

**GOLD STANDARD FOR THE GLOBAL GOALS (GS4GG)
REPORT
-
VERIFICATION**



Project Title: PoA: GS 5562, Efficient and Clean Cooking for Mozambican Low-Income Households PoA
VPA: GS 6155 Efficient and Clean Cooking for Mozambican Low-Income Households – George Dimitrov VPA 1

Monitoring Period: 01/01/2018 to 31/12/2019 (Inclusive of both days)

GS project ID: GS 6155

Internal ID: BELL _CDM_2019_MZB GEORGE DIMITROV
VPA1_GS_VER

Customer: Mozambique Carbon Initiatives Lda.

Date: 27/06/2022

Revision: 05

SUMMARY			
Reference No.	Date (first version)	Version No.	Date (last version)
GS6155	20/01/2022	05	27/06/2022
GS4GG Verification			
GS4GG Certified Product (sought):		GHG Emission Reductions	
GS4GG SDG Impact Statement (sought):		Impact Certification	
General Information			
Client	Mozambique Carbon Initiatives Lda.		
Project Title	Efficient and Clean Cooking for Mozambican Low-Income Households – George Dimitrov VPA 1		
Project Participants	Mozambique Carbon Initiatives Lda.		
Project Location	Neighbourhood of 25 de Junho, Bagamoyo, George Dimitrov, Inhagoia, Inhagoia A, Nsalene, Magoanine A, Malhazine and Zimpeto (south) in Maputo, Mozambique		
Contact Person	Goodmore Chatora		
Monitoring Period	01/01/2018 to 31/12/2019 (Inclusive of both days)		
Gold Standard for Global Goals (GS4GG) Principles Requirements , Version 1.2		GS4GG Sectoral Scope: 03 UNFCCC CDM Sectoral Scope: 03 Technical Area: 3.1	
Gold Standard for Global Goals (GS4GG) Programme of Activity Requirements, version 1.2			
Applied Methodology Version: AMS-II.G version10.0: Energy efficiency measures in thermal application of non-renewable biomass			
Published Monitoring Report Version: 01 Date: 22/03/2020		Final Monitoring Report Version: 06 Date: 26/06/2022	
Certified Project Design Document Version: 02 Date: 13/02/2019 GS Passport Version (if applicable): NA			
Estimated SDG Goals: SDG 1 (No Poverty): Percentage of decrease of the household monthly cost to buy fuel for cooking: 94.3% No. of staff hired to implement the project activities: 0 SDG 3 (Good health and wellbeing): Percentage of the users report the reduction of smoke levels in house: 92.7% SDG 13 (Climate action): GHG emission reductions: 49,190 tCO ₂ e/annum Number of people trained during the project implementation: 0 nos.			
Actual SDG Goals achieved during current monitoring period: SDG 1 (No Poverty): Percentage of decrease of the household monthly cost to buy fuel for cooking: 93.9% No. of staff hired to implement the project activities: 115 SDG 3 (Good health and wellbeing): Percentage of the users report the reduction of smoke levels in house: 90.6% SDG 13 (Climate action): GHG emission reductions: 46,597 tCO ₂ e/annum Number of people trained during the project implementation: 178 nos.			
Selected Sustainable Development Goals (SDGs): 1, 3 and 13			
Verification Summary			
LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by			

Mozambique Carbon Initiatives Lda. To perform the 2nd periodical verification of “Efficient and Clean Cooking for Mozambican Low-Income Households – George Dimitrov VPA 1” (Ref. No. GS6155) applying the methodology AMS II.G, version 10.0. The management of Mozambique Carbon Initiatives Lda. Is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions.

A desk review and a remote audit have been conducted to verify the data submitted in the monitoring report. Applus+ Certification confirms the following have been reviewed:

- The CDM PDD version 02 including the monitoring plan;
- Monitoring report(s);
- The applied monitoring methodology;
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- The Gold Standard for Global Goals “Principles and Requirements” Version 1.2 and GS4GG guideline and related Annex.
- All information and references relevant to the project activity’s resulting in emission reductions.

The purpose of this Small-Scale Project Activity (VPA) is the dissemination of improved cooking stoves (ICS) in the neighbourhood of 25 de Junho, Bagamoyo, George Dimitrov, Inhagoia, Inhagoia A, Nsalene, Magoanine A, Malhazine and Zimpeto (south) in Maputo, Mozambique. The Project Activity replaces conventional stoves using charcoal fuel with improved stoves using charcoal fuel.

Applus+ Certification confirms that the project is implemented in accordance with the validated VPA-DD version 03. The monitoring plan complies with the applied methodology AMS II.G, version 10.0 and the Gold Standard for Global Goals “Principles and Requirements” version 1.2, GS4GG guideline the monitoring has been carried out in accordance with the monitoring plan. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information reviewed and evaluated Applus+ Certification confirms that the implementation of the project has resulted in 46,597 tCO₂e emission reductions during the period 01/01/2018 to 31/12/2019 (Both days included).

ASSESSMENT TEAM		
Team Members	Type of Resource ¹	Organization (for Oes)
Lead Auditor: Mr. Sukanta Das ² / Pankaj Kumar	☐ IR ☐ EI ☒ OE	M/s True Quality Certifications Private Limited
Technical Expert: Mr. Agustin Calle de Miguel	☒ IR ☐ EI ☐ OE	M/s Applus+ Certification
Technical Reviewer: Mr. Miguel A. Cortes	☒ IR ☐ EI ☐ OE	M/s Applus+ Certification

¹ IR (Internal Resource); EI (External Individual); OE (Outsourced Entity)

² Mr. Sukanta Das was LA/TL for this project till June 2021. Mr, Pankaj Kumar designated as new LA/TL from July 2021.

ABBREVIATIONS	
ACM	Approved Consolidated Methodology
AM	Approved Methodology
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CL/CR	Clarification Request
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GS4GG (or GS)	Gold Standard for Global Goals
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-Governmental Organization
SDG	Sustainable Development Goal
TAC	Gold Standard Technical Advisory Committee
OM	Operational Margin
PDD	Project Design Document
PP	Project Participant
UNFCCC	United Nations Framework Convention for Climate Change
VVB	Validation and Verification Body
VVS	Validation and Verification Standard

Table of Content

Contents

1.	INTRODUCTION	7
1.1	Objective	7
1.2	Scope	7
1.3	Description of the project activity	8
2.	METHODOLOGY	10
2.1	Appointment of the assessment team	10
2.2	Document review.....	11
2.3	On site assessment and follow up interviews	12
2.4	Quality of evidences.....	14
2.5	Reporting of findings	14
2.6	Internal Quality Control.....	13
3.	VERIFICATION FINDINGS	145
3.1	FARs from Validation / Previous Verification.....	15
3.2	Project Implementation in accordance with the registered Project Design Document ..	15
3.3	Compliance of the Monitoring Plan with the Monitoring Methodology	18
3.4	Completeness of Monitoring	18
3.5	SDG Outcomes Monitoring	31
3.6	Assessment of Data and Calculation of Greenhouse Gas Emission Reductions.....	34
3.7	Management and Operational System	34
4.	REFERENCE.....	36
5.	VERIFICATION STATEMENT.....	39

Appendix:

Appendix 1: Corrective Action Request/Clarification Request/Forward Action Request resolution table.

Appendix 2: Audit Team CVs.

1. INTRODUCTION

1.1 Objective

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Mozambique Carbon Initiatives Lda. To perform the 2nd periodical verification of "Efficient and Clean Cooking for Mozambican Low-Income Households – George Dimitrov VPA 1" under the PoA – 'Efficient and Clean Cooking for Mozambican Low-Income Households PoA' applying the methodology AMS II.G, version 10.0 and GS4GG guideline. Gold Standard projects must undergo periodic audits and verification of emission reductions as the basis for issuance of Gold Standard VERs. The objective of the verification work is to assess the compliance with the requirements of paragraph 62 of the CDM Modalities and Procedures as well as the GS4GG guidelines and relevant Principles and Requirements. According to this assessment Applus+ Certification shall:

- Ensure that the project activity has been implemented and operated as per the registered PDD and transitional documents for registration and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place;
- Ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable CDM VVS for project activities version 03 for the project activity and Gold Standard and GS4GG requirements;
- Ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology;
- Evaluate the data recorded and stored as per the AMS II.G, version 10.0.

1.2 Scope

The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the VVB. The verification is based on the submitted monitoring report, the registered PDD V05 as well as its validation report, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the EB, GS4GG guideline and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures, GS4GG guideline and relevant Principles and Requirements, as well as their related rules and guidance.

Based on the requirements in the CDM VVS for project activities version 03 for the project activity as well as the GS4GG guideline, Applus+ Certification has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.

The verification considers both quantitative and qualitative information on emission reductions. The verification also considers the monitoring of sustainable parameters.

The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

1.3 Description of the project activity

Title of PoA:	Efficient and Clean Cooking for Mozambican Low-Income Households PoA
VPA Title:	Efficient and Clean Cooking for Mozambican Low-Income Households – George Dimitrov VPA 1
Gold Standard ID:	PoA GS ID: 5562 and VPA GS ID: 6155
Applied methodology:	AMS-II.G. Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass, version 10.0
Crediting period:	14/02/2017 to 13/02/2024
Project Representative:	Mozambique Carbon Initiative LDA
Coordinating/Managing Entity:	Mozambique Carbon Initiative LDA
Location of the project activity:	Neighbourhood of 25 de Junho, Bagamoyo, George Dimitrov, Inhagoia, Inhagoia A, Nsalene, Magoanine A, Malhazine and Zimpeto (south) in Maputo, Mozambique

The purpose of this Small-Scale Project Activity (VPA) is the dissemination of improved cooking stoves (ICS) in the neighbourhood of 25 de Junho, Bagamoyo, George Dimitrov, Inhagoia, Inhagoia A, Nsalene, Magoanine A, Malhazine and Zimpeto (south) in Maputo, Mozambique. The Project Activity will replace conventional stoves using charcoal fuel with improved stoves using charcoal fuel. Stoves disseminated under this VPA are portable devices serving domestic users. The projects' GPS coordinates are 25°53'19.16"S, 32°33'56.76"E.

The VPA under the SSC-PoA has been implemented in a limited geographical area such as a county or district. The annual energy savings of each VPA shall not go beyond the limits of 180 GWh_{th}/year over the entire crediting period according to General Guidelines to SSC CDM Methodologies version 23, EB 104, Annex 5. During this monitoring period, an average of 8,405 ICS were operational³, resulting in the energy savings of approximately 83.24 MWh/yr. This is below the small-scale threshold of 180 GWh_{th}/yr.

The project location details have been verified from the google map. These were also confirmed during the remote interviews conducted for the monitoring period.

Below are pictures of the stoves that are envisaged to be distributed and already distributed as part of the VPA. They include the Envirofit models CH2200 (charcoal), Econochar (charcoal), Rocket Works and Mbula stove (a stove with a metal sheet or aluminium with clay based charcoal rest).

³ A total of 10,424 were used. 8,405 is the average number of ICS based on total stove days (i.e. sum of all days the stoves were operational) and the monitoring period of 730 days. This is to account for exact installation dates, replacement and retirement of stoves.

