% decrease since 2000 and < 0.1% of the global total⁴. PA-5: Madagascar The Global Forest Resources Assessment 2020 (FRA) indicates that forest areas declined yearly between 1990 to 2020. <table><tr><th rowspan="2">FRA 2020 categories⁵</th><th colspan="4">Area (1000 hectares)</th></tr><tr><th>1990</th><th>2000</th><th>2010</th><th>2020</th></tr><tr><td>Forest</td><td>13,693.45</td><td>13,030.67</td><td>12,561.98</td><td>12,429.81</td></tr><tr><td>Other wooded land</td><td>21,148.00</td><td>18,453.00</td><td>15,688.00</td><td>13,244.00</td></tr><tr><td>Other land</td><td>23,338.55</td><td>26,696.33</td><td>23,930.02</td><td>32,506.19</td></tr><tr><td>Total Land</td><td>58,180.00</td><td>58,180.00</td><td>58,180.00</td><td>58,180.00</td></tr></table> Madagascar lost an average of 42,122 hectares of forest per year with average annual deforestation rate of 0.30% between 1990 and 2020. In total, Madagascar lost 9.22% of its forest or 1,263,640 hectares. PA-6: Senegal The Global Forest Resources Assessment 2020 (FRA) indicates that forest areas declined yearly between 1990 to 2020.			FRA 2020 categories ⁵	Area (1000 hectares)				1990	2000	2010	2020	Forest	13,693.45	13,030.67	12,561.98	12,429.81	Other wooded land	21,148.00	18,453.00	15,688.00	13,244.00	Other land	23,338.55	26,696.33	23,930.02	32,506.19	Total Land	58,180.00	58,180.00	58,180.00	58,180.00	
FRA 2020 categories ⁵	Area (1000 hectares)																																	
	1990	2000	2010	2020																														
Forest	13,693.45	13,030.67	12,561.98	12,429.81																														
Other wooded land	21,148.00	18,453.00	15,688.00	13,244.00																														
Other land	23,338.55	26,696.33	23,930.02	32,506.19																														
Total Land	58,180.00	58,180.00	58,180.00	58,180.00																														

⁴ <https://www.globalforestwatch.org/dashboards/country/MLI/?category=biodiversity>

⁵ <https://www.fao.org/3/cb0139fr/cb0139fr.pdf>

FRA 2020 categories ⁶	Area (1000 hectares)			
	1990	2000	2010	2020
Forest	9,303.16	8,853.16	8,468.16	8,068.16
Other wooded land	5,531.83	5,531.83	5,232.06	5,072.06
Other land	4,418.01	5,048.01	5,552.78	6,112.78
Total Land	19,253.00	19,253.00	19,253.00	19,253.00
From 1990 to 2020, Senegal lost 41,666 ha of forests annually, which corresponds to annual loss of 0.43% in the forest area. In total, Senegal lost 1,235,000 hectares between 1990 to 2020. PA-7: Côte d'Ivoire The Global Forest Resources Assessment 2020 (FRA) indicates that forest areas declined yearly between 1990 to 2020.				
FRA 2020 categories ⁷	Area (1000 hectares)			
	1990	2000	2010	2020
Forest	7,850.86	5,094.45	3,955.58	2,836.71
Other wooded land	2,675.00	2,662.00	2,590.00	2,518.00
Other land	21,274.14	2,4043.55	2,5244.42	2,6445.29
Total Land	31,800.00	31,800.00	31,800.00	31,800.00
From 1990 to 2020, Côte d'Ivoire lost 167.13 kha of forests annually, which corresponds to annual loss of 2.12% in the forest area.				

⁶ <https://www.fao.org/3/cb0152fr/cb0152fr.pdf>

⁷ <https://www.fao.org/3/cb0126fr/cb0126fr.pdf>

PA-8: *Democratic Republic of the Congo*

The Global Forest Resources Assessment 2020 (FRA) indicates that forest areas declined yearly between 1990 to 2020.

FRA 2020 categories ⁸	Area (1000 hectares)			
	1990	2000	2010	2020
Forest	150,629.00	143,899.00	137,169.00	126,155.24
Other wooded land	11,512.00	11,512.00	11,512.00	11,512.00
Other land	64,564.00	71,294.00	78,024.00	89,037.76
Total Land	226,705.00	226,705.00	226,705.00	226,705.00

Democratic Republic of the Congo lost an average of 815,792 hectares of forest per year with average annual deforestation rate of 0.54% between 1990 and 2020. In total, Democratic Republic of the Congo lost 16.24% of its forest or 24,473,760 hectares.

PA-9: Zambia

The Global Forest Resources Assessment 2020 (FRA) indicates that forest areas declined yearly between 1990 to 2020.

FRA 2020 categories ⁹	Area (1000 hectares)			
	1990	2000	2010	2020
Forest	47,412.00	47,054.00	46,696.00	44,814.03
Other wooded land	13,219.00	13,219.00	13,219.00	13,219.00
Other land	13,708.00	14,066.00	14,424.00	16,305.97

⁸ <https://www.fao.org/3/cb0125fr/cb0125fr.pdf>

⁹ <https://www.fao.org/3/cb0092en/cb0092en.pdf>

		<table><tr><td>Total Land</td><td>74,339.00</td><td>74,339.00</td><td>74,339.00</td><td>74,339.00</td></tr></table> Zambia lost an average of 86,599 hectares of forest per year with average annual deforestation rate of 0.18% between 1990 and 2020. In total, Zambia lost 5.48% of its forest or 2,597,970 hectares. PA-10: Uganda The Global Forest Resources Assessment 2020 (FRA) indicates that forest areas declined yearly between 1990 to 2020. <table><tr><th rowspan="2">FRA 2020 categories¹⁰</th><th colspan="4">Area (1000 hectares)</th></tr><tr><th>1990</th><th>2000</th><th>2010</th><th>2020</th></tr><tr><td>Forest</td><td>3,575.47</td><td>3,162.95</td><td>2,750.42</td><td>2,337.90</td></tr><tr><td>Other wooded land</td><td>3,393.88</td><td>3,400.82</td><td>3,719.91</td><td>3,234.32</td></tr><tr><td>Other land</td><td>13,082.65</td><td>13,488.23</td><td>13,581.67</td><td>14,479.78</td></tr><tr><td>Total Land</td><td>20,052.00</td><td>20,052.00</td><td>20,052.00</td><td>20,052.00</td></tr></table> Uganda lost an average of 41,252 hectares of forest per year with average annual deforestation rate of 1.154% between 1990 and 2020. In total, Uganda lost 34.61% of its forest or 1,237,470 hectares.	Total Land	74,339.00	74,339.00	74,339.00	74,339.00	FRA 2020 categories ¹⁰	Area (1000 hectares)				1990	2000	2010	2020	Forest	3,575.47	3,162.95	2,750.42	2,337.90	Other wooded land	3,393.88	3,400.82	3,719.91	3,234.32	Other land	13,082.65	13,488.23	13,581.67	14,479.78	Total Land	20,052.00	20,052.00	20,052.00	20,052.00	
Total Land	74,339.00	74,339.00	74,339.00	74,339.00																																	
FRA 2020 categories ¹⁰	Area (1000 hectares)																																				
	1990	2000	2010	2020																																	
Forest	3,575.47	3,162.95	2,750.42	2,337.90																																	
Other wooded land	3,393.88	3,400.82	3,719.91	3,234.32																																	
Other land	13,082.65	13,488.23	13,581.67	14,479.78																																	
Total Land	20,052.00	20,052.00	20,052.00	20,052.00																																	
5.	For the specific case of biomass residues processed as a fuel	In the case where processed biomass residues are used in the project, the following will be ensured: 1. It is renewable biomass. 2. Its consumption will be monitored.	The usage of biomass residues and the demonstration of the 3 criteria,																																		

¹⁰ <https://www.fao.org/3/cb0084en/cb0084en.pdf>

	(e.g., briquettes, wood chips), it shall be demonstrated that: 1. It is produced using exclusively renewable biomass (more than one type of biomass may be used). 2. The consumption of the fuel should be monitored during the crediting period and 3. Energy use for renewable biomass processing (e.g., shredding and compacting in the case of briquetting)	3. If renewable biomass processing (e.g., shredding and compacting in the case of briquetting) occurs in project case, the energy consumption for manufacturing and transportation of renewal biomass fuel (briquettes) will be monitored to calculate project emissions.	under the project will be checked at verification stage.
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	may be considered as equivalent to the upstream emissions associated with the processing of the displaced fossil fuel and hence disregarded		
6.	The VCS PD 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.	The ICS installation database will have the following provisions to confirm complete avoidance of double counting: 1. Unique serial number of ICS distributed; and 2. End users' details (End username, address, and/or telephone number (if available))	The validation team by means of document review and onsite visit interviews confirms that the proposed method for distribution of project devices includes the method to avoid double counting of emission reductions such as unique identificati

	programme logo).		ons of product and end-user details (name, address etc.). PP has provided end user agreement /13/ template which has been reviewed by the validation team and found to be acceptable . This criterion will be checked at verification stage post distribution of project stoves.
7.	The VCS PD shall also explain how the proposed procedures prevent	At the time of ICS distribution, each ICS beneficiary transfers the rights of credit ownership to PP via an agreement or disclaimed via clear statement on the product packing or warranty card thereby avoiding any subsequent double claim on ownership of credits by other entities.	The validation team by means of document review and on-site visit

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.		interviews confirms that the proposed procedures prevent double counting of emission reductions. This criterion will also be checked at the verification stage post distribution of project stoves.
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Applicability conditions of CDM TOOL 30 (version 4.0):

No.	Relevant applicability condition	Compliance with large-scale project	Means of validation
1.	This tool may be used by: a) DNAs to submit region/country-specific default f_{NRB} values, following the procedures for development, revision, clarification, and update of standardized baselines (SB procedures); or	This tool is used by the project participants to calculate a project specific value for f_{NRB} under option (b) of applicability condition 1.	The f_{NRB} values are calculated by PP showing compliance to all the steps of the applied TOOL 30 (version 4.0) in Appendix 3 of the PD. All the references and data sources used for calculation has been assessed by the validation team which was found to be acceptable. /16/.

	b) Project participants to calculate project or PoA-specific f_{NRB} values.		
2.	For project or PoA specific f_{NRB} values, project participants shall assess the area where biomass is sourced for end-users included in the project activity and justify the selection of the area in project design documents.	The area for the calculated value is selected within the geographical boundary of Grouped Project.	The geographical boundary of the large-scale project is Sub-Saharan Africa, and the selection of this area has been justified in section 1.12 of the PD.

