




**Verification and certification report form for
CDM programme of activities
(version 02.0)**

BASIC INFORMATION

Title and UNFCCC reference number of the programme of activities (PoA)	Domestic Cooking Stoves substitution programme in Mozambique (9981)	
Version number(s) of the PoA-DD(s) to which this report applies	05, dated 10/10/2014	
Version number of the verification and certification report	02	
Completion date of the verification and certification report	29/11/2018	
Monitoring period number and duration of this monitoring period	2 nd Monitoring Period 12/07/2016–30/11/2016	
Number and version number of the monitoring report to which this report applies	Batch no.02 of 03 Version 05, Dated 28/11/2018	
Coordinating/managing entity (CME)	Fondazione AVSI	
Host Parties	Host Parties of the PoA	Is this a host Party to a CPA covered in this report? (yes/no)
	The Republic of Mozambique	Yes
Applied methodologies and standardized baselines	AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass. Version 05.0	
Mandatory sectoral scopes linked to the applied methodologies	Sectoral Scope 03: Energy Demand	
Conditional sectoral scopes linked to the applied methodologies, if applicable	NA	
Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report	5,138 tCO ₂ e	
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report	7,383 tCO ₂ e	
Name and UNFCCC reference number of the DOE	EPIC Sustainability Services Private Limited (E-0062)	

Name, position and signature of the approver of the verification and certification report	K. Sudheendra, Director and Head Operations 
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SECTION A. Executive summary

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EPIC Sustainability Services Private Limited (EPIC) has been contracted by Fondazione AVSI to undertake the independent verification of the registered CDM PoA titled “Domestic Cooking Stoves substitution programme in Mozambique” (PoA ID: 9981) covering CPA 002 titled “Domestic cookstoves in Maputo (Mozambique), phase II”. The objectives of this verification are to verify and certify emission reductions reported for project activity for the monitoring period of 12/07/2016–30/11/2016 (first and last day included); and to verify that the data reported are complete and transparent.

This report summarizes the findings of the verification of the project, performed on the basis of UNFCCC criteria for CDM as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to the Kyoto Protocol, the CDM rules and modalities as agreed in the Bonn Agreement, the Marrakech Accords and the CDM Executive Board's decisions.

The verification team has, based on the recommendations in the Validation and Verification Standard for PoA, version 01.0^{1/}, focusing on the identification of significant risks and reliability of project monitoring and generations of VERs. The verification is not meant to provide any consulting towards the client. However, stated request for clarifications and/or corrective actions may provide input for improvement of the project design.

The scope of the verification is the independent and objective review and ex-post determination of the monitored reductions in GHG emission by the project activity. The verification is based on the validated Project Design Document¹, version 05, dated 10/10/2014, Registered Component Project Design Document, version 2.1, dated 11/06/2016 and Validated Project Design Document, version 07, dated 24/09/2018 (hereinafter referred to as PoA-DD^{2/} and CPA-DD^{3/8/4/}), corresponding Validation Report^{5/} and Monitoring Report^{6/} (hereinafter referred as final MR). These documents were reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

The objective of this small-scale CPA (SSC-CPA) 9981-0002: “Domestic cookstoves in Maputo (Mozambique), phase II” is to improve energy efficiency by substituting inefficient traditional cookstoves with more effective ones and at the same improving the conditions of the local population living in the poor settlements of Malanga, Minkadjuine, Munhuana, Unidade 7, Chamanculo A, Chamanculo B, Chamanculo D, Aeroporto A, Aeroporto B, Mafalala and Urbanizacao in the district of Nhlamankulu, in Maputo city, Mozambique and reducing the greenhouse gas emissions.

The verification team determines the conformity of the actual project activity and its operation with the CPA-DD and MR. EPIC has, by means of a desk review and an on-site visit, assessed that all physical features of the proposed CDM project activity proposed in the PoA-DD are in place, and that the project participants have operated the project activity as per the PoA-DD^{2/}. Thus the verification team has concluded that the project activity was implemented and operated as per CPA-DD^{3/8/4/} in line with PoA-DD, and that all physical features of the project are in place.

The verification team, based on the site visit and document review, was able to conclude that the project activity has been commissioned and implemented as per the PoA-DD. The start date of this monitoring period is 12/07/2016.

The monitoring report for this monitoring period is in compliance with the monitoring plan of the PoA-DD. The project activity was registered by applying the small scale methodology “AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass (Version 05.0)”^{7/} and the verification was carried out in accordance with the applied methodology. It was confirmed during the site visit that the project activity during the current verification is in accordance with the applicability criteria of the methodology.