As per registered VPA-DD, approximate energy savings per stove are 11,903 KWh/y . The total number of stoves that can be distributed under this VPA is 15,122. During current monitoring period, 10,424 stoves were distributed. The details of the distribution is as below:

Type of ICS	Total nos
Envirofit Econochar	4,843
Rocketworks Chazama	1,049
Envirofit CH2200	646
Mbaula Poupa+	3,886
TOTAL	10,424

The technical details of the stoves are as follows:

Envirofit Econchar (SmartSaver Charcoal): the Envirofit Econchar is a charcoal stove from the Envirofit's essential line. It's a household sized stove with the capacity to cook for 10 people. It can be shipped as a flat package and assembled locally. It reduces the fuel consumption up to 57% and the cooking time and the toxic emission reduction up to 50%. It has a lifespan of 3 years, according to the manufacturer.⁴ According to the WBT performed by the PO, this stove has a efficiency of 37.23%, new.

Rocketworks Cha-ZaMa: it's a charcoal cookstove, the first in the Rocket Works range. It's a light, aluminium stove, that is shipped as a flat pack, as it can be completely knocked down for transportation. This allows for lower shipping prices. It has a maximum pot capacity of 10 liters, a lifetime of approximately 1 year and it can feed 1-8 people per meal.⁵ According to the WBT performed by the PO, this stove has a efficiency of 36.83%, new.

Envirofit CH-2200: it's a metal stove with an air intake door to control airflow on the bottom of the stove with a lever for control on the side. The life of the Envirofit CH-2200 is estimated to be 5 years by the manufacturer.⁶ According to the WBT performed by the PO, this stove has a efficiency of 33.09%, new.

Mbaula Poupa+: It's a charcoal cookstove, which originated from Kenya few years ago. The stove consists of two main parts: A ceramic liner as heat resistant fuel recipe and an aluminium base as a support for the ceramic liner. Both parts are produced in a semi-industrial way. Two metal handles enable transport even if the stove is operating. The primary air intake only allows fully open operating. The life of the Mbaula Poupa+ is estimated to be 5 years by the manufacturer. According to the WBT performed by the PO, this stove has a efficiency of 30.47%, new.

⁴ https://envirofit.org/wp-content/uploads/2016/08/EF_Product_Catalog_2016_web.pdf

⁵ <http://catalog.cleancookstoves.org/stoves/334>

⁶ http://gadgilab.berkeley.edu/wp-content/uploads/2014/04/HaitiCookstoveReport2_CCT_lbnl-5341e.pdf



Figure 1 – Stoves to be used in the project

2. METHODOLOGY

Applus+ Certification approach to the verification is a two-stage process. In the 1st stage, Applus+ Certification completed a strategic review and risk assessment of the project's activities and processes in order to gain a full understanding of:

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

Applus+ Certification used a periodical Verification Checklist which, based on the risk-based assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

In the 2nd stage, using the Verification Checklist, Applus+ Certification verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved interviewing PP representative during the remote audit and a desk review of the Monitoring Report. This Verification Report describes the findings of this assessment.

2.1 Appointment of the assessment team

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

The composition of audit team shall be approved by the LGAI Technological Center, S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

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

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

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Mr. Sukanta Das ⁷	LA/TE	YES	YES	NA	No
Mr. Pankaj Kumar	LA/TE	YES	YES	NA	No
Mr. Agustin Calle de Miguel	LA/TE	YES	YES	NA	YES
Mr. Miguel A. Cortes	TR	YES	YES	NA	NA

The complete list of CVs is included as Appendix 3 of this report.

2.2 Document review

The Monitoring Report version 01 was submitted to VVB before the verification activities started. The MR was assessed based on all the relevant documents. The aim of the assessment in the desk review was to:

- Verify the completeness of the data and the information presented in the MR;
- Check the compliance of the MR with respect to the monitoring plan depicted in the registered PDD and verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures of the power plant was checked by the assessment team.
- Evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.
- Please check section 4 of this report for detail of the documents checked.

⁷ Mr. Sukanta Das was LA/TL for this project till June 2021. Mr. Pankaj Kumar designated as new LA/TL from July 2021.

2.3 On site assessment and follow up interviews

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the VVB offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), the VVB has skipped the on site visit. As COVID -19 situation is going to stay for a while, and it seems that restoration of normal situation will take time and PP has requested to proceed with project verification as delay could have some financial implication on PP. Hence the site visit could not be postponed for this project activity.

However as per the COVID 19 Interim Measures by GS4GG, the VVB may use alternative measures for auditing like remote audits. As per para 4.1.1 (b) of COVID 19 Interim Measures, Verification team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of verification of the PA. Along with desk review, audit team has conducted remote audit interview corresponding to the PA as follows:

A complete desk review of the MR and supportive evidences have been checked by the verification team.

- Verification team has performed Skype/Whatsapp interview with CME and local stakeholders in order to check implementation, current situation, evaluation of data management, QA/QC system, project technology, training provided, monitoring, calibration etc. Interview questions were filled as per Verification team interview checklist. Cross checks between information provided by interviewed personnel (i.e. by checking sources) to ensure that no relevant information has been omitted.
- Verification team has performed interview with randomly selected Local stakeholders to check the monitoring of GS sustainable parameters like employment and training, environmental and other relevant issues.
- Cross-check evaluation, for information received from interviews, under the scope of all information and references provided in the MR and supporting documents.

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

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Chatora	Goodmore	Mozcarbon CEO	30/04/2020	Project implementation, Baseline emissions, ER calculations, Sustainable monitoring	Mr. Sukanta Das / Mr. Agustin Calle

					etc.	
2	Cumbana	Micas	Mozcarbon COO	30/04/2020	Stakeholder meeting-Soil Erosion if any, Standard of Livings etc.	Mr. Sukanta Das / Mr. Agustin Calle
3	Xerinda	Norato	Mozcarbon monitoring and certification manager	30/04/2020	Stakeholder meeting- Noise pollution if any, Standard of Livings etc.	Mr. Sukanta Das / Mr. Agustin Calle

Household samples checked during remote interviews by DOE (for the GS specific VPA):

As a part of GS project remote audit, VVB had interviewed 9 nos. of households from the host country (Mozambique) which comprises of VPA under current study.

S. No.	Stove Number	Name	Date
1	EA1H016606	Armando Batista Malandro	30/04/2020
2	EA1H018061	Martinha Mathusse	
3	EC1J015951	Nelio Samuel	
4	EA1H014772	Filita Wiliamo	
5	5106	Sara Antonio	
6	23222	Atalia Manhica	
7	22274	Inora Txometa	
8	21914	Udaka Azuka	
9	3912	Dora carlos Guana	

The objective of the remote audit is to:

- Confirm the implementation and operation of the project
- Review the data flow for generating, aggregating and reporting the monitoring parameters
- Confirm the correct implementation of procedures for operations and data collection
- Cross-check the information provided in the MR documentation with other sources
- Check the monitoring equipment against the requirements of the PoA-DD, VPA-DD and the approved methodology, including calibrations, maintenance, etc.
- Review the calculations and assumptions used to obtain the GHG data and ER
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters
- Confirm the SDG goals/ Sustainable monitoring parameter as per the registered PoA-DD
- To understand grievance (if any) from the villagers during the monitoring period

- Local stakeholder meeting details

2.4 Quality of evidences

Sufficient evidence covering the full verification period in the required frequency is available to verify the figures stated in the final MR Version 03. Specific cross-checks have been done in cases that further sources were available. The monitoring report's figures were checked by the assessment team against the raw data. The data collection system meets the requirements of the monitoring plan as per the methodology.

2.5 Reporting of findings

As an outcome of the verification process, the assessment team can raise different types of findings.

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

- Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

The assessment team shall raise a Clarification Request (CR) if information is insufficient or not clear enough to determine whether the applicable CDM/GS requirements have been met.

All CARs and CRs raised during verification shall be resolved prior to submitting a request for issuance.

Forward Action Requests (FARs) may be raised during verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period.

Please refer Appendix 1 of this report. Total Numbers of CARs: CAR: 13, CL: 04, FARs: 01

2.6 Internal Quality Control

As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the VVB's Technical Manager or the Deputy. This approval process also includes another quality assurance check in terms of Administrative Review. In case one of these two persons is part of the assessment team, the final approval can only be given by the

person who is not a part of the assessment team. If the documents have been satisfactorily approved, the Request for Issuance is submitted to the GS Registry along with the relevant documents.

3. VERIFICATION FINDINGS

3.1 FARs from Validation / Previous Verification

This is 2nd periodic verification for the project activity and One FAR was raised during the previously as a part of GS assessment which is applicable to this monitoring period as well and has been elaborated in Appendix 1 below.

Findings:

FAR 01 was raised and is elaborated in Appendix 1 below.

Opinion:

A FAR was raised in the last verification which is closed during the current verification.

3.2 Project Implementation in accordance with the registered Project Design Document

The project activity was fully implemented according to the description presented in the registered PDD. The assessment team confirms, through the visual inspection that all physical features of the proposed project activity including data collecting systems and storage have been implemented in accordance with the validated PDD.

Project Participants	Mozambique Carbon Initiative LDA
Title of project activity	Efficient and Clean Cooking for Mozambican Low-Income Households – George Dimitrov VPA 1
GS Registration No.	GS6155
Baseline monitoring and methodology	AMS-II.G. Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass, version 10.0
Project type	The purpose of this Small-Scale Project Activity (VPA) is the dissemination of improved cooking stoves (ICS)
Project scale	Small scale
Location of the project activity	Neighbourhood of 25 de Junho, Bagamoyo, George Dimitrov, Inhagoia, Inhagoia A, Nsalene, Magoanine A, Malhazine and Zimpeto (south) in Maputo, Mozambique
Project's crediting period	14/02/2017 to 13/02/2024 (1 st Crediting Period)
Total duration of the project	7 years (Renewable crediting period)

Period verified in this verification	01/01/2018 to 31/12/2019 (Inclusive of both days)
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As part of the remote audit interviews, the verification team was able to confirm that the project implementation is in accordance with the project description contained in the registered GS PoA-DD/CPA-DDs.

The purpose of this Small-Scale Project Activity (VPA) is the dissemination of improved cooking stoves (ICS) in the neighbourhood of 25 de Junho, Bagamoyo, George Dimitrov, Inhagoia, Inhagoia A, Nsalene, Magoanine A, Malhazine and Zimpeto (south) in Maputo, Mozambique. The Project Activity will replace conventional stoves using charcoal fuel with improved stoves using charcoal fuel. Stoves disseminated under this VPA are portable devices serving domestic users.

The project activity is implemented in line with the validated PoA-DD/CPA-DDs i.e. dissemination of charcoal based improved stoves in the host country of Mozambique to the households previously using the conventional stoves. In total 8,405 stoves are operational in this monitoring period and accordingly used for the emission reduction calculations. The total number of cook-stoves credited till the end of this monitoring period verified from stoves sale data base and found to be correct.

During this monitoring period, only improved charcoal stoves were distributed within the project boundary. The GHG offset during the current monitoring period is 46,597 tCO_{2e}.

During the remote inspection, the audit team checked the design and technology of stoves of different users, which are in line with the description provided in validated PoA-DD/CPA-DDs and technical drawing provided by the CME.

Monitoring procedure of GHG data is found sufficient and in accordance with the procedures stipulated under the registered monitoring plan.