Applicability conditions of CDM TOOL 01 (version 7.0):

No.	Relevant applicability condition	Compliance with project	Means of validation
1.	The use of the “Tool for the demonstration and assessment of additionality” is not mandatory for project participants when proposing new methodologies. Project participants may propose alternative methods to demonstrate additionality for consideration by the Executive Board. They may also submit revisions to approved methodologies using the additionality tool.	Not applicable, an approved methodology is being applied in the project.	An approved methodology i.e., VMR0006 is applied, and new methodology is being proposed. PP has used this tool for the demonstration and assessment of additionality. All the references and data sources used for demonstration and assessment of additionality has been assessed by the validation team which was found to be acceptable /09/.
2.	Once the additionality tool is included in an approved methodology, its application by project participants using this methodology is mandatory.	Step-3 in Section 7 of the applied methodology VMR 0006, version 1.1 states the following: “For any project activity where stoves are not provided at zero cost to the end-user or has any other source of revenues other than the sale of GHG credits, then the project activity shall apply investment analysis	This tool is part of applied methodology VMR0006, V1.1 and PP used the tool in section 3.5 of VCS PD appropriately.

		method set out in the CDM Tool for the Demonstration and Assessment of Additionality to determine that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible.” Since the proposed project does not distribute ICS at zero cost, hence the Tool 1 is applicable to the project.	
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Applicability conditions of CDM TOOL 27 (version 11.0):

No.	Relevant applicability condition	Compliance with project	Means of validation
1.	This methodological tool is applicable to project activities that apply the methodological tool “Tool for the demonstration and assessment of additionality”, the methodological tool “Combined tool to identify the baseline scenario and demonstrate additionality”, the guidelines “Non-binding best practice examples to demonstrate additionality for SSC project activities”, or baseline and monitoring methodologies that use the investment analysis for the demonstration of additionality and/or the identification of the baseline scenario.	As project applies “Tool for the demonstration and assessment of additionality”. Thus, TOOL 27 can be applied to the project. Please refer to section B.5 of PD for details.	PP has used “Tool for the demonstration and assessment of additionality”, hence this tool is applicable to project. All the references and data sources used for demonstration and assessment of additionality has been assessed by the validation team which was found to be acceptable /09/.
2.	In case the applied approved baseline and monitoring methodology contains requirements for the investment	The applied methodology does not define any investment analysis requirements.	This tool is part of applied methodology VMR0006, V1.1 and PP used the tool in section

	analysis that are different from those described in this methodological tool, the requirements contained in the methodology shall prevail.		3.5 of VCS PD appropriately.
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3.3.3 Project Boundary

The Project boundary is defined as per VMR0006. “Methodology for Installation of High Efficiency Firewood Cookstoves, (Version 1.1).” /B07/

The sources of greenhouse gas identified in the PD/01-5/ are deemed to be appropriate and assessed below:

Source		Gas	Included?	Justification/Explanation
Baseline	Emission from use of non-renewable biomass/Fossil fuel	CO ₂	Yes	Major Source
		CH ₄	Yes	Major Source
		N ₂ O	Yes	Major Source
		Other	No	No other source identified
Project	Emission from use of non-renewable biomass/Fossil fuel	CO ₂	Yes	Major Source
		CH ₄	Yes	Major Source
		N ₂ O	Yes	Major Source
		Other	No	No other source identified

The project boundary for the grouped project consists of the physical, geographical locations of the distributed ICS in Rwanda, Malawi, Nigeria, Mali, Madagascar, Senegal, Côte d'Ivoire, Democratic Republic of the Congo, Zambia and Uganda as the host countries.

This includes the areas from which non-renewable biomass used by the project cooking system is sourced.

3.3.4 Baseline Scenario

According to the applied methodology VMR0006 version 1.1 /B07/, “The baseline scenario is the continued use of non-renewable wood fuel (firewood/charcoal) or fossil fuel (coal/kerosene) by the target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity”. The baseline described in the PD complies with the requirements of the methodology, as the energy baseline is the existing level of consumption of non-renewable biomass used by the cooking systems currently in use and which is used in the absence of the project activity.

Validation team based on review of the VCS PD/01-5/ confirms that the documentary evidence used in determining the above baseline scenarios are relevant, and correctly quoted and interpreted in the project description. PP has used Tracking SDG 7: Energy Progress Report 2023 /21/ which defines the baseline conditions for Sub-Saharan Africa, to demonstrate the baseline scenario for the grouped project. Furthermore, in appendix 2 of the PD, PP has demonstrated wood and charcoal usage as fuel in the host countries, included under the grouped project. The VVB has checked the sources of data /23/ and has found the values to be consistent.

The baseline scenarios for the applied methodology were also confirmed through on-site visit interviews with the end users of technologies and representatives of PP.

Validation team confirms that the baseline scenario opted by the project activity is in accordance with the requirements of the applied methodology /B07/ and is justified.

3.3.5 Additionality

The additionality of the grouped project has been demonstrated by the PP as per the methodology section 7 /B07/. The methodology uses activity method for the demonstration of additionality using CDM TOOL 01 (version 7.0) and TOOL 27 (version 11). PP has demonstrated regulatory surplus in accordance with the rules and requirements regarding regulatory surplus set out in the latest version of the VCS Standard and it can be confirmed that the project is not mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework.

Furthermore, the project meets all the applicability conditions of the applied methodology VMR0006, version 1.1 /B07/ and distributes stoves at subsidized cost to the end-users. Hence step 2 i.e. Positive List is not applicable for demonstration of project's additionality.

Therefore, PP has applied Step 3 i.e., project method where the additionality is demonstrated using investment analysis method (**Step 2**) set out in the CDM Tool for the Demonstration and Assessment of Additionality.

PP has conducted investment analysis using following sub-steps of the tool:

Step 0: Demonstration whether the proposed project activity is the first-of its-kind

The proposed project involves the distribution of high efficiency ICSs and is not the first of its kind initiative in the targeted countries. Therefore, the proposed project is not first-of-its-kind.

Sub-step 1a: Define alternatives to the project activity

The alternatives to the proposed project are either proposed project been undertaken without being registered as a VCS project activity or continuation of the current situation/ scenario without proposed project been undertaken.

Sub-step 1b: Consistency with mandatory laws and regulations

Please refer to section 1.14 of the PD, wherein the compliance with the mandatory laws and regulations present in the targeted countries has been demonstrated for the proposed project and it has been concluded that the proposed project is a voluntary initiative by PP and consistent with laws and regulations of targeted countries.

Step 2. Investment analysis

The consultancy services agreement for the development of Verra VCS grouped project was signed between Biolite and Climate Secure on April 01, 2022 /07/. This specific date has been considered as the official investment decision date as this marks first point of no return from the project and PP's commitment to investment in the project.

Sub-step 2a: Determine appropriate analysis method

As the project generates revenues from sales of ICS apart from the revenues from VCUs, simple cost analysis (Option I) is not applicable.

PP has therefore chosen Option II i.e., Investment Comparison Analysis

Sub-step 2b: Option II. Apply investment comparison analysis

The financial indicator identified is NPV and PP has demonstrated that the project's NPV is negative without VER revenue and hence substantiates that the project activity is not financially viable / economically attractive without the sale of VER revenues, which is deemed acceptable to the validation team.

PP has utilized the Central Bank lending Rate and/or Inter Bank lending rates in the host country(ies) at the time of Investment Decision as the risk-free rate of return or discount factor. This is supported by the investment analysis worksheet and aligns with CDM Tool 01, version 07, paragraph 38, which specifies that discount rates and benchmarks should be derived from estimates of the cost of financing and required return on capital (e.g., commercial lending rates and guarantees required for the country and the type of project activity concerned), based on bankers' views and private equity investors/funds' required return on comparable projects.

The VVB has examined the lending rates referenced in the investment analysis and confirmed their accuracy and validity at the time of the investment decision. Furthermore, the use of lending rates is deemed consistent with paragraph 38(b) of CDM Tool 01, version 7.0.

Sub-step 2d: Sensitivity analysis

A sensitivity analysis has been carried out for parameters contributing more than 20% revenues and costs, to demonstrate the robustness of the financial analysis. The parameters for which sensitivity analysis is done are increase in project revenue / increase in sale price of ICS, decrease in purchase cost of ICS, decrease in other costs. Reasonable variations for these parameters were checked by calculating the variation necessary to reach the positive NPV and then discussing the likelihood for that to happen. Please check NPV analysis in the next step.

The VVB thus confirms that the project is not sensitive to significant variations to the input parameters and scenarios in which the project activity might become financially more favorable

than the alternative does not exist. As per para 42a) of Tool1, v 7.0.0, since the NPV of alternative (continuation of current practice) is higher than the NPV of the proposed project without considering carbon revenues.

Sub-step 3c: Calculation and comparison of financial indicators

Basic parameters for calculation of financial indicators /09/ of the Project are specified in the tables below and in the investment analysis sheet provided by the PP. The validation team has reviewed the same and deemed it acceptable.