It is the responsibility of EPIC to express an independent GHG verification opinion on the GHG emissions reductions and on the calculation of GHG emission reductions from the project for this monitoring period based on the reported emission reduction in the monitoring Report.

EPIC's verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, as well as those defined by the CDM Executive board. EPIC's approach was risk-based, drawing on an understanding of the risks associated with reported GHG emissions data and the controls in

¹ Post registration corrections are presented in PRC ref. PRC-9981-001 with effective approval from 25/10/2018

place to mitigate these. The examination includes assessment of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for this monitoring period.

The verification team has planned and performed the work to obtain the information and explanations that is considered necessary to provide sufficient evidence for it to give reasonable assurance that the amount of calculated GHG emission reductions for this monitoring period were fairly stated.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	D	Siddaramu	EPIC	√	√	√	√
2.	Auditor	IR	Govindarao	Vishnu	EPIC	√	x	x	√
3.	Host Country Expert	ER	Muzima	Adelio	EPIC	√	√	√	√

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Radhamadhavan	Vijayaraghavan	EPIC
2.	Approver	IR	Sudheendra	Krishnachar	EPIC

SECTION C. Application of materiality in conducting the verification

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Errors in manual transfer of records.	Low	9981-0002_Stove Selling Database 2015-2016 and 9981-0002_Usage Survey Database 2016 was manually transferred from the hand-written survey records to the ER calculation spread sheet.	Verification team checked the 9981-0002_Stove Selling Database 2015-2016 ^{/8/} , KPT reports ^{/9/} and 9981-0002_Usage Survey Database 2016 ^{/10/} as well as the User Agreements of all the 27 sampled users ^{/11/} , which are legally-binding and considered credible. In addition, the verification team also conducted acceptance sampling of the sampled users, and visited 27 sampled users as well as 06 non-sampled users during the site visit.

C.2. Consideration of materiality in conducting the verification

In line with Guidelines for Application of materiality in verifications^{/12/}, a reasonable level of assurance are defined for the verification of the project by complete verification of all the values indicated in the emission reduction spreadsheet^{/13/} in documents at the document review stage and onsite. There are no material errors, omissions or misstatements.

SECTION D. Means of verification

D.1. Desk/document review

The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included review of data and information presented to verify their completeness and review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements and the QA/QC procedures, and an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of emission reduction.

The first MR^{/14/} version 1.0 submitted by the project participant and additional background documents related to the emission reductions are reviewed as an initial step of the verification process. The subsequent step involved the identification of corrective action requests and clarification requests (CAR and CL) which are presented in Appendix 4 of this report. As a result of these findings, the MR is revised to MR version 5.0^{/6/}. A complete list of all documents and records reviewed is as attached in Appendix 3 of this report.

D.2. On-site inspection

Duration of on-site inspection: 01/05/2018 to 05/05/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	<p>The verification team conducted visits to the project site to confirm the information and to resolve issues identified in the document review. An on-site assessment was conducted as a part of verification activity and involved:</p> <ol style="list-style-type: none"> 1) an assessment of the implementation and operation of the project activity as per the validated PoA-DD/CPA-DD 2) a review of information flows for generating, aggregating and reporting of the monitoring parameters 3) interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the Monitoring Plan 4) a cross-check between information provided in the MR and data from other sources 5) a check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the PDD and the applied methodology 6) a review of calculations and assumptions made in determining the GHG data and ERs, and 7) an identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters 8) Review of the implementation status of the project activity 9) Review of the Monitoring plan. Visit to households and Interview with stakeholders. Verification of baseline. Operation and maintenance Procedures. Technical details of project. Review of the implementation status of the project activity 	Project site	01/05/2018 to 05/05/2018	Dr.D.Siddaramu and Mr.Adelio Muzima

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Galimberti	Alessandro	AVSI	01/05/2018 to 05/05/2018	KPT and Usage Survey, Project design, Distribution system of cookstoves, Baseline fuel usage, Type of cookstoves used.	Validation team
2.	Cumbi	Cristina	AVSI	05/05/2018 to 01/05/2018		Validation team
3.	Guiso	Antonio	Carbon Sink	01/05/2018 to 05/05/2018		Validation team
	27 households (and 03) in		Households	02/05/2018	Usage Survey,	Validation team