Any Project Design Change been sought and approved by GS Secretariat for the project?	☒ Yes ☐ No	Change 1: The leakage calculation shall be done based on AMS-II G v.10.0 methodology, which means that a 5% of the total biomass savings shall be accounted as leakage. Change 2: There were two contradictory statements in relation to the lifespan of the ICS in the registered PoA and VPA1: • The range of the age and average lifetime of the equipment based on the manufacturer's specifications and industry standards which corresponds to 4 years • Based in the manufacturer's specifications, we accounted the lifespan to be of 3 years. Change 3: the programme includes several ICS models with different specifications and lifespans. Therefore, the corrected lifespans will be used for individual cookstove types based
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		on manufacturer specifications. The proposed design changes were approved by GS secretariate which was checked and confirmed.
Any Changes in the monitoring Plan	☒ Yes ☐ No	The Fraction of Non Renewable Biomass (fNRB) is indicated in the PoA-DD as a parameter to be monitored. The project developer pretend to move this parameter to be fixed ex-ante, taking into account that changes in biomass occur over a relatively long period thus, no need to annually be monitored. In this case, the fNRB value is determined once, thus no monitoring and recalculation of the fNRB value during the crediting period is required. The proposed monitoring plan change were approved by GS secretariate submitted through Design Change Review on 23/04/2021 which was checked and confirmed.
Any changes in the sustainable development monitoring plan?	☐ Yes ☒ No	N/A

The timeline of the project's implementation is as follows:

Milestone of the project activity	Timeline	Assessment by the verification team
Registration of the project activity under GS4GG Principles and Requirements version 1.2	13/02/2019	Date of registration confirmed with GS4GG registry and found to be correct. https://registry.goldstandard.org/projects/details/1084
Crediting period		
1 st Monitoring period	14/02/2017 to 31/12/2017	Verification team has verified same from the registered documents. Also, this monitoring period is within the first crediting period.

Assessment of actual emission reductions with the estimate emission reductions in PDD:

Estimated Emission Reduction as per registered PDD	44,622 tCO ₂ e As per PDD, 22,311 tCO ₂ e/year (see registered VPA1), which is extrapolated to the duration of this reporting period of 2 years, i.e. 22,311 tCO ₂ e/year x 2 years = 44,622 tCO ₂ e
Actual Emission Reduction for the monitoring period	46,597 tCO ₂ e
Is any increase of VERs occurred?	Yes
Reason for increase of VERs	The emission reductions achieved during this monitoring period are higher than the estimated in ex ante calculations, mainly because the number of ICS has further increased.

In summary, verification team confirms that actual emission reduction is higher than the estimate of the registered for the current monitoring period.

The ex-ante values defined for $N_{y,i}$ i. e. 'Number of project devices of type i and batch j operating during year y' and actual values during current monitoring period are as below,

Type of stove	Value in the PDD	Monitored value
Envirofit CH220 ICS	646	521
Envirofit Econochar ICS	5,048	3,905
Rocketworks ChaZama ICS	1,403	846
Mbaulta Poupa+	00	3,133
Total	7,097	8,405

Verification team considers the project and monitoring description of the project contained in the Monitoring report to be complete and accurate. The Monitoring report complies with the relevant methodology, tools, forms and guidance which are in line with that available in the registered documents (including PDD) with Gold Standard.

Finding:

CL 01 & 03, CAR 01, 02 & 04 were raised and elaborated in appendix 1 below. A FAR is raised which is also elaborated in appendix 1.

Opinion:

- a) In opinion of the assessment team the implementation and operation of the project activity is in compliance with the description in the VPA-DD version 3.0.
- b) There is a no revision in monitoring plan however, a post registration changes are applicable for the current monitoring period which were approved by GS secretariate.
- c) The actual emission reductions for the current monitoring period are 46,597 tCO₂e which are higher than the estimated ERs (44,622 tCO₂e) for the comparable period.

3.3 Compliance of the Monitoring Plan with the Monitoring Methodology

The verification team is able to confirm that the monitoring plan contained in the registered PoA-DD and VPA-DD are in accordance with the approved methodology applied by the project activity — AMS II.G, version 10.0.

During the verification all relevant monitoring parameters (as listed in the PDD) have been verified with regard to the appropriateness of the applied measurement/determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures.

The monitoring is in accordance with the applied methodology and has been carried out in accordance with the monitoring plan contained in the registered VPA-DD. Discussion regarding each parameter has been elaborated in the further sections of this report.

During the verification all relevant monitoring parameters (as listed in the MR) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures.

Finding:

No findings raised.

Opinion:

The monitoring plan mentioned is in line with the applied methodology i.e. — AMS II.G, version 10.0. The monitoring mechanism is in line with the methodology and is effective and reliable.

3.4 Completeness of Monitoring

The monitoring has been carried out in accordance with the monitoring plan contained in the PoA-DD and VPA-DD. During the course of verification, all relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement / determination method and applied QA/QC procedures. It is confirmed that the monitoring parameters have been measured / determined without material misstatements.

The verification team reviewed the actual monitoring during the skype interview and from document review and compared it against the requirements of the monitoring plan in the PDD /10/ and found in line.

The verification team assessed the monitoring techniques and each monitoring value in the monitoring report; and provided a short summary on the verification of every parameter listed in the monitoring plan and used for calculation of emission reductions.

a. Data and parameters fixed ex ante or at renewable of crediting period

S. No.	Ex-ante Parameter and unit	Description	Value	Consistent with the CPA-DD & the source mentioned in it
1.	Charcoal use per standard adult/day SDG 13	Where charcoal is used as the fuel by baseline (old) or project (new) devices, the quantity of woody biomass shall be determined by using a default wood to charcoal conversion factor of 6 kg of firewood (wet basis) per kg of charcoal (dry basis). Alternatively, credible local	Baseline = 0,74 kg; Project = 0,22 kg	The value is considered from baseline data as per the registered VPA. Hence, acceptable to the verification team.

		conversion factors determined from a field study or literature may be applied		
1.	$B_{old,p}$ tonnes/person/year SDG 13	Annual quantity of woody biomass that would have been used per person in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices	2.76	The value is considered from baseline data as per the registered VPA. Hence, acceptable to the verification team.
2.	$N_{p,HH}$ Number SDG 13	Average number of persons served per household prior to project Implementation	3.74	The value is considered from baseline data as per the registered VPA. Hence, acceptable to the verification team.
3.	$N_{d,HH}$ Number SDG 13	Number of project devices per household	1	Number of ICS distributed per household is limited to one under this ICS distribution programme. The distribution data is compiled in a database. Hence, acceptable to the verification team.
4.	$B_{old,HH}$ tonnes/household/year SDG 13	Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices	10.32	The value is Result of the multiplication of $B_{old,p}$ by $N_{p,HH}$. Hence, acceptable to the verification team.
5.	$B_{old,i,j}$ Tonnes/year SDG 13	Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type i and batch j	10.32	The value is Result of the $B_{old,HH}$ divided by $N_{d,HH}$. Hence, acceptable to the verification team.
6.	$\eta_{old,i,j}$ Fraction SDG 13	Efficiency of pre - project device, which is a three stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without	21.28%	The value is based on Water Boiling Tests conducted by the Biomass Energy Center of Testing (BECT) / GIZ / EnDev Mozambique, which is an accredited by the Clean Cooking Alliance ⁸ . The

⁸ <https://www.cleancookingalliance.org/technology-and-fuels/testing/centers.html>

		a grate or a chimney; may be optionally used. Use weighted average values (taking the amount of woody biomass consumed by each device as the weighting factor) if more than one type of device is being replaced		WBT procedures specified by the partnership for clean indoor air (PCIA) were applied: http://www.pciaonline.org/testing Hence, acceptable to the verification team.
7.	Life span Number of years SDG 13	The operating life time of the project device. The life span should be reported in cases where the PPs are opting to account the efficiency loss as per paragraph 25 of the methodology	Envirofit Econochar: 4 years Rocketworks Chazama: 5 years Envirofit CH2200: 5 years Mbaulta Poupa+: 5 years	The life span was fixed based on manufacturer's specifications. Hence, acceptable to the verification team.
8.	$f_{NRB,y}$ (Fraction) SDG 13	Fraction of woody biomass saved by the project activity during year y	0.91	The values were fixed at the time of validation of VPA-DD. The considered value is default value for country specific fraction of non-renewable woody biomass (f_{NRB}) value, available on the CDM website. Hence, acceptable to the verification team.

The values of ex-ante fixed parameters have been verified from the respective VPA-DD. The verification team confirms that the values used/applied are correct and justified. Also, the ex-ante values have been correctly applied in the calculation of emission reductions.

Finding:

CAR 06, 07 & 08 raised and are elaborated in appendix 1 below.

Opinion:

During the verification all monitoring parameters listed in Section D.2 of MR were compared with monitoring parameters and the monitoring plan of the registered VPA-DD and have been verified with regard to the:

1. appropriateness of the applied measurement / determination method,
2. the correctness of the values applied for ER calculation,
3. the accuracy, and applied QA/QC measures.

b. Data and parameters monitored

Relevant SDG Indicator	SDG #13												
Data/parameter:	$N_{y,i,j}$												
Unit	-												
Description	Number of project devices of type i and batch j operating during year y.												
Measured/calculated/default	Measured												
Source of data	Measured directly or based on a representative sample. Sampling standard is used for determining the sample size to achieve 90/10 confidence precision. A discount is applied based on the percentage of devices operational as determined by the sample survey e.g. if survey shows that 10% of the devices is non-operating, an adjustment factor of 0.9 is applied to number of project devices commissioned in a particular batch. Separate samples were taken for each batch.												
Value(s) of monitored parameter	<table border="1"> <thead> <tr> <th>Type</th><th>$N_{y,i,j}$</th></tr> </thead> <tbody> <tr> <td>Envirofit Econochar</td><td>3,905</td></tr> <tr> <td>Rocketworks Chazama</td><td>846</td></tr> <tr> <td>Envirofit CH2200</td><td>521</td></tr> <tr> <td>Mbaulta Poupa+</td><td>3,133</td></tr> <tr> <td>TOTAL</td><td>8,405</td></tr> </tbody> </table> Values cross checked with ER spreadsheet (workbook-'Merged')	Type	$N_{y,i,j}$	Envirofit Econochar	3,905	Rocketworks Chazama	846	Envirofit CH2200	521	Mbaulta Poupa+	3,133	TOTAL	8,405
Type	$N_{y,i,j}$												
Envirofit Econochar	3,905												
Rocketworks Chazama	846												
Envirofit CH2200	521												
Mbaulta Poupa+	3,133												
TOTAL	8,405												
Monitoring equipment	-												
Measuring/reading/recording frequency:	At least once every two years (biennial)												
Calculation method (if applicable):	-												
QA/QC procedures:													
Cross Checks	Cross-checks with sales contracts												

Relevant SDG Indicator	SDG #13
Data/parameter:	H_y
Unit	Fraction
Description	Adjustment to account for any continued use of pre-project devices during the year y
Measured/calculated/default	Measured

ult	
Source of data	Surveys designed to capture the cooking habits and stove usage of households in the region, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices.
Value(s) of monitored parameter	0.806
Monitoring equipment	-
Measuring/reading/recording frequency:	At least once every two years (biennial). In this case annual surveys are conducted.
Calculation method (if applicable):	Calculated based on the data from the survey: Number of meals cooked with the ICS per week divided by the total number of meals cooked per week checked from the Usage surveys submitted by CME
QA/QC procedures:	-
Cross Checks	-

Relevant SDG Indicator	SDG #13
Data / parameter:	
Unit	Fraction
Description	Efficiency of the device of each type <i>i</i> and batch <i>j</i> implemented as part of the project activity.
Measured/calculated/default	Measured
Source of data	Water Boiling Tests conducted by the Biomass Energy Center of Testing (BECT) / GIZ /EnDev Mozambique, which is an accredited by the Clean Cooking Alliance ⁹ which were checked to confirm the values mentioned.
Value(s) of monitored parameter	Envirofit CH2200: 33.09% Envirofit Econochar: 37.23% Rocketworks ChaZama: 36.83% Mbaula Poupa+: 30.47%
Monitoring equipment	Water Boiling Tests applying the WBT procedures specified by the partnership for clean indoor air (PCIA): http://www.pciaonline.org/testing . The procedures mentioned on the website were cross checked to confirm that same were followed by WBT conducting agencies as evident through the reports submitted.
Measuring/reading/recording frequency:	(i) Recorded at the time of commissioning/distribution (ii) Adjusted for the loss if efficiency as paragraph 25 of the AMS-II.G: methodology.