NPV Analysis for project stove:

- NPV analysis for Project Stove (Jiko Fresh)

NPV (Project without Carbon Revenues)	Rwanda	Malawi	Nigeria	Mali	Madagascar	Senegal	Cote d'Ivoire	DRC	Zambia	Uganda
Variable	Per unit ICS revenue									
Currency	Rwandan Franc	Malawian Kwacha	Nigerian Naira	CFA Francs	Malagasy Ariary	CFA Francs	West African CFA	US Dollars	Zambian Kwacha	Ugandan Shillings
ICS sale revenues	16,378.69	13,129.53	6,490.31	9,818.33	73,702.00	9,795.86	9,818.33	16.24	288.35	66,120.75
Total Revenues	16,378.69	13,129.53	6,490.31	9,818.33	73,702.00	9,795.86	9,818.33	16.24	288.35	66,120.75
WB Assessment	These values are based on the end user receipts generated by the PP. The sale price agreed with the manufacturer is the same for all the listed cookstoves and for each of the fuel types. The end user receipts for each project activity are verified by the validation team to substantiate the subsidized sale price of ICS.									
Per unit ICS Costs										
Inflation rate	6.7%	13.9%	16%	3.7%	7.8%	1.8%	2.6%	7.4%	8.0%	5.9%
WB Assessment	These values are sourced from the International monetary fund 2023 website for an average of 7 years. As per para 16 of Tool 27: Investment Analysis, V 11.0. This rate is based on the average forecasted inflation rate over a 7-year period (from 2022 – 2028, i.e. duration of the crediting period), as provided by the International Monetary Fund's World Economic Outlook (https://www.imf.org/external/datamapper/PCPIPCH@WEO/OEMDC/ADVEC/WEOWORLD/)									
ICS Purchase Cost	14,993.42	12,019.07	6,119.40	8,719.82	58,604.74	8,719.82	8,719.82	14.72	263.96	52,696.13
WB Assessment	The values are sourced from the agreement between Biolite (project proponent) and stove manufacturer /03/									
Tax (VAT)	0.0%	0.0%	7.5%	18.0%	20.0%	18.0%	18.0%	16.0%	0.0%	18.0%

VVB Assessment	The values for Nigeria, Mali, Madagascar, Senegal, Ivory coast, DRC, and Uganda are based on Customer Invoices. The values for Rwanda, Malawi, and Zambia are assumed to be 0 as a conservative measure.									
Shipping Cost per unit	1,385.26	1,110.46	764.92	805.64	10,829.14	805.64	1,080.20	1.44	24.39	4,868.66
VVB Assessment	The shipping cost per unit is sourced from logistic cost evidence (purchase order) which is reviewed by the VVB and found to be acceptable.									
Selling Commission to Sales agent	4,074.30	3,266.05	1,662.88	2,369.52	15,925.20	2,369.52	2,369.52	4.00	71.73	14,319.60
VVB Assessment	These values are set to be given as commission to the sales partner per unit sold									
Total Costs	20,452.99	16,395.58	8,547.20	11,894.97	85,359.07	11,894.97	12,169.54	20.16	360.08	71,884.39
NPV	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
Sensitivity Analysis (For "0" NPV)										
Increase in Revenue	25%	25%	39%	37%	32%	37%	40%	39%	25%	23%
VVB Assessment	This much increase in revenue is not possible as the target beneficiaries cannot afford to buy the ICS at such increased prices.									
Decrease in Purchase Cost	27%	27%	38%	35%	33%	36%	38%	37%	27%	25%
VVB Assessment	The purchase cost is binding as per the supply agreement with the ICS supplier. The purchase cost is likely to increase over time rather it will decrease. Thus, it is not feasible to achieve such reductions in the purchase cost of ICS.									
Decrease in other costs	75%	75%	104%	115%	87%	116%	114%	115%	75%	79%
VVB Assessment	Other costs must be reduced by more than 75% to make the NPV positive. Again, this is not feasible as for the same other costs must become negative, which is not possible.									

- NPV analysis for Project Stove (Jiko Malkia)

NPV (Project without Carbon Revenues)	Rwanda	Malawi	Nigeria	Mali	Madagascar	Senegal	Cote D'Ivoire	DRC	Zambia	Uganda
Variable	Per unit ICS revenue									

Currency	Rwanda n Franc	Malawia n Kawacha	Nigerian Naira	CFA Francs	Malagas y Ariary	CFA Francs	West African CFA	US Dollars	Zambian Kwacha	Ugandan Shillings
ICS sale revenue s	26,045. 14	20,878. 38	11,757. 81	17,677. 89	1,20,12 7.50	14,084. 80	17,685. 74	27.55	458.53	1,04,11 4.00
Total Revenu es	26,045. 14	20,878. 38	11,757. 81	17,677. 89	1,20,12 7.50	14,084. 80	17,685. 74	27.55	458.53	1,04,11 4.00
VWB Assess ment	These values are based on the end user receipts generated by the PP. The sale price agreed with the manufacturer is the same for all the listed cookstoves and for each of the fuel types. The end user receipts for each project activity are verified by the validation team to substantiate the subsidized sale price of ICS.									
Per unit ICS Costs										
Inflation rate	6.7%	13.9%	16%	3.7%	7.8%	1.8%	2.6%	7.4%	8.0%	5.9%
VWB Assess ment	These values are sourced from the International monetary fund 2023 website for an average of 7 years. As per para 16 of Tool 27: Investment Analysis, V 11.0. This rate is based on the average forecasted inflation rate over a 7-year period (from 2022 – 2028, i.e. duration of the crediting period), as provided by the International Monetary Fund's World Economic Outlook (https://www.imf.org/external/datamapper/PCPIPCH@WEO/OEMDC/ADVEC/WEOWORLD/)									
ICS Purchas e Cost	24,286. 22	19,551. 13	9,939.7 7	14,230. 51	96,030. 20	14,230. 51	14,230. 51	23.90	424.46	85,617. 21
VWB Assess ment	The values are sourced from the agreement between Biolite (project proponent) and stove manufacturer /03/									
Tax (VAT)	0.0%	0.0%	7.5%	18.0%	20.0%	18.0%	18.0%	16.0%	0.0%	18.0%
VWB Assess ment	The values for Nigeria, Mali, Madagascar, Senagal, Ivory coast, DRC, and Uganda are based on Customer Invoices. The values for Rwanda, Malawi, and Zambia are assumed to be 0 as a conservative measure.									
Shippin g Cost per unit	1,701.2 0	1,363.7 2	939.38	989.38	13,298. 94	989.38	1,326.5 7	1.77	29.95	5,979.0 6
VWB Assess ment	The shipping cost per unit is sourced from logistic cost evidence (purchase order) which is reviewed by the VVB and found to be acceptable.									
Selling Commis sion to Sales agent	4,074.3 0	3,266.0 5	1,662.8 8	2,369.5 2	15,925. 20	2,369.5 2	2,369.5 2	4.00	71.73	14,319. 60
VWB Assess ment	These values are set to be given as commission to the sales partner per unit sold									
Total Costs	30,119. 44	24,144. 44	12,537. 97	17,516. 75	1,24,37 7.21	17,516. 75	17,853. 94	29.67	530.26	1,05,85 8.27
NPV	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative
Sensitivity Analysis (For "0" NPV)										
Incre ase in Revenu e	16%	16%	13%	14%	19%	42%	15%	22%	16%	16%
VWB Assess ment	This much increase in revenue is not possible as the target beneficiaries cannot afford to buy the ICS at such increased prices.									
Decre ase in Purchas e Cost	17%	17%	14%	14%	20%	36%	16%	21%	17%	17%
VWB Assess ment	The purchase cost is binding as per the supply agreement with the ICS supplier. The purchase cost is likely to increase over time rather it will decrease. Thus, it is not feasible to achieve such reductions in the purchase cost of ICS.									
Decre ase in	71%	71%	59%	71%	80%	178%	73%	103%	71%	84%

other costs										
VVB Assessment	Other costs must be reduced by more than 70% to make the NPV positive. Again, this is not feasible as for the same other costs must become negative, which is not possible.									

- NPV analysis for Project Stove (Mama Yao)

NPV (Project without Carbon Revenues)	Rwanda	Malawi	Nigeria	Mali	Madagascar	Senegal	Cote D'Ivoire	DRC	Zambia	Uganda
Variable	Per unit ICS revenue									
Currency	Rwandan Franc	Malawian Kwacha	Nigerian Naira	CFA Francs	Malagasy Ariary	CFA Francs	West African CFA	US Dollars	Zambian Kwacha	Ugandan Shillings
ICS sale revenues	16,684.26	14,484.94	8,085.13	12,255.37	89,085.57	12,255.37	12,529.94	20.44	318.12	74,062.40
Total Revenues	16,684.26	14,484.94	8,085.13	12,255.37	89,085.57	12,255.37	12,529.94	20.44	318.12	74,062.40
VVB Assessment	These values are based on the end user receipts generated by the PP. The sale price agreed with the manufacturer is the same for all the listed cookstoves and for each of the fuel types. The end user receipts for each project activity are verified by the validation team to substantiate the subsidized sale price of ICS.									
	Per unit ICS Costs									
Inflation rate	6.7%	13.9%	16%	3.7%	7.8%	1.8%	2.6%	7.4%	8.0%	5.9%
VVB Assessment	These values are sourced from the International monetary fund 2023 website for an average of 7 years. As per para 16 of Tool 27: Investment Analysis, V 11.0. This rate is based on the average forecasted inflation rate over a 7-year period (from 2022 – 2028, i.e. duration of the crediting period), as provided by the International Monetary Fund's World Economic Outlook (https://www.imf.org/external/datamapper/PCPIPCH@WEO/OEMDC/ADVEC/WEOWORLD/)									
ICS Purchase Cost	20,381.69	16,338.43	8,318.56	11,853.50	79,665.81	11,853.50	11,853.50	20.01	358.82	71,633.80
VVB Assessment	The values are sourced from the agreement between Biolite (project proponent) and stove manufacturer /03/									
Tax (VAT)	0.0%	0.0%	7.5%	18.0%	20.0%	18.0%	18.0%	16.0%	0.0%	18.0%
VVB Assessment	The values for Nigeria, Mali, Madagascar, Senegal, Ivory coast, DRC, and Uganda are based on Customer Invoices. The values for Rwanda, Malawi, and Zambia are assumed to be 0 as a conservative measure.									
Shipping Cost per unit	1,385.26	1,110.46	764.92	805.64	10,829.14	805.64	1,080.20	1.44	24.39	4,868.66
VVB Assessment	The shipping cost per unit is sourced from logistic cost evidence (purchase order) which is reviewed by the VVB and found to be acceptable.									
Selling Commission to Sales agent	4,074.30	3,266.05	1,662.88	2,369.52	15,925.20	2,369.52	2,369.52	4.00	71.73	14,319.60
VVB Assessment	These values are set to be given as commission to the sales partner per unit sold									
Total Costs	25,841.25	20,714.94	10,746.36	15,028.66	1,06,420.15	15,028.66	15,303.22	25.45	454.94	90,822.06
NPV	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative	Negative

Sensitivity Analysis (For "0" NPV)										
Increase in Revenue	55%	43%	41%	40%	37%	40%	39%	40%	43%	40%
VVB Assessment	This much increase in revenue is not possible as the target beneficiaries cannot afford to buy the ICS at such increased prices.									
Decrease in Purchase Cost	45%	38%	37%	35%	35%	35%	35%	35%	38%	35%
VVB Assessment	The purchase cost is binding as per the supply agreement with the ICS supplier. The purchase cost is likely to increase over time rather it will decrease. Thus, it is not feasible to achieve such reductions in the purchase cost of ICS.									
Decrease in other costs	168%	142%	135%	155%	124%	155%	142%	151%	142%	155%
VVB Assessment	Other costs must be reduced by more than 100% to make the NPV positive. Again, this is not feasible as for the same other costs must become negative, which is not possible.									