4.	following localities were visited in the district of Nhlamankulu, Maputo		to 05/05/2018	Distribution system of cookstoves, Baseline fuel usage, Type of cookstoves used.	
	Malanga,				
	Minkadjuine,				
	Munhuana,				
	Unidade 7,				
	Chamanculo A,				
	Chamanculo B,				
	Chamanculo D				
	Aeroporto A				
	Aeroporto B				
	Mafalala				
	Urbanizacao				

D.4. Sampling approach

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The total number of stoves distributed at the end of the monitoring period in the Project is 6,705 but, operational stoves were only 4,830. The verification team used acceptance sampling approach for checking the operational status of the improved cook stoves. A sample size of 22 was required, based on an AQL of 0.5% and UQL of 15%, the producer risk used is 5% and consumer risk used was 10%. In accordance with the para 33 (a) of "Sampling and surveys for CDM project activities and programmes of activities", version 07.0 has been chosen "*The estimated volume of annual GHG emission reductions of the project activity or the PoA being verified is equal to or less than 100,000 t CO₂ eq.*"

However, the verification team visited 27 households (and 06 households non-sampled users during the site visit) in settlements of Malanga, Minkadjuine, Munhuana, Unidade 7, Chamanculo A, Chamanculo B, Chamanculo D, Aeroporto A, Aeroporto B, Mafalala and Urbanizacao in the district of Nhlamankulu, Maputo city, Mozambique. It was observed that all the cook stoves visited were in working condition and no discrepant records were observed with the published MR, Survey report and Stove Selling Database 2015-2016. Thus PP's set of records has been accepted in line with para 30 of "Sampling and surveys for CDM project activities and programmes of activities", version 07^{/15/}.

D.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
General			
Compliance of the monitoring report with the monitoring report form	00	CAR10	00
Remaining forward action requests from validation and/or previous verification	00	00	00
CPA(s) considered for verification and covered in this report	00	00	00
Programme of activities			
Compliance of the programme implementation with the registered PoA-DD	CL01, CL02	00	00
Implementation and operation of the management system	CL09	00	00
Post-registration changes			
<ul style="list-style-type: none"> Temporary deviations from the registered monitoring plan, applied methodology or applied standardized baseline 	00	00	00
<ul style="list-style-type: none"> Corrections 	00	00	00
<ul style="list-style-type: none"> Inclusion of a monitoring plan 	00	00	00
<ul style="list-style-type: none"> Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools 	00	00	00
<ul style="list-style-type: none"> Changes to the programme design or project design 	00	00	00
<ul style="list-style-type: none"> Change of coordinating/managing entity 	00	00	00

• Changes specific to afforestation and reforestation activities	00	00	00
Component project activities			
Compliance of the CPA implementation with the included CPA design document	CL12, CL13	CAR11	00
Post-registration changes			
• Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline	00	00	00
• Corrections	00	00	00
• Changes to the start date of the crediting period of component project activities	00	00	00
• Inclusion of a monitoring plan	00	00	00
• Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools	00	00	00
• Changes to the programme design of project design	00	00	00
• Changes specific to afforestation and reforestation component project activities	00	00	00
Compliance of the registered monitoring plan with the methodology including applicable tool(s) and standardized baseline	00	CAR02, CAR09	00
Compliance of monitoring activities with the registered monitoring plan	00	CAR03	00
• Data and parameters fixed ex ante or at renewal of crediting period	00	00	00
• Data and parameters monitored	00	00	00
• Implementation of sampling plan	00	00	00
Compliance with the calibration frequency requirements for measuring instruments	00	00	00
Assessment of data and calculation of emission reductions or net removals	00	00	00
• Calculation of baseline GHG emissions or baseline net GHG removals by sinks	00	00	00
• Calculation of project GHG emissions or actual net GHG removals by sinks	CL05, CL06, CL08	CAR04	00
• Calculation of leakage GHG emissions	00	00	00
• Summary of calculation of GHG emission reductions or net GHG removals by sinks	00	00	00
• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA	00	00	00
• Remarks on difference from estimated value in included CPA	00	00	00
Assessment of reported sustainable development co-benefits	00	00	00
Global stakeholder consultation	00	00	00
Others (please specify)			
Crediting period	CL03	00	00
KPT, WBT and Usage survey	CL04, CL10	CAR08	00
Sampling	CL07	CAR05	
lifetime of the equipment	CL11	00	00
Document/Records submission	00	CAR01, CAR06, CAR07	00
Total	13	11	00