⁹ <https://www.cleancookingalliance.org/technology-and-fuels/testing/centers.html>

Calculation method (if applicable):	-
QA/QC procedures:	Water Boiling Tests applying the WBT procedures specified by the partnership for clean indoor air (PCIA): http://www.pciaonline.org/testing
Cross Checks	-

Relevant SDG Indicator	SDG #13
Data/parameter:	<i>NCV_{biomass}</i>
Unit	TJ/tonne
Description	Net calorific value of the non-renewable woody biomass, briquettes or charcoal used in project devices.
Measured/calculated/default	Default
Source of data	IPCC default for wood fuel, 0.015 TJ/tonne, based on the gross weight of the wood that is 'air-dried' may be used if fuel used in project device is also woody biomass. If fuel used in the project device is charcoal, 0.029 TJ/tonne may be used.
Value(s) of monitored parameter	0.029
Monitoring equipment	-
Measuring/reading/recording frequency:	Yearly
Calculation method (if applicable):	-
QA/QC procedures:	-
Cross Checks	-

Relevant SDG Indicator	SDG #13
Data/parameter:	Date of commissioning of project device i
Unit	Date
Description	Actual date of commissioning of the project device.
Measured/calculated/default	Measured
Source of data	Internal records
Value(s) of monitored parameter	Worksheets – '2016', '2017', 'Mbaulta 2019' of ER calculation
Monitoring equipment	Fixed and recorded at the time of commissioning/distribution
Measuring/reading/recording	-

ing frequency:	
Calculation method (if applicable):	-
QA/QC procedures:	-
Cross Checks	Cross-check with sales contracts

Relevant SDG Indicator	SDG #13
Data/parameter:	Date of commissioning of project batch i
Unit	Date
Description	Actual date of commissioning of the project device.
Measured/calculated/default	Measured
Source of data	Internal records
Value(s) of monitored parameter	See ER calculation sheet
Monitoring equipment	Fixed and recorded at the time of commissioning/distribution
Measuring/reading/recording frequency:	-
Calculation method (if applicable):	-
QA/QC procedures:	-
Cross Checks	Cross-check with sales contracts

Relevant SDG Indicator	SDG #13
Data/parameter:	Number of people trained to promote the ICS and for monitoring purposes.
Unit	Number
Description	Improvement of institutional capacity on climate change mitigation through training of people to promote ICS.
Measured/calculated/default	Measured
Source of data	Assistance lists. The number of persons attending training sessions are recorded on a continual basis as and when trainings occur. The names of all attendees are recorded and filed for reporting during annual monitoring.
Value(s) of monitored parameter	178
Monitoring equipment	-
Measuring/reading/record	-

ing frequency:	
Calculation method (if applicable):	-
QA/QC procedures:	-
Cross Checks	-

Relevant SDG Indicator	SDG #1
Data/parameter:	Share of users that perceive a reduction of charcoal consumption
Unit	%
Description	Share of users that perceive a reduced charcoal consumption that result in financial savings related to ICS usage
Measured/calculated/default	Measured
Source of data	Socio-economic survey conducted during ICS monitoring visits. Data collected through monitoring survey. People are asked about amount of charcoal consumed when using the ISC compared to the baseline stoves. From the surveys conducted in 2019, 93.9% of the interviewed households stated a reduction in the fuel consumption and associated expenditures for charcoal for cooking.
Value(s) of monitored parameter	93.9%
Monitoring equipment	-
Measuring/reading/recording frequency:	-
Calculation method (if applicable):	
QA/QC procedures:	-
Cross Checks	-

Relevant SDG Indicator	SDG#1
Data/parameter:	Number of staff hired to implement the project activities
Unit	Number
Description	The project proponent must provide the staff with the contracts, Social Security System, which includes health, pensions and labor risks.
Measured/calculated/default	Measured

Source of data	Staff contract documents, social security payments, insurance payments
Value(s) of monitored parameter	115 Project support (headquarters) – 19 Credit Assistants – 10 Sales promoters - 86
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	-
QA/QC procedures:-	-
Cross Checks	

Relevant SDG Indicator	SDG #3
Data/parameter:	Share of users that perceive a reduced smoke inside the house
Unit	%
Description	Share of users that perceive a reduced amount of smoke inside the house that result in improved living conditions and contribute to a reduction or mortality rates attributed to chronic respiratory disease and household and ambient air pollution.
Measured/calculated/default	Measured
Source of data	Socio-economic survey conducted during ICS monitoring visits. Data collected through monitoring survey. People are asked about the amount of smoke inside the house when using the ISC compared to the baseline stoves. From the surveys conducted in 2019, 90.6% of the interviewed households perceived a reduction of smoke inside the house.
Value(s) of monitored parameter	90.6%
Monitoring equipment	-
Measuring/reading/recording frequency:	-
Calculation method (if applicable):	-
QA/QC procedures:	-
Cross Checks	-

The verification team confirms;

- a) The monitoring plan implemented is in line with monitoring plan included in approved PDD.
- b) The monitoring complies with the requirement of the applied methodology.
- c) The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the approved PDD.
- d) The values included in the monitoring report and corresponding emission reduction sheets are verified, cross checked and included under each monitoring parameter, wherever appropriate
- e) The findings relevant to each parameter, wherever appropriate are discussed in detail in Appendix 1 of this report.

In summary, the verification team confirms that all the ex-post parameters are monitored in accordance with the approved monitoring plan and applied methodology.

Finding:

CAR 09, CAR 11 & 12 were raised and are elaborated in appendix 1 below.

Opinion:

The adequacy and compliance of the monitoring plan in the Monitoring report was found as per the requirements laid by the monitoring methodology and the validated PoA-DD/CPA-DD. The information flow (from data generation, aggregation, to recording, calculation and reporting) is already included under respective parameter above.

The verification team has verified all the data and collected evidence as per the required monitoring frequency and found to be correct and appropriate meeting the requirements of the applied methodology and registered PoA-DD.

c. Implementation of sampling plan

A single sampling was undertaken by CME which is as per Guideline: Sampling and surveys for CDM project activities and programmes of activities" (version 4.0). In line with the applied guideline, CME has chosen to apply 90 per cent confidence interval and a 10 per cent margin of error which is appropriate in line with para 90 (c). An approach selected by CME for development of sampling plan was checked based on the supporting documents submitted and found appropriate.

Surveys

The surveys were undertaken in March 2019 by the CME under the supervision of the Monitoring and Certification Manager Norato Xerinda.

The field surveys were conducted randomly using the standard questionnaire. The "Random" function of MS Excel was used to generate random numbers for each stove serial number from the database. The numbers generated were then sorted from lowest to highest and the sequence of first 278 households was used to conduct the survey in the field. Selected households are under "Sampled Households" tab in the excel file VPA1_Random_Households.

The resulting information was organised in a digital database to derive statistical data and results as per the monitoring plan.

DOE sampling:

As the CME has applied PoA level sampling approach and same samples for all the monitoring parameters, hence the DOE applied the acceptance sampling in accordance with the paragraph 27-33 of the “Standard: Sampling and surveys for CDM project activities and programme of activities, version 09”. The verification team carried out the random sampling from the CME’s sample records and checked (using its professional judgment) the acceptability of the data for each record in the CME’s sample records. The DOE has determined acceptance sample size based on the “Table. Sample size and acceptance number based on AQL, UQL, and producer and consumer risks” of standard “Sampling and surveys for CDM project activities and programme of activities” version 09.0.

During the remote audit verification, a random sampling approach has been used by the verification team to verify the reported values for the monitored parameters MR which are determined through sample survey by CME.

For the determination of DOE’s acceptance sample size, verification team has selected the following using its professional judgment:

1. Acceptable quality level (AQL) – 0.5%
2. Unacceptable Quality Level (UQL) – 20%
3. Producer risk -5%
4. Consumer risk -15%

Verification team has determined acceptance sample size for all the sample survey parameters based on the “Table. Sample size and acceptance number based on AQL, UQL, and producer and consumer risks” of standard “Sampling and surveys for CDM project activity and programme of activities” version 09.0. From the above factors, the verification team determined the minimum sample size (n) as 09 and acceptance number (c) as 0. The sample size used to verify the reported values for the monitored parameters which are determined through sample survey by CME. The DOE interviewed the improved charcoal stove users and filled the DOE survey form to check the acceptability of the data for each record in the CME’s sample records. The actual number of sample size where the acceptance survey was done given below:

Parameters	Total Population	CME’s sample size	Sampling method used
Monitoring parameters as per section E.2 of the MR	Total households using improved stoves: 8,424	278	Acceptance Sampling based on random selection of households.

Using acceptance sampling approach, verification team checked the CME’s samples results (reported in the Monitoring forms) along with the following evidences:

1. Remote audit inspection/interview
2. CME household database

3. Database of all project participating households using the various technologies as per the ER sheet
4. Thermal capacity/thermal efficiency of the stoves from stove supplier/determined from qualified laboratory.
5. Shipping details of various technologies used by project participating households

Following the requirement of the paragraph 28 of the Standard *"Sampling and surveys for CDM project activities and programmes of activities" version 09.0*, the acceptability of data in the random sample chosen from the CME's sample records was determined. Based on the number of records where there was agreement, it was determined whether the CME's sample records meet the requirements. The acceptability of the data was based on the DOE's professional judgement in line with the para 28 of the Sampling Standard.

All the data records for the 3 parameters ($N_{y,I,j}$, $u_{y,n_{new,I,j}}$) were in agreement with CME's sample records, and no discrepant records was found from the CME's records.

Since no discrepant records were found, therefore, the CME's set of records have been accepted based on the acceptance sampling. This is in line with the paragraph 32 of *Standard "Sampling and surveys for CDM project activities and programmes of activities" version 09.0* and found acceptable.

Finding:

CL 04, CAR 10 & 13 are raised and are elaborated in appendix 1 below.

Opinion:

- a) In the opinion of assessment team, the implementation and operation of the project activity is in compliance with the description in the validated PoA-DD/VPA-DD.
- b) The actual emission reductions for the current monitoring period are 46,597 tCO₂e which are higher than the estimated ERs (44,622 tCO₂e) for the comparable period.