Based on the aforementioned steps and the calculation of the investment analysis, the NPV value without VCUs revenue is negative which indicates that the project activity is not financially viable without the support of carbon revenues from sale of VCUs

Therefore, the validation team confirms that the large-scale project is additional. Installation of improved cookstoves in Sub-Saharan Africa is additional – the emission reductions achieved by the project would be below those that would have occurred without the implementation of the project.

3.3.6 Quantification of GHG Emission Reductions and Removals

The equations and choices provided in the methodology and all other methodological tools are correctly quoted in the PD/01-5/. The emission reductions of the project would be calculated using the formulae mentioned in the applied methodology; VMR0006 (version 1.1)/B07/.

Validation team based on the review of the PD /01-5/, confirms that the formulae are correctly presented for the determination of emissions reductions at project level. The parameters and equations presented in the PD/01/, as well as other applicable documents, have been compared with the information and requirements presented in the methodology respectively. An equation comparison has also been made to ensure consistency between all the formulae presented in the PD/01-5/ and ER spreadsheet/02/ and methodology VMR0006 (version 1.1)/ B07/.

According to applied methodology VMR0006 (version 1.1) /B07/ the emissions are calculated as below:

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.

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

Where:

i	=	Indices for the situation where more than one type/model of improved cook stove is introduced to replace the baseline stove
j	=	Indices for the situation where there is more than one batch of improved cook stove of type i
ER_y	=	Emission reductions during year y in t CO ₂ e
$ER_{y,i,j}$	=	Emission reductions by improved cook stove of type i and batch j during year y in t CO ₂ e

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

Where:

$B_{y,savings,i,j}$	=	Quantity of woody biomass that is saved in tonnes per improved cook stove 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}	=	CO ₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 112 tCO ₂ /TJ)
$EF_{wf,non\ CO_2}$	=	Non-CO ₂ emission factor for the use of wood fuel in baseline scenario (IPCC default for wood fuel, 26.23 tCO ₂ /TJ)
$N_{y,i,j}$	=	Number of improved cook stoves of type i and batch j operating during year y
0.95	=	Discount factor to account for leakage

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

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

Where:

$B_{y=1,new,i,survey}$	=	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
η_{old}	=	Efficiency of baseline cookstove
$\eta_{new,i,y}$	=	Efficiency of the improved cook stove type i and batch j determined through water boiling test (WBT). efficiency may be determined using Equation 5.

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

Where:

η_p	=	Efficiency of project stove (fraction) at the start of 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, a 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.

f_{NRB} Assessment:

PP submitted an f_{NRB} calculation sheets /16-1/ for all project activities, containing the sources of values used, which was reviewed by the assessment team and deemed acceptable. The same has been demonstrated in Appendix 3 of the PD.

The formula used for calculating the f_{NRB} was found to be in accordance with equation (1) of TOOL30 version 04.0 /B09/:

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

Where:

f _{NRB}	=	Fraction of non-renewable biomass in the applicable area in the relevant period (fraction or %)
NRB	=	Quantity of non-renewable biomass consumed in the applicable area in the relevant period (tonnes)
RB	=	Quantity of renewable biomass that is available on a sustainable basis in the applicable area in the relevant period (tonnes)

In accordance with paragraph 9 of the tool 30 /B09/, the f_{NRB} value is determined at the validation stage and in accordance with paragraph 10. The calculation is estimated using the most recent historical year for which the data is available.

The quantity of non-renewable biomass consumed in the applicable area (NRB) shall be determined as the difference between the total consumption of woody biomass in the applicable area (H) and the quantity of renewable biomass that can be sustainably harvested in the applicable area (RB):

$$NRB = H - RB$$

Where:

H = Total consumption of woody biomass in the applicable area in the relevant period (tonnes)

Total consumption of woody biomass was estimated using official statistics, as provided by the respective Governments to the UN Statistics Division /16-2/ and reported through the data portals linked in the f_{NRB} calculation sheet/16-1/ provided by the PP.

The quantity of renewable biomass available in the applicable area (RB) is estimated using the following equation and the detailed calculation can be found in the f_{NRB} calculation sheet/16-1/ provided by the PP:

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

Where:

$MAI_{forest,i}$	= Mean Annual Increment of woody biomass growth per hectare in sub-category i of forest areas in the relevant period (tonnes/ha/yr)
$MAI_{other,i}$	= Mean Annual Increment of woody biomass growth per hectare in sub-category i of other land areas in the relevant period (tonnes/ha/yr)
$F_{forest,i}$	= Extent of forest in sub-category i in the relevant period (ha)
$F_{other,i}$	= Extent of other land in sub-category i in the relevant period (ha)
$P_{forest,i}$	= Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas (in sub-category i) in the relevant period (ha)
$P_{other,i}$	= Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within other land areas (in sub-category i) in the relevant period (ha)
i	= Sub-category i of forest areas and other land areas ⁴

The f_{NRB} values for project activities calculated by the PP as per TOOL 30 (version 4.0) are listed below:

Rwanda (PA 1) – 85.11%

Malawi (PA 2) – 70.84%

Nigeria (PA 3) – 82.30%

Mali (PA 4) – 61.07%

Madagascar (PA 5) – 62.97%

Senegal (PA 6) – 54.37%

Ivory Coast (PA 7) – 76.42%

DRC (PA 8) – 76.92%

Zambia (PA 9) – 80.03%

Uganda (PA 10) – 73.83%

The VVB has checked the fNRB calculation sheets /16-1/ and found these values to be appropriate. The VVB has also reviewed the reference / data sources used in the fNRB calculations to confirm that the data values used are sourced from most recent / latest available reports. For each country, the fNRB calculation submitted presents a clear step by step justification of compliance with each applicable para of CDM tool 30, version 4.0 including para 6(b) and para 13 (appendix 3 of revised VCS-PD).

In line with para 13 of Tool 30 V4, project proponent compared the value of estimated NRB with the product of i) total average above ground biomass tonnage of the area of forest areas deforested in recent past (tonnes/ha), and ii) most recent available observed annual rate of deforestation (ha/yr), for each country, in appendix 3 of the VCS PD /01/.

PP also compared the fNRB values with the other scientific aforesaid literature (Bailis et.al) /16-4/ in line with para. 6 b) of the Tool. The justification provided by the PP regarding para 6 (b) in Appendix 3 of the VCS PD /01/ is deemed acceptable to Validation team.

The calculated fNRB values for 11 countries indicate that the consumption of woody biomass within the country is greater than its capacity to supply sustainably. The approach and sources used for determination of parameter fNRB were found to be compliant with applied methodology/B07/ and TOOL30/B09/. Therefore, the derived values of fNRB are thus found acceptable by the assessment team.

This large-scale project would achieve a emission reduction as follows in the 7-year crediting period as indicated in the VCS PD /01-5/ and in the ER spread sheet /02/.

Project Activity #	Total Estimated Emissions over the Crediting Period (tCO _{2e})
PA-1	1,856,093
PA-2	557,545

PA-3	350,983
PA-4	278,366
PA-5	281,242
PA-6	252,357
PA-7	349,670
PA-8	339,865
PA-9	272,693
PA-10	192,302

In conclusion, all values, including parameters fixed ex-ante, used to calculate emission reductions are considered reasonable and appropriate in the context of the proposed project “BIOLITE Africa Improved Stove Program” and calculation approach is correct.

3.3.7 Methodology Deviations

No methodology deviations have been applied to the large-scale project.

3.3.8 Monitoring Plan

The large-scale project has correctly applied the approved baseline and monitoring methodology VMR0006, version 1.1 titled “Methodology for Installation of High Efficiency Firewood Cookstoves”. The monitoring plan provides detailed information related to the collection and archiving of all relevant data needed to:

- Estimate or measure emissions occurring from GHG sources, sinks and reservoirs
- Determine the baseline emissions

The monitoring plan as per VMR0006, version 1.1 has been clearly described in section 5 of the VCS PD. It covers all the monitoring parameters required to monitor by the large-scale project and emission reductions due to the project accurately.

The monitoring plan/procedure followed to measure the emission reduction is applied accurately and with a conservative approach.

Parameters Determined ex-ante

The following parameters are determined ex-ante and mentioned in section 5.1 of the PD:

Parameter	Unit	Value	Assessment
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η_p Efficiency of project stove at the start of project activity	Fraction	0.381 for Dura stove (firewood) 0.457 for Jiko fresh (charcoal) 0.551 for Mama Yao (charcoal) 0.5007 for Jiko Malkia (charcoal) XXXXX for other ICS models (to be presented at the time of verification, if applicable).		- Fixed ex-ante -This value is based on manufacturers specification /04/																						
f_{NRB} Fraction of woody biomass that can be established as non-renewable biomass	Fraction	<table><tr><th>Country</th><th>f_{NRB}</th></tr><tr><td>Rwanda</td><td>0.8511</td></tr><tr><td>Malawi</td><td>0.7084</td></tr><tr><td>Nigeria</td><td>0.8230</td></tr><tr><td>Mali</td><td>0.6107</td></tr><tr><td>Madagascar</td><td>0.6297</td></tr><tr><td>Senegal</td><td>0.5437</td></tr><tr><td>Ivory Coast</td><td>0.7642</td></tr><tr><td>DRC</td><td>0.7692</td></tr><tr><td>Zambia</td><td>0.8003</td></tr><tr><td>Uganda</td><td>0.7383</td></tr></table>	Country	f_{NRB}	Rwanda	0.8511	Malawi	0.7084	Nigeria	0.8230	Mali	0.6107	Madagascar	0.6297	Senegal	0.5437	Ivory Coast	0.7642	DRC	0.7692	Zambia	0.8003	Uganda	0.7383		- Fixed ex-ante - This value is calculated in line with the applicable methodological CDM Tool 30, version 4.0. The calculation is demonstrated in an excel sheet which has been assessed by the validation team and was found to be acceptable. /16/
Country	f_{NRB}																									
Rwanda	0.8511																									
Malawi	0.7084																									
Nigeria	0.8230																									
Mali	0.6107																									
Madagascar	0.6297																									
Senegal	0.5437																									
Ivory Coast	0.7642																									
DRC	0.7692																									
Zambia	0.8003																									
Uganda	0.7383																									
$NCV_{wood\ fuel}$ Net calorific value of the non-renewable woody biomass	TJ/tonne	0.0156		- Fixed ex-ante -This is a methodology default value /B07/																						
EF_{wf,CO_2} CO ₂ Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass	tCO ₂ /TJ	112		- Fixed ex-ante -This is a methodology default value /B07/																						
$EF_{wf,non\ CO_2}$ CO ₂ Emission factor for the fossil fuels projected to be used for	tCO ₂ /TJ	26.23		- Fixed ex-ante - This is a methodology default value /B07/																						