SECTION E. Verification findings**E.1. General****E.1.1. Compliance of the monitoring report with the monitoring report form**

Means of verification	The verification team determined whether the monitoring report was completed using the valid version of the applicable monitoring report form. The verification team has checked whether all the sections of the monitoring report follows the guidelines provided in the template itself.
Findings	CAR10 was raised in this section.
Conclusion	The verification team concludes that the monitoring report provides all the information in accordance with the valid version of the CDM-PoA-MR-FORM (version 02.0) ^{/16/} and the instructions therein for filling the CDM-PoA-MR-FORM. The monitoring report has been prepared in line with VVS-PoA, version 01.0.

E.1.2. Remaining forward action requests from validation and/or previous verifications

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The verification team has reviewed the validation report and observed that there was no FAR. EPIC has not raised a forward Action Request (FAR) during this verification process.

E.1.3. CPAs considered for verification and covered in this report

Title and UNFCCC reference number of the CPA included in the PoA as of the end of this monitoring period	Is the CPA considered for this verification? (yes/no)	The date when the CPA was included	Version of the PoA-DD	Confirmation that a request for issuance including the CPA has been published for the previous monitoring period (Y/N)
Domestic Cookstoves in Maputo (Mozambique), phase II - (9981-0002)	Yes	17/10/2014	05	NA, as this is the 1 st monitoring report for this CPA

E.2. Programme of activities**E.2.1. Compliance of the programme implementation with the registered programme design document**

Means of verification	The verification team determined the conformity of the actual project activity and its operation with the registered project design document. EPIC has, by means of a desk review and an on-site visit, assessed that all physical features of the project activity in the registered PoA-DD are in place, and that the project participants have operated the project as per the registered PoA-DD.
Findings	CAR11, CL01 and CL02 were raised in this section.
Conclusion	The verification team by means of an on-site inspection and document review concludes that the project activity was implemented and operated as per the registered PoA-DD and validated CPA-DD and that all physical features of the project are in place. A total of 6,705 "CH-2200" model charcoal cook stoves of Envirofit were distributed during 18 June 2015 to November 2016 in this CPA002; out of which only 4,830 cook stoves were operational. The cook stoves can be easily tracked using cook stove IDs punched on them. Thus the verification team states that the implementation of the project matches with that mentioned in the registered PoA-DD and CPA-DD.

E.2.2. Implementation and operation of the management system

Means of verification	The verification team determined the roles and responsibilities, training arrangements and capacity development, procedure for technical review of inclusion of CPA's, data management responsibilities, detailed record-keeping system for each CPA under the PoA, and how the process performance documentation, and relevant evidences are explained in the CPA-DD ^{/3/} .
Findings	CL12 was raised in this section
Conclusion	Verification team evaluated the management systems in place to implement the

	<p>monitoring of the project activity. This included the management structure, records and document control process, procedures for training, continuous improvement of the PoA management system, record keeping system, procedures for double counting. The PoA management system including the record-keeping system and the management structure has been explained in section C of the registered PoA DD. During the course of verification, verification team based on review of section B.1 of the monitoring report, supporting documents and interview/observation has assessed this management system.</p> <p>The verification team confirms that the monitoring management systems of the CDM PoA are in place; with the responsibilities properly identified and in place as described.</p>
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E.2.3. Post-registration changes

E.2.3.1. Temporary deviations from the registered monitoring plan, applied methodology or applied standardized baseline

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There is no such change

E.2.3.2. Corrections

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There are no corrections in this monitoring period.

E.2.3.3. Inclusion of a monitoring plan

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Not applicable

E.2.3.4. Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools

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There is no such change

E.2.3.5. Changes to the programme design or project design

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There is no such change.

E.2.3.6. Change of coordination/managing entity

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There is no such change.

E.2.3.7. Changes specific to afforestation and reforestation activities

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Not applicable as the project does not involve afforestation and reforestation activity.