The verification team along with remote assessment, objective evidence collection, data generation and recording analysis also considered the views obtained in these interviews while arriving at Verification Opinion.

d. Compliance with the calibration frequency requirements for measuring instruments

Not Applicable as there are no measuring instruments used during the monitoring period.

3.5 SDG Outcomes Monitoring

For Contributions to Sustainable Development

The verification team checked the sustainable development indicator parameters during the remote audit interviews.

In Summary, it is Applus+ Certification's opinion that the monitoring of the project owner regarding to sustainability is in line with requirement of the GS4GG guideline.

As per the sustainability monitoring plan in the approved PDD, verification team evaluated all sustainable development indicators as followed in the table:

Item	Baseline estimate	Project estimate	Net benefit
SDG 1 Poverty reduction: Households that observed reduction of fuel consumption and associated expenditures for Charcoal for cooking.	0%	93.9%	93.9%
SDG 1 Poverty reduction: Number of staff hired to implement the project activities	0	115	115
SDG 3 Good health and wellbeing: Households that observed reduced smoke inside the house	0%	90.6%	90.6%
SDG 13 GHG emission reductions	234,408 tCO ₂ e	185,421 tCO ₂ e	46,597 tCO ₂ e
SDG 13 Number of persons trained and capacity building for distributing and assembling clean cook stoves	0	178	178

Comparison of actual value of outcomes with estimates in approved VPA DD.

Item	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period
SDG 1 Poverty reduction: Households that observed reduction of fuel consumption and associated expenditures for Charcoal for cooking.	94.3%	93.9%
SDG 1 Poverty reduction: Number of staff hired to implement the project activities	0	115
SDG 3 Good health and wellbeing: Households that observed reduced smoke inside the house	92.7%	90.6%
SDG 13 GHG emission reductions	49,190 tCO ₂ e	46,597 tCO ₂ e

SDG 13 Number of persons trained and capacity building for distributing and assembling clean cook stoves	0	178
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The adequacy and compliance of the monitoring plan in the Monitoring report was found as per the requirements laid by the approved GS4GG PDD. The information flow (from data generation, aggregation, to recording, calculation and reporting) is already included under respective parameter above. The verification team has verified all the data and collected evidence as per the required monitoring frequency and found to be correct and appropriate meeting the requirements of the applied methodology and registered PDD.

As a part of continuous feedback from stakeholders, the complaints and suggestions book at Sales office, Avenida Nelson Mandela, Maputo, Mozambique. People can register their comments or suggestions/questions using the book available in the field and main office of MozCarbon. Staff will process the information and take actions where needed. Further telephone numbers are stamped on receipt forms so that stove users can call project personnel.

Verification team confirmed during remote audit that during the current monitoring period, no comments/feedbacks were received from the local stakeholders except for regular maintenance issues.

Finding:

CAR 05 was raised and is elaborated in appendix 1 below.

Opinion:

In Summary, it is Applus+ Certification's opinion that the monitoring regarding to sustainability is in line with requirement of the GS4GG guideline.

3.6 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

As a result of verification of the ER calculation process, the assessment team confirmed that all the parameters required for the determination of the emission reductions have been included in the Monitoring report Version 01 & Monitoring report Version 05 and corresponding ER calculation spreadsheets and are consistent with the applied methodology AMS II.G, version 10.0 and the monitoring plan contained in the registered PDD. The parameters are complete in this monitoring period.

After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the Monitoring Report Version 05 and corresponding ER calculation spreadsheets. The verification process for the same has been clearly described in above section of the report. See below for the detailed data:

For SDG 13:

$$\begin{aligned}
 BE_y &= B_{old,HH} \times N_{dHH} \times NCV_{biomass} \times EF_{woody\ biomass} \times N_{y,i} \times \mu_y \\
 &= 234,408 \text{ tCO}_2e
 \end{aligned}$$

$$\begin{aligned} LE_y &= B_{y,savings} \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossilfuel} \times N_{y,i} \times \mu_y \times 0.05 \\ &= 2,330 \text{ tCO}_2e \end{aligned}$$

$$PE_y = BE_y - ER_y - LE_y = 235,084 - 46,597 - 2,338 = 185,481 \text{ tCO}_2e$$

Hence,

$$ER_y = 46,597 \text{ tCO}_2e$$

Finding:

No findings raised.

Opinion:

The verification team confirms that data used and calculation of emission reduction are mentioned correctly and are in line with the registered monitoring plan mentioned in the VDPA DD.

3.7 Management and Operational System

The responsibilities of data measurement, collection, verifying, archiving etc. have been clearly defined in the approved PDD. The same practice is followed and it is confirmed by the assessment team during the remote audit. The data related to ER calculation as well as data monitoring, collection process etc. have been internally reviewed by the management of the Monitoring team regularly. The responsibility of each function is consistent with the monitoring plan in the registered PDD.

The information flow of each parameter has been verified by the assessment team via interviewing with responsible personnel.

It's verified during the remote audit assessment, the monitoring procedure as well as the internal quality management and control procedures are stipulated in the PDD. The monitoring personnel have been interviewed by the assessment team and it's confirmed that the monitoring is implemented as per the procedure. Also, the training record (training register and attendance sheet) has been checked by the assessment team and it is confirmed that the monitoring personnel are sufficiently train to perform the monitoring.

Finding:

CAR 03 was raised and elaborated in appendix 1 below.

Opinion:

All the data and documents, either hard copies or soft copies, will be kept for two years after the end of the last crediting period or the last issuance of GS VERs for this Project, whichever occurs later.

4. REFERENCE

No.	Author	Title	References to the document	Provider
1.	NA	Initial monitoring report	Version 01 dated 22/03/2020	CME
2.	NA	Final monitoring report	Version 06 dated 26/06/2022	CME
3.	NA	Emission reduction Sheet	Version 01 dated 22/03/2020	CME
4.	NA	Emission reduction Sheet	version 03 dated 17/02/2022	CME
5.	NA	PoA DD (Ref. ID 5562)	version 04 dated 14/04/2021 https://platform.sustain-cert.com/public-project/1058	GS4GG
6.	NA	VPA DD (Ref. ID 6155)	version 02 dated 04/04/2019 https://platform.sustain-cert.com/public-project/1178	GS4GG
7.	NA	Actual geo-coordinates	Google map software	
8.	NA	Water Boiling Test records		CME
9.	NA	Manufacturer's technical specifications for improved cook stoves		Cookstove manufacturer
10.	NA	Training records		CME
11.	NA	EHS Policy		CME
12.	NA	GS Validation Reports for PoA and VPA 01	For PoA: https://platform.sustain-cert.com/public-project/1058 For VPA 01: https://platform.sustain-cert.com/public-project/1178	GS4GG
13.	NA	AMS II.G, version 10.0	https://cdm.unfccc.int/methologies/DB/10PELMPDW951SVSW1B2NRCQEBAX96C	UNFCCC
14.	NA	CDM VVS version 03 for the project activities	https://cdm.unfccc.int/Reference/regulatory_revision/olddocs.html	UNFCCC
15.	NA	GS4GG Rules & Requirements • Programme of Activity	https://www.goldstandard.org/project-developers/standard-documents	GS4GG

No.	Author	Title	References to the document	Provider
		Requirements 1.2 - Gender Equality Requirements & Guidelines, version 1.1 - Stakeholder Procedure, Requirements & Guidelines, version 1.2 - Safeguarding Principles & Requirements, version 1.2 - COVID 19 Interim Measures - Report templates		
16.	NA	Employment records		CME
17.	NA	UN Sustainable development goals	https://www.un.org/sustainabledevelopment/sustainable-development-goals/	UN
18.	NA	Standard "Sampling and surveys for CDM project activities and programme of activities" version 09	https://cdm.unfccc.int/Reference/regulatory_revision/olddocs.html	UNFCCC
19.	NA	Guidelines for sampling and surveys for CDM project activities and programme of activities version 04	https://cdm.unfccc.int/Reference/regulatory_revision/olddocs.html	UNFCCC
20.	NA	Sample monitoring survey forms		CME
21.	NA	Monitoring procedure as per Programme management manual		CME
22.	NA	Organizational structure		CME
23.	NA	Baseline survey and forms		CME
24.	NA	Households database for the PoA		CME
25.	NA	Remote assessment records for the current monitoring period VVB sampling records	NA	VVB
26.	NA	CDM Executive Board announcement to relax mandatory site visits by designated operational entities (DOEs) till 31 June 2022 due to the continuing COVID-19 pandemic		UNFCCC

No.	Author	Title	References to the document	Provider
27.	NA	GS4GG design change dated 23/04/2021		GS4GG

5. FINAL VERIFICATION STATEMENT

Applus+ Certification has been engaged by Mozambique Carbon Initiatives Lda. to perform the 2nd periodical verification of the "Efficient and Clean Cooking for Mozambican Low-Income Households – George Dimitrov VPA 1"

The management of Mozambique Carbon Initiatives Lda. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring Plan in the registered PDD Ver. 02 and the applied methodology AMS II.G, version 10.0.

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board and Gold Standard. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is operated as planned and described in the approved GS4GG project design document;
- the monitoring plan is as per the applied methodology;
- the monitoring in Monitoring Report is as per the PDD and the monitoring plan approved by GS4GG;
- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

In our opinion, the GHG emission reductions for "Efficient and Clean Cooking for Mozambican Low-Income Households – George Dimitrov VPA 1" for the monitoring period 01/01/2018 to 31/12/2019 (Both days included) as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: 01/01/2018 to 31/12/2019 (Both days included)

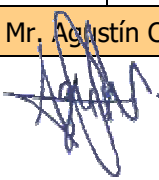
Verified emissions in the above reporting period:

Leakage emissions	2,330 tCO ₂ e
Project emissions	185,481 tCO ₂ e
Baseline emissions	234,408 tCO ₂ e
Emission reductions	46,597 tCO ₂ e

Date: 27/06/2022
Lead Auditor: Mr. Pankaj Kumar
Tech. Expert: Mr. Agustin Calle de Miguel
Tech. Reviewer: Mr. Miguel Cortes

Approver (*Applus+ Certification VVB Technical Manager*)

Mr. Agustín Calle de Miguel

ASSESSMENT TEAM	
Lead Auditor: Mr. Pankaj Kumar	Technical Reviewer: Mr. Miguel Cortes
Signature: 	Signature: 
Approver: Mr. Agustín Calle de Miguel	
Signature: 	

Appendix 1: Corrective Action Request/Clarification Request/Forward Action Request resolution table

Table 1 Remaining FAR from validation and/or previous verifications

FAR ID	01	Previous Verification Report	Date: 03/09/2019
Description of FAR			
PP to clarify, if the cook stoves of more than 03 years old are not replaced and still kept in use, 1) how the efficiency of the cook stove is ascertained and 2) how the operational cook stoves (i.e., old) will be monitored and taken into account in ER Calculations			
Project participant response			Date: 04/07/2020
As per the design change, the lifespan of individual stoves is not 3 years, but depends on the individual model: Envirofit Econochar 4 years Rocket works Chazama 5 years Envirofit CH2200 5 years Mbaulta Poupa+ 5 years 1) the loss in efficiency of the project devices is accounted for as per the registered PoA/VPA (default schedule of linear decrease in efficiency up to the terminal efficiency of 20%). See columns AO to AU in the calculation sheet in tab "Merged" 2) the distribution date/operational start date of each project device is registered in the database. Further, the replacement or retirement date is also registered. The calculation sheet takes into account the exact starting date and replacement/retirement dates. Also, ER generation is allowed up to lifespan, which is also reflected in the database. The annual loss of efficiency is also reflected. See columns C to O of the calculation sheet ("Merged").			
Documentation provided by project participant			
Updated calculation sheet			
VVB assessment			Date: 24/07/2020
PP has applied for design change related to stove life span and the same is now reflected in the revised MR. The same is checked and found correct by the assessment team. 1. The loss in efficiency is accounted in the column AO to AU. The same is checked and found correct. 2. The ER generation is allowed up to the lifespan and the same is acceptable to the assessment team. Hence, FAR for the present verification is closed.			