substitution of non-renewable woody biomass											
η_{old} Efficiency of baseline cookstove	Fraction	0.1 for wood 0.2 for Charcoal	- Fixed ex-ante - This is a methodology default value /B07/ - If wood baseline technology is replaced by project charcoal ICS, then leakage will be applied against charcoal fuel usage as per paragraph 41 of AMS II.G. version 11.1 /B10/.								
DF_n Discount factor to account for efficiency loss of project cookstove per year of operation (fraction).	Fraction	0.99	- Fixed ex-ante - This is a methodology default value /B07/								
$\eta_{new,i,j}$ Efficiency of the device of each type i and batch j implemented as part of the project activity	Percentage	47.24% As per equation (5) above the applicable efficiency of two example ICS models to be used in Ex-post ER calculations is as follows: <table border="1"> <tr> <td>Age of stove</td> <td>η_{new}</td> </tr> <tr> <td>0-1 year</td> <td>44.41%</td> </tr> <tr> <td>1-2 year</td> <td>43.96%</td> </tr> <tr> <td>2-3 year</td> <td>43.52%</td> </tr> </table>	Age of stove	η_{new}	0-1 year	44.41%	1-2 year	43.96%	2-3 year	43.52%	- Fixed ex-ante - Calculated using equation (5) of the applied methodology. This value is a weighted average efficiency value of the firewood and charcoal ICS which is used for ex-ante calculation only. The year-wise efficiency provided for the two ICS models, is in accordance with equation 5 of the applied methodology /B07/ and will be used for Ex-post ER calculations.
Age of stove	η_{new}										
0-1 year	44.41%										
1-2 year	43.96%										
2-3 year	43.52%										

		3-4 year	43.09%	
		4-5 year	42.66%	
		5-6 year	42.23%	
		6-7 year	41.81%	

Parameters Monitored ex-post

Monitoring of the project activity involves all the parameters necessary for calculation of GHG emission reduction by the proposed project activity. These parameters are mentioned in section 5.2 of the PD. The parameters, which are to be monitored include:

Parameter	Unit	Value		Assessment
$N_{y,i,j}$ Number of project devices of type i and batch j operating during year y	Number	Country	Estimated Number of ICS	This parameter will be monitored at least once every two years based on the monitoring survey.
		Rwanda	143,000	
		Malawi	55,000	
		Nigeria	28,500	
		Mali	28,500	
		Madagascar	28,500	
		Senegal	28,500	
		Ivory Coast	28,500	
		DRC	28,500	
		Zambia	22,000	
		Uganda	21,000	
		Total	412,000	
$B_{y=1,new,i,j,survey}$ Annual quantity of woody biomass used by improved	tonnes/device/year	For ex-ante calculation purpose, the value is assumed as		This parameter will be Determined in the first year of project implementation
		Country	$B_{y=1,new,i,j,survey}$ (tonnes/device/year)	
		Rwanda	1.40	

cookstoves in tonnes per device of type, determined in the first year of the implementation of the project through a sample survey		Malawi	1.37	
		Nigeria	1.35	
		Mali	1.45	
		Madagascar	1.42	
		Senegal	1.48	
		Ivory Coast	1.45	
		DRC	1.40	
		Zambia	1.48	
		Uganda	1.22	
Life Span	Number of years	7.0		The life span of the stove is based on stove manufacturer's specifications and will be monitored once at the time of project stove installation. If the stove life is less than the crediting period, then the PP will either replace the ICS after the end of its life with an equivalent device to continue claim credits or otherwise shall cease claiming credits after the rated lifespan.

The PP will conduct representative sampling as part of a sampling plan in accordance with the methodology applied and the Standard: Sampling and surveys for CDM project activities and programme of activities, version 9.0. The sampling methodology will be in accordance with the sampling guidelines and standards as specified in section 5.3 of the VCS PD.

The sampling objective for each parameter is to determine a statistically significant parameter value for the emission reduction calculations through a sampling survey. The parameters to be monitored as listed in section 5.2 of the VCS PD are:

No.	Monitoring Parameters	Sampling Parameters	Parameter type	Monitoring frequency
1	$N_{y,i,j}$	Proportion of operational ICS	Proportion	Biennially
2	$B_{y=1,new,i,,survey}$	Annual quantity of woody biomass used by improved cookstoves in tonnes per device of type, determined in the first year of the implementation of the project through a sample survey	Mean	First year of project implementation and fixed thereafter for entire crediting period

Detailed responsibilities and authorities for project management, monitoring procedures, calibration procedures and QA/QC procedures have been presented and were verified during follow up interviews. The detailed monitoring practice is considered appropriate and the implementation of these will enable subsequent verification of the project's emission reductions.

All relevant data will be archived electronically and further maintained for the entire crediting period plus two years. Based on the above assessment the validation team concludes that the PP is capable to implement the monitoring plan and hence confirms compliance of VCS guidelines and the applied methodology /B07/.

3.4 Non-Permanence Risk Analysis

This is not applicable to the project activity as the Project is not an AFOLU (Agriculture, Forestry and Other Land Use) project.

4 VALIDATION OPINION

The Project Participant, BIOLITE has commissioned Carbon Check (India) Private Ltd. (CC IPL) to validate the large-scale project "BIOLITE AFRICA IMPROVED STOVE PROGRAM", with regard to

VCS Version 4 requirements and the information provided by the project proponent related to the project design, operation, monitoring and reporting.

CC IPL has reviewed the project description documents and subsequently carried out site visit interviews to confirm the fulfilment of stated criteria. The project intends to reduce GHG emissions by disseminating energy-efficient improved cookstoves (ICS) to replace existing traditional Cookstoves in domestic households and communities in the Sub-Saharan Africa. A risk-based approach has been followed to perform this validation. In the course of validation, 09 CARs and 04 CLs are raised which have been resolved by the PP.

The project activity has applied the baseline and monitoring methodology, VMR0006 version 1.1: “Methodology for Installation of High Efficiency Firewood Cookstoves” /B07/, which is an approved methodology under the VCS programme. The baseline has been determined in accordance with the stated approved baseline methodology.

Analysis of the proposed project activity reveals that the emission reductions resulting from the project activity are real, measurable and give long term benefits and are additional to what would have occurred in the absence of the large-scale project. The annual average emission reductions from the project activity are estimated as follows. The emission reductions forecast has been checked and is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Project Activity #	Total Estimated Emissions over the Crediting Period (tCO ₂ e)
PA-1	1,856,093
PA-2	557,545
PA-3	350,983
PA-4	278,366
PA-5	281,242
PA-6	252,357
PA-7	349,670
PA-8	339,865
PA-9	272,693
PA-10	192,302

The monitoring plan makes sufficient provision for monitoring relevant project and baseline emission indicators. Responsibilities and authorities for project management, monitoring and reporting and QA/QC procedures have also been addressed.

Based on the information provided by the project developer, it is CC IPL’s opinion that the project, “BIOLITE Africa Improved Stove Program” in Sub-Saharan Africa as described in the VCS PD, Version 05 dated 06-June-2024 /01-5/, meets all relevant VCS Version 4 requirement and

correctly applied approved baseline and monitoring VCS methodology VMR0006, version 1.1 /B07/.

CC IPL's validation opinion is purely based on the information made available to us by the project proponent during the course of validation and hence CC IPL cannot guarantee the accuracy or correctness of the information. Keeping this in mind, no party can hold CC IPL liable for any decisions made or not made in this report.

PA-1 Rwanda

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)
01-June-2022 – 31-May-2023	12,274	0	0	12,274
01-June-2023 – 31-May-2024	72,504	0	0	72,504
01-June-2024 – 31-May-2025	170,505	0	0	170,505
01-June-2025 – 31-May-2026	265,411	0	0	265,411
01-June-2026 – 31-May-2027	357,266	0	0	357,266
01-June-2027 – 31-May-2028	446,118	0	0	446,118
01-June-2028 – 31-May-2029	532,012	0	0	532,012
Total	1,856,093	0	0	1,856,093

PA-2 Malawi

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)
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	removals (tCO ₂ e)			removals (tCO ₂ e)
01-June-2022 – 31-May-2023	0	0	0	0
01-June-2023 – 31-May-2024	16,361	0	0	16,361
01-June-2024 – 31-May-2025	48,318	0	0	48,318
01-June-2025 – 31-May-2026	79,264	0	0	79,264
01-June-2026 – 31-May-2027	109,216	0	0	109,216
01-June-2027 – 31-May-2028	138,189	0	0	138,189
01-June-2028 – 31-May-2029	166,196	0	0	166,196
Total	557,545	0	0	557,545

PA-3 Nigeria

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)
01-June-2022 – 31-May-2023	5,719	0	0	5,719
01-June-2023 – 31-May-2024	16,893	0	0	16,893
01-June-2024 – 31-May-2025	31,412	0	0	31,412

01-June-2025 – 31-May-2026	49,107	0	0	49,107
01-June-2026 – 31-May-2027	66,234	0	0	66,234
01-June-2027 – 31-May-2028	82,801	0	0	82,801
01-June-2028 – 31-May-2029	98,816	0	0	98,816
Total	350,983	0	0	350,983

PA-4 Mali

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)
01-June-2022 – 31-May-2023	4,538	0	0	4,538
01-June-2023 – 31-May-2024	13,401	0	0	13,401
01-June-2024 – 31-May-2025	24,917	0	0	24,917
01-June-2025 – 31-May-2026	38,951	0	0	38,951
01-June-2026 – 31-May-2027	52,532	0	0	52,532
01-June-2027 – 31-May-2028	65,666	0	0	65,666

01-June-2028 – 31-May-2029	78,361	0	0	78,361
Total	278,366	0	0	278,366

PA-5 Madagascar

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)
01-June-2022 – 31-May-2023	4,584	0	0	4,584
01-June-2023 – 31-May-2024	13,539	0	0	13,539
01-June-2024 – 31-May-2025	25,174	0	0	25,174
01-June-2025 – 31-May-2026	39,353	0	0	39,353
01-June-2026 – 31-May-2027	53,075	0	0	53,075
01-June-2027 – 31-May-2028	66,345	0	0	66,345
01-June-2028 – 31-May-2029	79,171	0	0	79,171
Total	281,242	0	0	281,242

PA-6 Senegal

Year	Estimated baseline emissions or	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or
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	removals (tCO ₂ e)			removals (tCO ₂ e)
01-June-2022 – 31-May-2023	4,114	0	0	4,114
01-June-2023 – 31-May-2024	12,150	0	0	12,150
01-June-2024 – 31-May-2025	22,591	0	0	22,591
01-June-2025 – 31-May-2026	35,314	0	0	35,314
01-June-2026 – 31-May-2027	47,624	0	0	47,624
01-June-2027 – 31-May-2028	59,529	0	0	59,529
01-June-2028 – 31-May-2029	71,034	0	0	71,034
Total	252,357	0	0	252,357

PA-7 Ivory Coast

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)
01-June-2022 – 31-May-2023	5,699	0	0	5,699
01-June-2023 – 31-May-2024	16,830	0	0	16,830
01-June-2024 – 31-May-2025	31,296	0	0	31,296

01-June-2025 – 31-May-2026	48,925	0	0	48,925
01-June-2026 – 31-May-2027	65,987	0	0	65,987
01-June-2027 – 31-May-2028	82,490	0	0	82,490
01-June-2028 – 31-May-2029	98,443	0	0	98,443
Total	349,670	0	0	349,670

PA-8 DRC

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)
01-June-2022 – 31-May-2023	5,539	0	0	5,539
01-June-2023 – 31-May-2024	16,359	0	0	16,359
01-June-2024 – 31-May-2025	30,418	0	0	30,418
01-June-2025 – 31-May-2026	47,553	0	0	47,553
01-June-2026 – 31-May-2027	64,137	0	0	64,137
01-June-2027 – 31-May-2028	80,177	0	0	80,177

01-June-2028 – 31-May-2029	95,683	0	0	95,683
Total	339,865	0	0	339,865

PA-9 Zambia

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)
01-June-2022 – 31-May-2023	0	0	0	0
01-June-2023 – 31-May-2024	8,001	0	0	8,001
01-June-2024 – 31-May-2025	23,630	0	0	23,630
01-June-2025 – 31-May-2026	38,767	0	0	38,767
01-June-2026 – 31-May-2027	53,417	0	0	53,417
01-June-2027 – 31-May-2028	67,589	0	0	67,589
01-June-2028 – 31-May-2029	81,289	0	0	81,289
Total	272,693	0	0	272,693

PA-10 Uganda

Year	Estimated baseline emissions or	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or
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	removals (tCO ₂ e)			removals (tCO ₂ e)
01-June-2022 – 31-May-2023	0	0	0	0
01-June-2023 – 31-May-2024	6,067	0	0	6,067
01-June-2024 – 31-May-2025	14,932	0	0	14,932
01-June-2025 – 31-May-2026	26,456	0	0	26,456
01-June-2026 – 31-May-2027	37,610	0	0	37,610
01-June-2027 – 31-May-2028	48,402	0	0	48,402
01-June-2028 – 31-May-2029	58,835	0	0	58,835
Total	192,302	0	0	192,302

APPENDIX 1.1: REFERENCE DOCUMENTS

Ref	Document
/01/	1. VCS PD version 01, dated 09-March-2023 2. VCS PD version 02, dated 26-May-2023 3. VCS PD Version 02.1, dated 05-June-2023 4. VCS PD Version 03.0, dated 30-October-2023 5. VCS PD Version 04.0, dated 08-May-2024 6. VCS PD Version 05.0, dated 06-June-2024
/02/	ER calculation spreadsheet, version 1.0 ER calculation spreadsheet, version 2.0 ER calculation spreadsheet, version 3.0 ER calculation spreadsheet, version 4.0
/03/	Contract with stove manufacturers
/04/	Technical specifications of the project stoves including their efficiency (0.381 for Dura stove (firewood), 0.457 for Jiko fresh (charcoal), 0.551 for Mama Yao (charcoal) ,0.5007 for Jiko Malkia (charcoal)ICS efficiency)
/05/	Copies of all the relevant Statutory clearances
/06/	Declaration(s) from Project proponent on the following: a) Project not registered or under process of registration in any other Emissions Trading Programs and Other Binding Limits. b) Project not registered or under process of getting and Other Forms of Environmental Credit c) The project has not been registered and is not seeking registration under any other GHG program d) Projects not Rejected by Other GHG Programs e) No ODA funding for the project
/07/	Consultancy Services Agreement for the development of VERRA VCS Project in Sub-Saharan Africa between Climate Secure and BioLite
/08/	Certificate of Incorporation for BIOLITE
/09/	Credible evidence for demonstration of the additionality: - Investment analysis sheet for each stove type - End user receipts - Evidence for logistics and purchase cost for each stove type and country - Evidence for central bank rates, exchange rates and inflation rates
/10/	Declaration from the project proponent on: a) Project is voluntary and not mandated by any law, statute, or other regulatory frameworks, of the host country. b) ICS will be distributed at subsidized cost to the end users and is therefore automatic additional.
/11/	Local stakeholders meeting related evidence: newspaper notice, email invitations, letter invitations, attendance sheet, presentation, photos, feedback forms, and minutes of meeting
/12/	BIOLITE Organization structure
/13/	Sample template agreements with technology supplier and owner of each individual ICS clearly indicating the transfer of right of carbon credits to PP
/14/	Evidence for the sample unique serial numbering for the ICS to be distributed

/15/	Evidence for project ownership
/16/	Calculation of fNRB along with all supporting evidence: 1. fNRB calculation sheets for PA-1 to PA-10 2. UN Data - https://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW 3. The Global Forest Resource Assessment 2020, Country Report – Nigeria, DRC, Malawi, Mali, Madagascar, Senegal Ivory Coast, Zambia, Uganda, and Rwanda. 4. Bailis, R.; Drigo, R.; Ghilardi, A. & Masera, O. (2015). The carbon footprint of traditional woodfuels. Nature Climate Change, 5(3), pp. 266–272. fNRB Reference documents for Rwanda: - Forestry Research Strategy and Guidelines for Rwanda (2018-2024), by Ministry of Environment, Republic of Rwanda fNRB Reference documents for Malawi: - FAO GFRA 2015 - Malawi - Malawi's Green Gold: Challenges and Opportunities for Small and Medium Forest enterprises in reducing poverty (https://www.iiied.org/sites/default/files/pdfs/migrate/13545IIED.pdf) fNRB Reference documents for Nigeria: - FAO GFRA 2015 – Nigeria - Forestry and Macroeconomic Accounts of Nigeria: The Importance of Linking Ecosystem Services to Macroeconomics Executive summary for decision-makers (https://www.unclearn.org/wp-content/uploads/library/final_report_summary_for_decision_makers_redd_nigeria_unep.pdf) - https://worldrainforests.com/deforestation/forest-information-archive/Nigeria.htm - Deforestation in Nigeria: causes, effects, and solutions (https://www.green.earth/blog/deforestation-in-nigeria-causes-effects-and-solutions) fNRB Reference documents for Mali: - 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 4, Table 4.9. - https://www.cbd.int/pa/doc/dossiers/mali-abt11-country-dossier2021.pdf - National Report on the State of the Environment in Mali-2017 (PROJET REE 2017 .pdf (cbd.int)) fNRB Reference documents for Madagascar:

	- World bank report - https://documents1.worldbank.org/curated/en/127331468299152929/pdf/multi0page.pdf fNRB Reference documents for Senegal: - US AID report (https://pdf.usaid.gov/pdf_docs/PNAAW775.pdf) fNRB Reference documents for Ivory coast: - Rapport d'évaluation des documents clés de légalité pour l'exploitation du bois Cas des dix principaux producteurs de bois en Côte-d'Ivoire (https://rem.org.uk/wp-content/uploads/2020/03/Rapport-dObservation-Ind%C3%A9pendante-sur-la-l%C3%A9galit%C3%A9-des-PEF-1.pdf) - IPCC guidelines, Chapter-4, Forest Land (https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch04_Forest%20Land.pdf) - https://www.researchgate.net/figure/A-Distribution-of-the-major-vegetation-zones-in-Ivory-Coast-B-Location-of-the-study_fig1_287957097 fNRB Reference documents for DRC: - Review of Woodfuel Biomass Production and Utilization in Africa (https://wedocs.unep.org/handle/20.500.11822/28515) - https://www.researchgate.net/publication/237339477_Wood_Densities_of_Tropical_Tree_Species - https://reliefweb.int/report/democratic-republic-congo/dr-congo-aid-workers-blog-how-fuel-efficient-stoves-can-help-women - https://www.researchgate.net/publication/312021671_Pan-tropical_analysis_of_woodfuel_supply_demand_and_sustainability_2014 fNRB Reference documents for Zambia: - Zambia country profile Monitoring, reporting and verification for REDD+ (https://www.cifor-icraf.org/publications/pdf_files/OccPapers/OP-113.pdf) - Natural Capital Accounts for Forests 2010 to 2015", dated March, 2020 by Ministry of Lands and Natural Resources Forestry Department, Republic of Zambia (https://seea.un.org/content/natural-capital-accounts-forests-2010-2015-first-results-and-next-steps-republic-zambia) fNRB Reference documents for Uganda: - Forestry and Macroeconomic Accounts of Uganda: The Importance of Linking Ecosystem Services to Macroeconomics (https://www.unclearn.org/wp-content/uploads/library/uganda_forest_technical_report_mailversion-1_ok.pdf)
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/17/	Start date evidence for 01 June 2022 (Date for installation of 1st ICS under the Grouped project as well as the PA-1)
/18/	ICS installation database / user registration records
/19/	Manufacturer specifications / Manufacturer Certificate / laboratory testing WBT certificates for ICS distributed under PA
/20/	Evidence for each of the applicability criteria of the applied methodology and the relevant tools
/21/	Credible evidence for demonstration of the baseline scenario: Tracking SDG 7: Energy Progress Report 2023 (https://trackingsdg7.esmap.org/data/files/download-documents/sdg7-report2023-full_report.pdf)
/22/	Evidence for the considered values for each of the ex-ante parameters
/23/	• DHS 2019-20 • MIS 2018 January • Nigeria DHS 2018 • Mali DHS 2018 • Madagascar DHS 2021 • EIPS, Senegal • Ivory Coast MICS • DRC MICS 2018 • Zambia DHS 2018 • UNHS 2019-20
/24/	KML file to demonstrate geographical locations included in the grouped project

APPENDIX 1.2: BACKGROUND DOCUMENTS

	Document
/B01/	VCS Standard (v4.4)
/B02/	VCS Program Guide (v4.3)
/B03/	VCS Validation and Verification Manual version 3.2
/B04/	Registration & Issuance Process (v4.3)
/B05/	VCS Programme Definitions version 4.3
/B06/	VCS PD template version 4.2
/B07/	Applied baseline and monitoring methodology, VMR0006 (version 1.1)
/B08/	https://cdm.unfccc.int/
/B09/	CDM Tool 30: Calculation of the fraction of non-renewable biomass, Version 4.0
/B10/	CDM approved small scale methodology, AMS-II.G.: Energy efficiency measures in thermal applications of non-renewable biomass (version 11.1)