Table 2. CL from this verification

CL ID	01	Date: 25/05/2020
Description of CL		

The Monitoring Report proposed for verification, as well as the GS4GG Transition Annex for the VPA 01 and the VPA-DD establish that the areas of implementation will be limited to the following: *"territorial area of 25 de Junho, Bagamoyo, George Dimitrov, Inhagoia, Inhagoia A, Nsalene, Magoanine A, Malhazine and Zimpeto (south) neighbourhoods in Maputo, Mozambique"*.

However, the VVB notes that the user's database provided for verification includes different neighborhoods like: Kumbeza; Z. Verde; Intaka; Ndavela; Magoanine B; Magoanine C; Albazine; among others.

The CME is requested to clarify the implementation areas of the VPA 01 as per the limited geographical implementation area referred in the aforementioned base documents of the VPA 01.

Project participant response	Date: 04/07/2020
All stoves in other neighbourhoods were excluded as per the definition of the areas of VPA1. The emission reductions calculations and other relevant numbers were updated.	
Documentation provided by project participant	
Updated calculation sheet and monitoring report	
VVB assessment	Date: 24/07/2020
The other neighbourhood which are not the part of present verification are now deleted from the database.	
Hence, the CL is closed.	

CL ID	02	Date:25/05/2020
Description of CL		
The CME is requested to clarify the following issue regarding the monitoring survey:		
- The Monitoring Report states in Section D.3. that the sampling has been conducted randomly, however, there is no explanation about how has been determined which HHs are going to be part of the sample. Clarification regarding the procedure for the determination of the HHs in which the sampling has been conducted is sought.		
Project participant response		Date:04/07/2020
The "Random" function of MS Excel was used to generate random numbers for each stove serial number from the database. The numbers generated were then sorted from lowest to highest and the sequence of first 278 households was used to conduct the survey in the field. Select households are under "Sampled Households" tab in the excel file VPA1_Random_Households.		
Documentation provided by project participant		
Excel file "VPA1_Random_Households"		
VVB assessment		Date:24/07/2020
The procedure is acceptable to the DOE.		
However, the CME is kindly requested to clarify the same along the described sampling process in the MR in order to close this CL, as no clarification has been added in revised MR.		
Hence, CL remains open.		
Project participant response		Date:20/08/2020

Included in section "surveys"	
Documentation provided by project participant	
See updated MR	
VVB assessment	Date: 21/09/2020
The explanation now forms the part of the revised MR. CL is closed.	

CL ID	03	Date: 25/05/2020
Description of CL		
During the Desk Review it was observed that SDG 15 is included in the GS website, however, the CPA documents and the Monitoring Report do not make mention to the SDG 15.		
The CME is requested to clarify this inconsistency.		
Project participant response		Date: 04/07/2020
This was an error on the GS website. This has already been corrected and SDG15 removed on the GS website.		
Documentation provided by project participant		
N/A		
VVB assessment		Date: 24/07/2020
As the error is now rectified in the GS website regarding SDG 15, this is found acceptable.		
Hence, the CL is closed.		

CL ID	04	Date: 25/05/2020
Description of CL		
During the VVB's sampling process and interviews to the households and ICS users, has been detected that there is an inconsistency between the information recorded in the User's Database and the information compiled during the interviews to Ms. Eunicia Jaime.		
The inconsistencies are of the following type:		
1. The stove ID recorded in the database is not consistent with the stove ID as shown in the pictures attached with the recorded interview. 2. The stove ID recorded in the provided sales agreement between Mozcarbon and the ICS user is not consistent with the stove ID as shown in the pictures attached with the recorded interview. 3. The stove model of the pictures attached to the recorded interview is not consistent with the stove model as recorded in the users' database. 4. The sale date of the sales agreement between Mozcarbon and the ICS user is not consistent with the sale date as recorded in the users' database.		
The CME is requested to clarify the same.		
Project participant response		Date: 04/07/2020
1. An incorrect picture of another visited (but not interviewed) household was attached by mistake. This house is of the user with stove serial number EA1H016555. 2. The above and the below explains the situation indicated. 3. The interviewee (Eunicia Jaime) bought two stoves (one Econochar and a Rocket Works she offered to her brother) living side by side. Since she bought two stoves, one was		

eliminated from the database to avoid conflicts as per the distribution rule, where only one stove is allowed for distribution in the household. The field team ended up interviewing a user (Eunicia Jaime) with an Econochar which is not recorded in the database.

4. The date of the sale recorded in the database is of the Rocket Works stove purchased by Eunicia Jaime with a serial number 4710. Since the other stove purchased in 20/10/2016 was eliminated from the database, it explains the inconsistency in dates.

The household of Eunicia Jaime was not part of the sample to be interviewed provided by Applus. We just interviewed as possible additional information. In this case, it can be eliminated from the audit procedures.

Documentation provided by project participant

Pictures Stoves Eunicia Jaime

VVB assessment

Date: 24/07/2020

As per CME clarification, the picture provided is from another different household. The interviewee (Eunicia Jaime) bought two stoves (one Econochar and a Rocket Works she offered to her brother) living side by side. Since she bought two stoves, one was eliminated from the database to avoid conflicts as per the distribution rule, where only one stove is allowed for distribution in the household. The field team ended up interviewing a user (Eunicia Jaime) with an Econochar which is not recorded in the database.

Regarding the status and inclusion of this sample, the VVB would like to remark that once the inconsistency and sample has been analysed and recorded in finding's list, it is not suitable to be eliminated from the audit process. The interview to Ms. Eunicia Jaime was done in substitution of non-interviewed HHs and needed to complete the minimum number of samples to be analysed in the 1st round of interviews. The additional HHs were interviewed after the inconsistency was found in the Ms. Eunicia Jaime's records when the original selected HHs were available for conducting the interview.

Anyway, the VVB considers that the inconsistency found is not materially affecting the results of the verification in terms of calculation of emission reductions, and can be suitable to be disregarded in terms of a sampling inconsistency in line with the UNFCCC CDM Standard for Sampling and Surveys version 08.0 Paragraphs 34 and 35, hence can be reclassified as non-discrepant record in this sense once has been corrected.

Once this has been clarified, the result of the sampling exercise and its findings are now contained in CAR 13.

Hence, the CL is closed.

Table 3. CAR from this verification

CAR ID	01	Date: 25/05/2020
Description of CAR		

During this monitoring period, an average of 7,611 ICS were operational, resulting in energy savings of approximately 90.6 MWh/yr. The detailed energy savings' calculation were not submitted to the VVB.

Corrective action is sought for the same.

Project participant response	Date: 04/07/2020
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The calculation is in the Excel in cell I11107 (on the bottom of the table). The energy savings per stove are 11,903 kWh/yr based on the values in the registered PoA.

Documentation provided by project participant

Calculation sheet (Excel)

DOE assessment	Date: 24/07/2020
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The calculations have been found in the ER revised sheet in row 10452 and this is acceptable.

However, the CME is still requested to maintain consistency between the values reflected in the ER sheet and the MR.

Hence, the CAR remains open.

Project participant response	Date: 20/08/2020
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MR updated with the final values.

Documentation provided by project participant

Calculation sheet (Excel) and updated MR

DOE assessment	Date: 21/09/2020
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The final value is now updated in the revised MR. **CAR is closed**

CAR ID	02	Date: 25/05/2020
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Description of CAR

During the desk review is noted that the CME proposes Post registration changes of the type Corrections for the VPA. However, the change is considered to be design change and not correction because the change is in stove lifetime. Para 16 of design change under PoA rule under GS4GG is not fulfilled.

Moreover, the VVB notes that the Monitoring Report in the section for the Post Registration Changes (among others) refers to the application of the AMS-II.G., section 5.4, paragraph 34 to account for leakages, however, the applied version of the mentioned methodology provides a different approach to account for leakages when the project is under a programme of activities as stated in Paragraph 43 of the latter.

Corrective action is sought for the same.

Project participant response	Date: 04/07/2020
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Approach as per paragraph 43c) has been applied in the updated MR. The approach is the same with a 0.95 default factor.

The MR was updated to include the changes in the section B.2.5

Documentation provided by project participant

Updated MR

DOE assessment	Date: 24/07/2020
The updated approach as per the respective para of the Meth is now corrected. The changes now forms the part of design change under PRC. The same is acceptable. Hence, CAR is closed.	

CAR ID	03	Date: 25/05/2020
Description of CAR		
During the Desk Review it was observed that training was provided to all the monitoring staff before the commencement of monitoring works, to ensure the project participants' ability to implement the described monitoring plan, in order to ensure monitoring rigor and quality as well as minimal refusals or biases. The training records are not submitted to the assessment team. Moreover, sample training records for stove promoters willing to take part in the SSC-VPA to make them aware of the rules of the Gold Standard and SSC-PoA and their requirements in terms of distribution and data collection are not submitted to the assessment team. Corrective action is sought for the same.		
Project participant response		Date: 04/07/2020
See attendee lists "Monitoring Training 2018.pdf", "Monitoring Training 2019.pdf" and supporting documents in "Sales trainings 2018-2019"		
Documentation provided by project participant		
Attendee lists "Monitoring Training 2018.pdf", "Monitoring Training 2019.pdf" and supporting documents in "Sales trainings 2018-2019"		
DOE assessment		Date: 24/07/2020
The VVB can confirm that the following trainings have been provided: - 2018, 18 persons trained for monitoring surveys. - 2019, 30 persons trained for monitoring surveys. - Training for promoters provided on 08/02/2018; 28/12/2018; 22/01/2019; and 12/07/2019. The VVB has also checked the pictures and the list of attendants to each of the trainings, as well as the materials for providing the training (promoters' presentation) and considers it consistent and acceptable. However, the VVB notes that while the MR provides an achieved number of 8 trained persons, the trainings provided either for monitoring surveys or promotion of the programme is much higher than that. CME to clarify the value of 8 people trained for this Monitoring Period. Hence, the CAR remains open.		
Project participant response		Date: 20/08/2020
The SDG indicator refers to people trained for "distributing and assembling clean cookstoves". There were 8 people trained for assembly of stoves including repairs and maintenance. The evidence is attached for reference. Salespeople and monitoring staff is not included in this number. It means that in total there were trained the following number of people: Monitoring Surveys (38); Sales and promotion of stoves (distribution) (149); Assembly, repair and maintenance of stoves (8). The information is now correctly updated in the Monitoring Report.		