APPENDIX 2: ABBREVIATIONS

CDM	Clean Development Mechanism
BE	Baseline Emission
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DVR	Draft Validation Report
EB	CDM Executive Board
EF	Emission Factor
ER	Emission Reduction
FAR	Forward Action Request
FVR	Final validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
NA	Not Applicable
OSV	On Site Visit
PA	Project Activity
PAI	Project Activity Instance
PD	Project Description
PP	Project Proponent
QC/QA	Quality control/Quality assurance
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change

VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
WB	Validation/Verification Body
WM	Validation and Verification Manual
WS	Validation and Verification Standard

APPENDIX 3: CERTIFICATES OF COMPETENCE



Carbon Check (India) Private Limited

Certificate of Competency

Mr. Sanjay Kumar Agarwalla

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ Validator	☒ Verifier	☒ Team Leader	☒ Technical Expert
☒ Technical Reviewer	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☒ Financial Expert	☐ Environmental, Health and Safety financial matters
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	
☒ Local Expert for India and Bangladesh			

in the following Technical Areas:

☒ TA 1.1	☒ TA 1.2	☒ TA 2.1	☒ TA 3.1	☒ TA 4.1
☐ TA 4. n	☒ TA 5.1	☒ TA 5.2	☒ TA 7.1	☐ TA 8.1
☒ TA 9.1	☒ TA 9.2	☒ TA 10.1	☒ TA 13.1	☒ TA 13.2
☐ TA 14.1	☐ TA 15.1	☒ TA 16.1		

Issue Date

05th December 2023

Expiry Date

31st December 2024



Ms. Priya Suman
Compliance Officer

Revision History of the document:

Revision	Summary of changes
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Dec 2023	Change in the template due to revision in TA and function

CCIPL_FM 7.9 Certificate of Competency_V4.0_11.2023

¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Mr. Dinesh Mane

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|--|---|---|
| ☒ Validator | ☒ Verifier | ☒ Team Leader | ☒ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☒ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☒ SDG+ | ☒ Social no-harm(S+) | ☒ Environment no-harm(E+) | |
| ☒ Local Expert for India | | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|--|----------------------------------|---|----------------------------------|
| ☐ TA 1.1 | ☒ TA 1.2 | ☐ TA 2.1 | ☒ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☒ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

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Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

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Jan 2023	Annual revision
Dec 2023	Change in the template due to revision in TA and function
Jan 2023	Addition in function as Financial expert

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¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Rogers Muganga

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|---|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☐ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | |
| ☒ Local Expert for Uganda and Rwanda | | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

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31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

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Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

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¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Toyin Timothy O

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|---|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☐ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | |
| ☒ Local Expert for Nigeria | | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

Issue Date

1st December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

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¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Samuel Litebele

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|---|---|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☐ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | |
| ☒ Local Expert for Zambia | | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

Issue Date

1st December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

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¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Mohamed Bassi Diarra

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|---|---|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☐ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | |
| ☒ Local Expert for Mali | | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

Issue Date

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Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
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Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

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¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Priscilla Kumwima

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|---|---|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☐ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | |
| ☒ Local Expert for Malawi | | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

Issue Date

1st December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
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¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Ralambotiana Fandresena Princis

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|---|---|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☐ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | |
| ☒ Local Expert for Madagascar | | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

Issue Date

1st December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

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May 2023	Initial Adoption
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¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Papa Moussa Mar

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|---|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☐ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | |
| ☒ Local Expert for Senegal | | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

Issue Date

1st December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
May 2023	Initial Adoption
Dec 2023	Template changes to include additional functions and TA

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Paluku Nzenda Gilbert

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|---|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☐ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | |
| ☒ Local Expert for DRC | | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

Issue Date

1st December 2023

Expiry Date

31st December 2024

Priya Suman

Ms. Priya Suman
Compliance Officer

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
May 2023	Initial Adoption
Dec 2023	Template changes to include additional functions and TA

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Quattara Moussa Famory

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|---|--|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☐ Technical Expert |
| ☐ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☐ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☐ SDG+ | ☐ Social no-harm(S+) | ☐ Environment no-harm(E+) | |
| ☒ Local Expert for Ivory Coast (Côte d'Ivoire) | | | |

in the following Technical Areas:

- | | | | | |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| ☐ TA 1.1 | ☐ TA 1.2 | ☐ TA 2.1 | ☐ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

Issue Date

1st December 2023

Priya Suman

Ms. Priya Suman
Compliance Officer

Expiry Date

31st December 2024

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
May 2023	Initial Adoption
Dec 2023	Template changes to include additional functions and TA

CCIPL_FM 7.9 Certificate of Competency_V4.0_112023

¹ Please refer to previous version of FM 7.9 for the revision history



Carbon Check (India) Private Limited

Certificate of Competency

Mr. Shivaji Chakraborty

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), ISO/IEC 14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

- | | | | |
|--|--|---|---|
| ☐ Validator | ☐ Verifier | ☐ Team Leader | ☒ Technical Expert |
| ☒ Technical Reviewer | ☐ Health Expert | ☐ Gender Expert | ☐ Plastic Waste Expert |
| ☐ CCB Expert | ☐ Legal Expert | ☒ Financial Expert | ☐ Environmental, Health and Safety financial matters |
| ☒ SDG+ | ☒ Social no-harm(S+) | ☒ Environment no-harm(E+) | |
| ☒ Local Expert for India | | | |

in the following Technical Areas:

- | | | | | |
|--|--|----------------------------------|--|----------------------------------|
| ☒ TA 1.1 | ☒ TA 1.2 | ☐ TA 2.1 | ☒ TA 3.1 | ☐ TA 4.1 |
| ☐ TA 4. n | ☐ TA 5.1 | ☐ TA 5.2 | ☐ TA 7.1 | ☐ TA 8.1 |
| ☐ TA 9.1 | ☐ TA 9.2 | ☐ TA 10.1 | ☐ TA 13.1 | ☐ TA 13.2 |
| ☐ TA 14.1 | ☐ TA 15.1 | ☐ TA 16.1 | | |

Issue Date

5th December 2023

Priya Suman

Ms. Priya Suman
Compliance Officer

Expiry Date

31st December 2024

Sanjay Agarwalla

Mr. Sanjay Kumar Agarwalla
Technical Director

Revision History of the document:

Revision date	Summary of changes
2022 ¹	Annual revision
Jan 2023	Annual revision
Dec 2023	Change in the template due to revision in TA and function

CC IPL_FM 7.9 Certificate of Competency_V4.0_112023

¹ Please refer to previous version of FM 7.9 for the revision history

APPENDIX 4: FINDINGS LOG

Table 1. CLs from this Validation

CL ID	01	Section no.	3.1	Date:	27/04/2023
Description of CL					
In section 1.17 of the PD, PP needs to clarify how the project level indicator aligns with the corresponding UN level indicator for SDGs 1, 3, and 4.					
Project Proponent's response					Date: 26/05/2023
For SDG 1 and 3, the project specific indicators have now been defined in the revised PD in section 1.17					
The project shall contribute to SDG 4 by providing informal and formal trainings to resources involved in the project activity. Thus, the project is clearly aligned with SDG indicator 4.3.1 i.e. Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by gender.					
Documentation provided by Project Proponent					
VERRA VCS 4151 Project Description ver 2.0_26052023					
VVB assessment					Date: 29/05/2023
PP has revised section 1.17 of the PD to define project specific indicators for SDG 1 and 3 and has clarified how the project level indicator aligns with the corresponding UN level indicator for SDG 4, which is deemed acceptable to the validation team.					
CL 01 is closed.					

CL ID	02	Section no.	3.2.1	Date:	27/04/2023
Description of CL					
As per section 2.1 of the VCS PD template (version 4.2), PP needs to summarize any potential negative environmental and socio-economic impacts and the steps taken to mitigate them. In the PD, PP has stated that there are no potential negative socio-economic impacts are generated by the project. Considering this, PP needs to justify the relevance of risk assessment conducted in the aforementioned section of the PD.					
Project Proponent's response					Date: 26/05/2023
No potential negative socio-economic impacts are envisaged in the project. PP has presented a comprehensive Net No Harm assessment, listing various requirements, discussing their relevance to project and, mitigation measure required in case of negative impacts. It can be seen from the table provided that the project has no potential negative environmental and socio-economic impacts.					
Documentation provided by Project Proponent					
VVB assessment					Date: 29/05/2023
PP has satisfactorily justified the relevance of risk assessment demonstrated in section 2.1 of the PD which is deemed acceptable to the validation team.					
CL 02 is closed.					

CL ID	03	Section no.	3.3.5	Date:	27/04/2023
Description of CL					
According to section 7 of the applied methodology VMR0006 (version 1.1), to comply with the positive list for additionality, project activity must entail installation or distribution of stoves at subsidized cost to the end-user. However, in section 3.5 of the PD, PP has stated that project ICS will be distributed at a subsidized price to end users. Therefore, PP needs to justify project activity's compliance to the aforementioned criterion of the methodology in order to prove additionality.					
Project Proponent's response					Date: 26/05/2023

Under the proposed project activity, the project ICS shall be distributed at a subsidized price to end users. Therefore, PP has demonstrated additionality as per section 7, step 3 of the methodology, using investment analysis method (Step 2 of Tool for the demonstration and assessment of additionality, version 7.0). Section 3.5 of the PD has been revised accordingly.	
Documentation provided by Project Proponent	
VERRA VCS 4151 Project Description ver 2.0_26052023	
VVB assessment	Date: 29/05/2023
PP has clarified that the ICS is distributed at a subsidized price to the end users and has satisfactorily demonstrated additionality in accordance with step 3 – section 7 of the applied methodology, VMR0006 (version 1.1). The validation team, after assessing the revised PD and the investment analysis sheet, finds this approach to be appropriate and acceptable. CL 03 is closed.	

CL ID	04	Section no.	3.3.8	Date: 27/04/2023
Description of CL				
PP is requested to clarify the source of the assumed values for $B_{y=1,new,i,j,survey}$, with reference to section 5.2 of the PD and the ER calculation spreadsheet.				
Project participant response				Date: 26/05/2023
The value has been assumed only for ex-ante calculation purpose based on PP's professional judgement and experience. This parameter will be monitored in the first year and shall be used for ex-post calculations.				
Documentation provided by the Project proponent				
VVB assessment				Date: 29/05/2023
PP has clarified that the values for $B_{y=1,new,i,j,survey}$ is assumed for ex-ante calculation and in accordance with the applied methodology, VMR0006 (version 1.1), it will be determined in the project's 1 st year of implementation. This is deemed acceptable to the validation team. CL 04 is closed.				