Documentation provided by project participant	
<i>List Training stove assembly</i>	
DOE assessment	Date: 21/09/2020
The evidence shows 9 people were trained for assembly of stoves including repairs and maintenance however MR says 8. CAR is open	
The other training is not detailed in the MR. The same should be distinctive. CAR is open	
Project participant response	Date: 06/10/2020
Corrected to 9 persons in the monitoring report. Furthermore, the details of different trainings are also provided in Section C of the Monitoring Report.	
Documentation provided by project participant	
<i>VPA1 Monitoring Report</i>	
DOE assessment	Date: 20/01/2022
Revised MR now mentions correct number of people trained i. e. 9 nos. Which is correct and accepted.	
Section C of the revised MR mentions training details which is checked and confirmed.	
Hence, CAR is closed.	

CAR ID	04	Date:25/05/2020
Description of CAR		
The CME is requested to provide the following missing documents to the assessment team:		
1. Sample Sales agreement between distributing organization representing its associated ICS technicians and the PO (as per the registered information in Section A.3. of the CPA-DD, subsection "Operational and management plan". 2. The detailed procedure to check the double counting and subsequent documentation.		
Project participant response		Date:04/07/2020
During 2016 and 2017, the subcontractor AVSI distributed cookstoves. However, this is not anymore applicable for the monitoring period during 2018-2019. During this period, all stoves were directly distributed through MozCarbon, thus no risk of double-counting with the provider exists.		
With respect to the end users, the carbon waivers clarify potential double-counting issues. Examples of such carbon waivers were provided to Applus as part of the household interviews.		
Documentation provided by project participant		
N/A		
DOE assessment		Date:24/07/2020
The VVB understands from CME's response that for the current monitoring period being verified, there is not any other Entity than the PO (CME, Mozcarbon) doing the distribution of the ICS. The same can be also viewed on the provided training records and pictures. Hence it is accepted that there is not any necessity of the agreement as asked in the CAR. By the other hand, there is then no need to establish and implement a procedure for avoiding double counting with an entity that may be involved in similar actions across the city of Maputo and the standard parameters to avoid double counting are implemented as cross-checked in carbon waivers and database, etc.		
Hence, the CAR is closed.		

CAR ID	05	Date: 25/05/2020
Description of CAR		
Following documents are missing related to SDG monitored parameters: - SDG 13: <i>Assistance lists. The number of persons attending training sessions are recorded on a continual basis as and when trainings occur. The names of all attendees are recorded and filled for reporting during annual monitoring.</i> The CME is requested to provide such records concerning the current monitoring period to the assessment team. - SDG #1: <i>Socio-economic survey conducted during ICS monitoring visits. Data collected through monitoring survey. People are asked about amount of charcoal consumed when using the ISC compared to the baseline stoves.</i> The Survey Report, if different to the provided 200322_Monitoring Survey VPA1 Mar19(i.e. hard copy or similar raw data) to which the above description refers shall be submitted to the assessment team (with reference to Quality of employment, Livelihood of the poor, Access to affordable and clean energy, Quantitative employment and income generation). Moreover, examples of the hard-copy raw data survey forms to determine the results of the survey report shall be submitted to the assessment team. Additionally, demonstration of the Quality of employment, and Quantitative employment and income generation for the Mozcarbon workers shall be submitted to the assessment team. - SDG #13: <i>Efficiency of the device of each type i and batch j implemented as part of the project activity.</i> WBT test report from the "Biomass Energy Center of Testing (BECT) / GIZ /EnDev Mozambique" and procedure for sampling shall be provided to the assessment team for the current monitoring period. Moreover, the calibration details of the instrument(s) used for WBT are not submitted to the assessment team neither reported in the Monitoring Report covering the current monitoring period. - KPT test reports along with calibration details of any used equipment are not submitted to the assessment team.		
Project participant response		Date: 04/07/2020
- See attendee lists "Monitoring Training 2018.pdf" and "Monitoring Training 2019.pdf" - See "Sample Hard Copy Surveys". Also see "Quality of Employment" with further prove of health insurance and social security payments. - As per the registered PoA, the WBT is fixed ex ante. This test does not have to be repeated for monitoring. It is done by a third-party (external), thus calibration details cannot be accessed. This is in line with the monitoring plan. The WBT of the new ICS Mbaula is attached ("WBT Report MBaula.pdf") - Option 3 of the methodology (paragraph 27) is applied, i.e. WBT not KPT.		
Documentation provided by project participant		

Attendee lists "Monitoring Training 2018.pdf" and "Monitoring Training 2019.pdf"
 "Sample Hard Copy Surveys"
 "Quality of Employment"
 "WBT Report MBaula.pdf"

DOE assessment

Date: 24/07/2020

The VVB confirms the following:

1. The training records have been provided and found acceptable.
2. The "Sample Hard Copy Surveys" refers to VPA 2 while this VPA is VPA 1, hence this is not found acceptable.

Additionally, the VVB confirms that has received receipts of payments to the social security and health system of Mozambique regularly as well as the training evidences for the Quality of Employment.

There is no evidence submitted in regards of the demonstration of Quantitative employment and income generation for the Mozcarbon workers.

The Salary slip and contracts are not submitted to the assessment team for the monitoring period. Moreover, PP required to justify that employees have been paid as per the minimum salary wages of the area/country. Moreover, the minimum salary wages for the area needs to be detailed out in the MR. Also, PP needs to detailed out that POA is gender sensitive and equal opportunity is provided to both male and female workers. The Salary is provided based on the merit of the worker irrespective of the gender.

For the parameter "Quality of employment", the trainings were conducted during the monitoring period. The MR shall also indicate the number of beneficiaries out of the trainings conducted. It shall also be clarified as by whom the trainings were conducted during the monitoring period.

The training details, frequency of training, topic covered and feedback received is not detailed out in the MR. corrective action is sought for this and the above.

3. The Mbault efficiency test introduced in the programme during this monitoring period (hence, not detailed in CPA/PoA-DDs) has been provided to the VVB and the efficiency of the device is confirmed to be 30.47%. The measuring instruments and calibration details are not necessary at the time the entity conducting the tests is sufficiently qualified to do so in appropriate conditions and then entrusted.
4. The VVB confirms the option 3 has been used for the calculations of By,savings, hence accepted.

Hence, the CAR remains open.

Project participant response

Date: 20/08/2020

Example hard copy surveys for VPA1 included.

Evidence in regards of the demonstration of Quantitative employment and income generation for the Mozcarbon workers: see *Salario_Minimo_2019.pdf*, contract samples and salary slips.

Salary slip and contracts: Contracts with payment details are submitted. Please find attached for reference.

PP required to justify that employees have been paid as per the minimum salary wages of the area/country. Moreover, the minimum salary wages for the area needs to be detailed out in the MR.

The minimum salary in Mozambique is adjusted yearly according to each economic area. The distribution of Improved Stoves falls under the *non-financial services* sector (Servicos Nao financeiros) where the minimum salary was determined to be MZN 6.850,00 (in Mozambican metical) in 2019. This salary was approved by the Decree 48/2019 dated May 7, 2019 which is attached with the name *Salario_Minimo_2019*.

<https://cartamz.com/index.php/politica/item/1763-eis-os-novos-salarios-minimos-para-cada-setor-aumentos-entre-5-e-12>

The MR has been updated to include the minimum salary wages.

Also, PP needs to detail out that POA is gender sensitive and equal opportunity is provided to both male and female workers. The Salary is provided based on the merit of the worker irrespective of the gender.

There is no gender discrimination in regard to access to employment opportunities and on the work compensation. In average, 45% of MozCarbon employees are females (Employee list is attached). Also, as can be determined in the contracts, PD staff and promoters selling the stoves are equally compensated regardless of gender.

The MR shall also indicate the number of beneficiaries out of the trainings conducted. It shall also be clarified as by whom the trainings were conducted during the monitoring period.

See table in the updated monitoring report in Section C.

Documentation provided by project participant

3 examples of hardy copy surveys (in folder "Sample Surveys")

3 examples of contracts and receipts (in folder "Employment")

Salario_Minimo_2019.pdf

Updated MR

List Employees.xlsx

DOEassessment	Date: 21/09/2020
VPA 1 documents are now submitted to the assessment team. CAR is closed	
The minimum salary in Mozambique is justified by the project and hence CAR is closed.	
Assessment team checked the employment contracts, Salary wages etc and found that project do not discriminate among genders. List of employees as a part of organization is checked and found correct. CAR is closed.	
The training details, attendance sheet etc is checked and found correct by the assessment team. CAR is closed.	

CAR ID	06	Date:25/05/2020
Description of CAR		
Section E.6 of the MR is not detailed out. The pro-rata Calculation for estimation for the concerned monitoring period is not compared with the actual Monitoring days. The increase/decrease is not detailed out in the MR. Corrective action is sought for the same.		
Project participant response		Date:04/07/2020
Corrected in the updated MR		
Documentation provided by project participant		
Updated MR		
DOE assessment		Date:24/07/2020
The pro-rata calculation now forms the part of revised MR. The same is acceptable.		
Hence, the CAR is closed.		

CAR ID	07	Date:25/05/2020
Description of CAR		
As per Section F.2 of the Monitoring report, No complaints or other relevant comments were received in the first reporting period that would require follow up actions in this second reporting period. The Grievance register or the complaint register is not submitted to the assessment team.		
Project participant response		Date:04/07/2020
See Excel "Grievance Report Template". This was prepared by South Pole for MozCarbon. Since no negative comments were received, this is still empty.		
Further, see "No Legal Actions Document" that certifies that no legal actions or material complaints against MozCarbon were made during the monitoring period.		
Documentation provided by project participant		
"No Legal Actions Document"		

DOE assessment	Date: 24/07/2020
Grievance register is submitted to the assessment team and no negative comments were obtained for the concerned period. Moreover, the CME has provided a statement from lawyers' firm containing confirmation that no legal action or formal complaint exist in which Mozcarbon is involved for the current monitoring period. Hence, the CAR is closed.	

CAR ID	08	Date: 25/05/2020
Description of CAR		
As Section F.3 of the MR, No legal contest or dispute has arisen with the project during the monitoring period. The related supporting document is not submitted to the assessment team.		
Project participant response		Date: 04/07/2020
See “No Legal Actions Document” that certifies that no legal actions or material complaints against MozCarbon were made during the monitoring period.		
Documentation provided by project participant		
“No Legal Actions Document”		
DOE assessment		Date: 24/07/2020
The CME has provided a statement from lawyers’ firm containing confirmation that no legal action or formal complaint exist in which Mozcarbon is involved for the current monitoring period.		
Hence, the CAR is closed.		

CAR ID	09	Date: 25/05/2020
Description of CAR		
As detailed in Section C of the Monitoring Report, a linear decrease of efficiency (20%) has been applied in accordance with the methodology, as per the use of Option 3 (WBT) for the calculation of $By_{ings,i,j}$ and the result is a decrease on efficiency of around 5.24% per year. However, given the different lifespan of the devices and proposed changes on the lifespan in comparison with the previous monitoring period, this efficiency decrease of 5.24% does not correspond to the actual values as per the ER Calculation sheet proposed for verification. Corrective action is sought for the same.		
Project participant response		Date: 04/07/2020
This has been deleted from the updated MR. The correct values are directly reflected in the biomass savings (see ER calculation sheet, sheet "merged", rows AM to AU)		
Documentation provided by project participant		
<i>Updated MR</i> <i>Updated ER calculations sheet</i>		

DOE assessment	Date: 24/07/2020
The correct value as per different lifestyle of the stove is now reflected in the ER sheet.	
Hence, the CAR is closed.	