Table 2. CARs from this Validation

CAR ID	01	Section no.	-	Date: 27/04/2023
Description of CAR				
On the cover page of the PD, physical address must be provided under contact as per the VCS PD template (version 4.2) requirement.				
Project Proponent's response				Date: 26/05/2023
Cover page of the PD has been revised to include the physical address under section contact.				
Documentation provided by Project Proponent				
VERRA VCS 4151 Project Description ver 2.0_26052023				
VVB assessment				Date: 29/05/2023
PP has revised the cover page of the PD to include the physical address under contact. CAR 01 is closed.				

CAR ID	02	Section no.	-	Date: 27/04/2023
Description of CAR				
The PD at several places refers to version 4.3 of the VCS Standard, which is not the latest applicable version. Therefore, PP is requested to update the PD in accordance with version 4.4 of the VCS standard, referencing updated sections of the standard in the PD as necessary.				
Project Proponent's response				Date: 26/05/2023
The PD has been revised to refer to version 4.4 of the standard.				

Documentation provided by Project Proponent	
VERRA VCS 4151 Project Description ver 2.0_26052023	
VVB assessment	Date: 29/05/2023
PP has satisfactorily revised the PD, referring to version 4.4 of the VCS standard. CAR 02 is closed.	

CAR ID	03	Section no.	3.1	Date:	27/04/2023
Description of CAR					
In section 1.1 of the PD, PP needs to include a brief description of the scenario existing prior to the implementation of the project along with the details on the types of cookstoves used in the baseline scenario. In addition, PP needs to also add a summary description of the technologies/measures to be implemented by the project.					
Project Proponent's response					Date:
Section 1.1 of the PD has been revised to add the pre-project scenario and baseline stove types.					26/05/2023
Documentation provided by Project Proponent					
VERRA VCS 4151 Project Description ver 2.0_26052023					
VVB assessment					Date:
PP has revised section 1.1 of the PD to include a brief description of the scenario existing prior to the implementation of the project along with baseline stove types and a summary description of the technologies/measures to be implemented by the project. This is deemed acceptable to the validation team. CAR 03 is closed.					29/05/2023

CAR ID	04	Section no.	3.1	Date:	27/04/2023
Description of CAR					
In section 1.5 of the PD, PP needs to add its telephone number in order to comply with the VCS PD template (version 4.2) requirement.					
Project Proponent's response					Date:
Section 1.5 of the PD has been revised to add the telephone number.					26/05/2023
Documentation provided by Project Proponent					
VERRA VCS 4151 Project Description ver 2.0_26052023					
VVB assessment					Date:
PP has revised section 1.5 of the PD to add the telephone number. CAR 04 is closed.					29/05/2023

CAR ID	05	Section no.	3.2.2	Date:	27/04/2023
Description of CAR					
In section 2.2 of the PD, PP needs to demonstrate the following to comply with the VCS PD template (version 4.2) requirement:					
- The procedures or methods used for engaging local stakeholders (e.g., dates of announcements or meetings, periods during which input was sought). - The procedures or methods used for documenting the outcomes of the local stakeholder consultation. - The mechanism for on-going communication with local stakeholders. - How due account of all and any input received during the consultation has been taken.					
Project Proponent's response					Date:
Section 2.2 of the PD has been revised to elaborate on the stakeholder engagement in the project.					26/05/2023
Documentation provided by Project Proponent					
VERRA VCS 4151 Project Description ver 2.0_26052023					
VVB assessment					Date:
					29/05/2023

PP has revised section 2.2 of the PD to demonstrate compliance with the VCS PD template requirement which is deemed acceptable to the validation team.
CAR 05 is closed.

CAR ID	06	Section no.	3.2.4	Date: 27/04/2023
Description of CAR				
PP needs to revise section 2.4 of the PD with respect to the public comment period.				
Project Proponent's response				Date: 26/05/2023
Section 2.4 of the PD has been revised to include the duration of the public comment period.				
Documentation provided by Project Proponent				
VERRA VCS 4151 Project Description ver 2.0_26052023				
VVB assessment				Date: 29/05/2023
PP has satisfactorily updated section 2.4 of the PD. CAR 06 is closed.				

CAR ID	07	Section no.	3.3.4	Date: 27/04/2023
Description of CAR				
In section 3.4 of the PD, PP needs to explain and justify key assumptions, rationale and methodological choices used to determine baseline scenario along with provision of all relevant references to comply with the VCS PD template (version 4.2) requirement.				
Project Proponent's response				Date: 26/05/2023
Section 3.4 of the PD has been revised accordingly.				
Documentation provided by Project Proponent				
VERRA VCS 4151 Project Description ver 2.0_26052023				
VVB assessment				Date: 29/05/2023
PP has revised section 3.4 of the PD to explain and justify key assumptions, rationale and methodological choices used to determine baseline scenario along with provision of all relevant references which is deemed acceptable to the validation team. CAR 07 is closed.				

CAR ID	08	Section no.	3.3.6	Date: 27/04/2023
Description of CAR				
In section 4.4 of the PD, PP needs to state the total and annual average of emissions reductions achieved for the proposed project activity.				
Project Proponent's response				Date: 26/05/2023
The VCS PD template version 4.2 contains a table in section 4.4 that allows for the recording of only the total emissions reductions value. Therefore, in section 4.4 only total emissions reductions value is stated which is in line with the template.				
Documentation provided by Project Proponent				
VVB assessment				Date: 29/05/2023
To comply with the VCS PD template (v 4.2) requirement, PP has only stated the total emission reductions value. This is acceptable to the validation team and therefore, CAR 08 is closed.				

CAR ID	09	Section no.	VCS PD	Date: 27/04/2023
Description of CAR				
Below findings raised specific to fNRB of PA:				
Mali:				
The ER calculation sheet refers to the GS 5003 PD for the fNRB value for Mali, but the value stated in the PDD for the GS 5003 (version 7, dated 01/07/2020) available on the GS website states that the fNRB value was calculated using version 01 of TOOL 30, which is not the latest version of the TOOL. Therefore, PP is requested to provide clarification on the appropriateness of the fNRB value considered for Mali, and to provide evidence for the same.				

Madagascar:

The ER sheet mentions GS 464 PD for fNRB value for Madagascar, but the PDD for GS 464 (3rd RCP PDD, version 9.6, dated 26/10/2022) available on the GS website, does not specify the version of TOOL 30 used for fNRB calculation. Hence, PP is requested to provide clarification on the appropriateness of the fNRB value considered for Madagascar, and to provide evidence for the same.

Senegal:

The fNRB value for Senegal has been sourced from CDM PoA 10641 - CPA Cookstoves Senegal (10641-P1-0001-CP1), which was included in the registered PoA on 01/02/2022. The value considered for Senegal appears to be high, and the calculations for the value considered are not presented transparently along with data source. PP is requested confirm on the appropriateness and conservativeness of the value considered.

Nigeria and Zambia:

For Nigeria and Zambia, the PDF document of "Calculation of the fraction of non-renewable biomass (fNRB)" report prepared by C4 EcoSolutions has been provided. The report mentions the client as C-Ouest Capital only, and the document is not publicly available.

PP is asked to clarify this and provide the relevant documents, including the fNRB calculation sheet, using the latest version of TOOL 30.

Project Proponent's response
Date: 26/05/2023

Mali: The value of fNRB for Mali has been revised to 0.6868 as a conservative measure. This is the most recent value used in the recently registered CDM project 9941. The ER calculator and PD have been updated accordingly to reflect this revised value.

Madagascar: The fNRB value used in the PDD for GS 464 (3rd RCP PDD, version 9.6, dated 26/10/2022) was calculated based on version 3.0 of TOOL 30. Please refer to the FVR of GS 464, where it has been confirmed that the fNRB value was calculated using version 3 of TOOL 30. FVR for GS 464 is being submitted as a reference.

Senegal: The fNRB value of 0.93 is used in PDD of CDM 10641, which is the recently registered Project in CDM. The similar fNRB value of 0.9353 used in PD of VCS 3691 as well. This VCS project has been already validated by VVB and the project has been submitted to Verra for registration. Hence use of 93% value of fnrB is deemed appropriate. However, since the default value of fNRB for Senegal is 0.85, which has been already used by some other projects in the country. Therefore, as a conservative measure, the value of 0.85 has been used. The ER calculator and PD have been updated accordingly to reflect this revised value. FVR for 10641 is being submitted as a reference.

Nigeria and Zambia: For Nigeria and Zambia, fNRB reports can be accessed publicly through the following links:

1. CDM PoA 6283: Distribution of fuel-efficient improved cooking stoves in Nigeria:
<https://cdm.unfccc.int/UserManagement/FileStorage/QU6W5D0Y4F97SKHOIRTAMG8P3VL2NC>
2. CDM PoA 8060: Improved Cookstoves Program for Zambia:
<https://cdm.unfccc.int/UserManagement/FileStorage/4ZDOMILYNEX3URHQ15GWB0KSPV8F7C>

Documentation provided by Project Proponent

VERRA VCS 4151 Project Description ver 2.0_26052023

VERRA VCS 4151 Ex-ante ER Calculator_26052023

VVB assessment
Date: 29/05/2023

Mali: PP has clarified that the fNRB values for Mali has been revised to 0.6868, the most recent value used in the recently registered CDM project 9941, and that the PD and ER calculator are now updated to reflect this. This is deemed acceptable by the validation team in accordance with the registered CDM project.

Madagascar: The validation team based on the review of the FVR for GS 464, submitted as the evidence for the considered fNRB value for Madagascar, determines that the fNRB has been calculated using version 3.0 of TOOL 30 which is applicable to the proposed project. Hence, this is deemed acceptable by the validation team.

Senegal: In accordance with the justification provided by the PP, the default value of fNRB for Senegal is found to be conservative and hence deemed acceptable by the validation team.

Nigeria and Zambia: PP has provided links to demonstrate that the fNRB reports for the fNRB values used in Nigeria and Zambia are publicly accessible. As a result, the validation team deemed this acceptable.

CAR 09 is closed.

Table 3. FARs from this Validation

FAR ID	xx	Section no.	Date: DD/MM/YYYY
Description of FAR			
Project Proponent's response			Date: DD/MM/YYYY
Documentation provided by Project Proponent			
VVB assessment			Date: DD/MM/YYYY