CAR ID	10	Date: 25/05/2020
Description of CAR		
The VPA-DD establishes that: <i>Sampling will be undertaken in line with [...] and the most recent version of the "General guidelines for sampling and surveys for small scale CDM project activities"</i> . However, the evidences provided to the assessment team for the calculation of the sample size and related variables, is based on an older version of such guideline.		
Corrective Action is sought for the same.		
Project participant response		Date: 04/07/2020
We do not see any inconsistencies with the Excel calculators used, since this is based on the statistical approach chosen to determine relative precision. This was also accepted in the first verification.		
However, we found a minor error in Table 1 of the MR "Relative precision for ICS usage". This was corrected. See also the updated "Meth_guid48Calculator_surveys_stoveuse_yes_no" with the correct numbers.		
Documentation provided by project participant		
Updated MR Meth_guid48Calculator_surveys_stoveuse_yes_no		
DOE assessment		Date: 24/07/2020
The query was not regarding the approach of Sampling. The query was regarding older version of <i>General guidelines for sampling and surveys for small scale CDM project activities</i> referred as the source.		
Hence, CAR remains open.		
Project participant response		Date: 06/10/2020
Corrected to the right title in the monitoring report: "Guideline: Sampling and surveys for CDM project activities and programmes of activities" (version 4.0)		
Documentation provided by project participant		
N/A		
DOE assessment		Date: 20/01/2022
Version of the guideline applied is now corrected which is the correct and latest version.		
Hence CAR is closed.		

CAR ID	11	Date: 25/05/2020
Description of CAR		

The VPA-DD establishes that, for the parameter $N_{p,HH}$, the source of information is "ChamanculoKPT" while the Monitoring Report proposed for verification establishes that the source of information is "George Dimitrov KPT". There is an inconsistency between the registered information and the information reported in the MR.

Moreover in the same sense, the VPA-DD in Section B.4.3. establishes that $B_{old,HH}$ is determined from "ChamanculoKPT" while the MR shows that it is a result of the multiplication of $N_{p,HH}$ and $B_{old,p}$.

Corrective Action is sought for the same.

Project participant response

Date: 04/07/2020

Corrected to "ChamanculoKPT" in the updated MR.

For $B_{old,HH}$ there is no inconsistency. Since both $N_{p,HH}$ and $B_{old,p}$ are derived from the ChamanculoKPT, the result of $B_{old,HH} (= N_{p,HH} \times B_{old,p})$ is also based on the ChamanculoKPT

Documentation provided by project participant

Updated MR

DOE assessment

Date: 24/07/2020

Explanation and correction done are acceptable.

Hence, the CAR is closed.

CAR ID	12	Date: 25/05/2020
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Description of CAR

The default country specific fraction of non-renewable woody biomass (f_{NRB} - Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass) value for the Republic of Mozambique has expired on 06 December 2017, thus is no longer valid for the monitored parameter for calculation of baseline emissions as the DNA of the host country has not submitted updated valid values.

The assessment over the calculation of the achieved Emission Reductions is then placed on hold until the resolution of this CAR.

Corrective action is sought for the same.

Project participant response

Date: 04/07/2020

The project activity was uploaded to the Gold Standard before the expiration date, thus the value for f_{nrB} can be used throughout the first crediting period.

Documentation provided by project participant

N/A

DOE assessment

Date: 24/07/2020

The Monitoring Report provided for verification does not establish that the parameter is determined ex-ante and fixed for entire crediting period in a clear form as in the PoA-DD and corresponding VPA-DD in the monitoring frequency information. As the parameter appears as an element of the monitoring plan, the MR shall show consistent information in comparison with the PoA-DD and VPA-DD to establish clearly the parameter is not monitored yearly, which will be in accordance with the applied methodology (as it is an option allowed), VPA-DD and PoA-DD.

Corrective action is sought for the same.

Hence, the CAR is still open.

Project participant response

Date: 20/08/2020

This was updated to be included as fixed ex ante parameter.

Documentation provided by project participant

Updated MR

DOE assessment

Date: 21/09/2020

The ex-ante value is acceptable and hence CAR is closed.

CAR ID

13

Date: 24/07/2020

Description of CAR

Once the clarification request regarding the inconsistency of the sampling done by the VVB is cleared, the CME is then requested to provide the following missing documents in order to complete the assessment over the sampling exercise:

- The correct sales agreement and picture of the stove represented in possession of Ms. Eunicia Jaime in the ICS Users Database.
- The sales agreement of the user FilitaWiliamo with ID EA1H014772 that has not been provided.
- The sales agreement of the user MartinhaMathusse with ID EA1H018061 that has not been provided.

Additionally, the CME is requested to provide corrective action in the inconsistency found in the records for the user Ms. Alice Ernesto, given that:

- The sales agreement states the neighborhood is G. Dimitrov, while the Database states Bagamoyo.
- The sales agreement states the date of purchase is 09/11/2016, while the Database states 29/06/2016.

Project participant response

Date: 20/08/2020

- Correct sales agreement and picture of the stove represented in possession of Ms. Eunicia Jaime in the ICS Users Database is attached.
- The sales agreement of the user FilitaWiliamo with ID EA1H014772 that has not been provided is attached.
- The sales agreement of the user MartinhaMathusse with ID EA1H018061 that has not been provided is attached.

Further, please note that there are two people with the name Alice Ernesto in the database, as these are common names in Mozambique.

The provided details of the address indicate that the neighborhood is George Dimitrov. However, the actual neighborhood name (Bamoyo) was introduced in the database during the data input and quality check. The information in the database is the correct one.

Taking into account the above clarification of the existence of two people with the name Alice Ernesto, it can be seen that the sales date is actually consistent for both database and sales agreement (carbon waiver).

Documentation provided by project participant	
Two pictures in folder "Pictures Stoves Eunicia Jaime" Waiver forms_Filita_Martinha_Eunicia.pdf	
DOE assessment	Date: 21/09/2020
The CME has correctly provided the missing evidences for the users: Eunicia Jaime; Filita Wiliamo; and Martinha Mathusse. These evidences are consistent with the Users' database and evidences checked by the assessment team, hence accepted. Regarding the user Alice Ernesto, as the location (neighbourhood) in the sales agreement provided, and at that time, was fixed with G. Dimitrov, it is considered acceptable to have the correct location in the database despite the discrepancy with the sales agreement. Regarding the date of purchase, this has been DOE's mistake by searching by "Alice Ernesto" in the database where there is other person called "Alice Ernesto Dossr". Hence when comparing the particular matter of the sales agreement data with the database, by error the DOE has checked the second one. The DOE appreciates the clarification and consider the data as acceptable. Hence the CAR is closed.	

Table 4. FAR from this verification

FAR ID	01	Section No.	Date: 24/07/2020
Description of FAR			
The VVB in charge of the subsequent verification is requested to confirm the CME has implemented a mechanism in order to: - Prevent the non-identifiable nameplates of the stoves (as a picture of a stove provided has the nameplate burnt and the ID cannot be recognized properly). - Prevent ICS that can be moved beyond the PoA and/or VPA boundary because the users ceded the device to other persons by buying multiple devices or causing multiple devices can be bought by a single used (as happened in the case of Ms. Eunicia Jaime). - As a result of the sampling exercise, it is noted that approximately 30% of the users are not sure/do not know how to contact CME in case of need for replacement or other concerns. The CME needs to address this situation.			
Project participant response			Date: 19/10/2021
Documentation provided by project participant			
VVB assessment			Date: 20/01/2022

Appendix 2: Audit Team CVs

Name	SHORT CV. BACKGROUND INFORMATION
Mr. Sukanta Das	Mr. Sukanta DAS, has done M. SC in Physics and M. Tech in Energy technology from Tezpur Central University/ Indian Institute of technology Bombay in India. He is a certified lead auditor for ISO 14001EMS LA and ISO 9001 QMS LA from International registry for Certified Auditors and Certified Lean Management practitioner from Quality Council of India. He has more than Six years of working experience at TUV NoRD/ Re-consult under various categories of projects stating from Renewable to waste to supercritical projects. He was JI/CDM Lead Assessor in TUV NoRD and was involved in more than 80 CDM validation and verifications activities and Gold Standard, VER projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope1 technical area 1.2/1.1.
Mr. Pankaj Kumar	Mr. Pankaj Kumar has done M. Sc in Environment Management from Forest Research Institute, Dehradun and B. Sc. (Hons.) in Environment & Water Management from Magadh University, Bihar, India. He has also done Post Graduate Diploma in Environmental Law from NLSIU, Bangalore. He has more than 12 years of working experience in GHG Assessments and has participated during his career in Agencies and DOEs like MITCON, Agrinergy, Carbon Check and is empanelled with Applus+ Certification since 2015 for the performance of CDM/VCS/GS project assessments. He has extensive experience in the Renewable, Waste Management and Energy Demand Scopes of UNFCCC CDM and has done more than 100 Validations and Verifications of PAs and PoAs as Lead Auditor, Technical Expert and Technical Reviewer, mainly in Asia, Africa, USA, Asia Pacific and Americas under CDM, Verified Carbon Standard, Gold Standard & Social Carbon Standard, Brazil. He is an experienced, qualified and result oriented Environment and climate change professional having 16 yrs. of relevant experience in Climate Change (Mitigation & Adaptation), Environmental Due Diligence, Disaster Risk Reduction, Climate finance, adaptation planning, capacity building, validation and verification of GHG project. He can also provide technical support for environmental investigative, remedial projects involving air, water and soil, Waste management, EIA, Environmental Compliance, ISO 14001, OHSAS 18001, GHG accounting (ISO 14064) and Carbon foot printing.
Mr. Agustín Calle	Mr. Agustín Calle has a Bachelor's Degree on Environmental Sciences and Master's Degree on Environmental Control and Management in Companies. He has more than 9 years of experience on CDM, sustainability, implementation, outsourcing and audit of Management Systems, waste handling and renewable energies consultancy services, as well as an active participation in Spanish Normalisation Committees for sustainability standards, among other activities. In Applus+ Certification since 2017, being in the position of Technical Manager and Quality Manager of the DOE/VVB for CDM/VCS/GS4GG Activities to ensure quality on performances, coordinate global team worldwide, business development and maintenance of the Accreditations, is qualified and has participated in several GHG assessments on project activities and programmes of activities as Validator / Verifier covering the Sectoral Scopes/Technical Areas 1.2 and 3.1.
Mr. Miguel A. Cortés	Mr. Miguel Cortés holds a Bachelor's Science Degree on Civil and Environmental Engineering, being specialized on Hydric Resources. He has worked as CDM/VCS/GS and environmental consultant for different

	industries of multidisciplinary sectors world widely. Mr. Miguel Cortés counts with several years of GHG assessment experience, working and being qualified as Lead Auditor and Technical Reviewer for different DOEs world widely, as well as has been part of Gold Standard expert's committees and has been approved as a member of the UNFCCC RIT in 2019. Furthermore, he has performed his professional GHG assessment portfolio career worldwide and focusing in Latin America, developing assessments for projects in Argentina, Mexico, Panama, Colombia and Chile, among others.
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