E.3. Component project activities

E.3.1. Compliance of the CPA implementation with the included CPA design document

Means of verification	The verification team determined how the generic CPA is part of a PoA-DD and checked how each technology/measure, methodology and combination thereof, or that technologies/measures have been combined in one generic CPA-DD in accordance with the relevant requirements in the "CDM project standard for programmes of activities, version 01.0".
Findings	CL13 was raised in this section
Conclusion	The verification team concludes that the CPA description of the project contained in the registered CPA-DD to be complete and accurate. The CPA-DD complies with the relevant methodology, tools, forms and guidance at the time of CPA-DD submission for registration/inclusion. A total of 6,705 "CH-2200" model charcoal

	cook stoves of Envirofit were distributed during 18 June 2015 to November 2016 in this CPA002; out of which only 4,830 cook stoves were operational. The cook stoves can be easily tracked using cook stove IDs punched on them. Thus the verification team states that the implementation of the project matches with that mentioned in the registered PoA-DD ^{2/} and CPA-DD and validated CPA-DD.
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E.3.2. Post-registration changes

E.3.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

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There is no such change

E.3.2.2. Corrections

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There are no corrections in this monitoring period.

E.3.2.3. Changes to the start date of the crediting period of component project activities

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There is no such change.

E.3.2.4. Inclusion of a monitoring plan

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Not applicable as monitoring plan was part of the validated CPA

E.3.2.5. Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline, or other applied standards or tools

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There is no such change.

E.3.2.6. Changes to the programme design or project design

>>

There is no such change.

E.3.2.7. Changes specific to afforestation and reforestation component project activities

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Not applicable as the project does not involve afforestation and reforestation activity.

E.3.3. Compliance of the registered monitoring plan with the methodology including applicable tool(s) and standardized baseline

Means of verification	The verification team determined whether the registered monitoring plan is in accordance with the applied methodology ^{3/} including applicable tools.
Findings	CAR02 and CAR09 were raised in this section
Conclusion	The verification team is able to confirm that the monitoring plan contained in the registered CPA-DD is in accordance with the approved methodology applied i.e., AMS-II.G (version 05). The monitoring plan contained in the PoA-DD/CPA-DD is in accordance with the approved methodology applied by the project activity and its applicable tools.

E.3.4. Compliance of monitoring activities with the registered monitoring plan

E.3.4.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	The verification team has determined whether all ex-ante parameters used for emission reduction calculation stated in the registered monitoring plan are used appropriately as per the registered CPA-DD.
Findings	No CAR/CL was raised in this section

Conclusion	Verification team confirms that the data and parameters fixed ex-ante are in compliance with the registered CPA-DD and monitoring plan. Please refer Appendix 5 for details.
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E.3.4.2. Data and parameters monitored

Means of verification	The verification team has determined whether the registered monitoring plan has been properly implemented and followed by the PP that the monitoring has been carried out in accordance with the registered monitoring plan.
Findings	No CAR/CL was raised in this section
Conclusion	<p>The verification team has assessed the data and parameter monitored during the monitoring period and confirms that all the ex-ante and ex-post parameters are monitored in accordance with the approved monitoring plan and applied methodology. Please refer Appendix 5 for details.</p> <p>In the usage survey (conducted biannual) a sample size of 53 families for this monitoring period was set by PP as calculated in the separate Excel spreadsheet, in line with the applied methodology, is at least 95/10 (a 95% confidence interval and a 10% margin of error). The required confidence/precision level was met and reached. The required confidence/precision level was met as all the randomly selected 53 households were reached and participated in the survey.</p> <p>In KPT², (conducted annually) a sample size of 37 families for this monitoring period was set by PP as calculated in the separate Excel spreadsheet, in line with the applied methodology. The required precision of least 90/10 (a 90% confidence interval and a 10% margin of error) is applied in line with the applied methodology³ and the required confidence/precision level was met as all the randomly selected 37 households were reached and participated in the survey.</p>

E.3.4.3. Implementation of sampling plan

Means of verification	The verification assessed whether the compliance of the sampling efforts and surveys with the registered sampling plan in accordance with the “Guidelines for sampling and surveys for CDM project activities and programme of activities” if PP had applied a sampling approach to determine data and parameters monitored.
Findings	CAR05 and CL09 were raised in this section
Conclusion	<p>The verification team was able to confirm that “Simple random sampling approach was followed by PP as a sampling approach for monitoring. The monitoring plan contained a detailed description in accordance with the “Guidelines for sampling and surveys for CDM project activities and programme of activities”, version 07^{13/}. PP had selected a sample size of of 53 families for this monitoring period was set by PP as calculated in the separate Excel spreadsheet, in line with the applied methodology, is at least 95/10 (a 95% confidence interval and a 10% margin of error). The required confidence/precision level was met and reached. The required confidence/precision level was met as all the randomly selected 53 households were reached and participated in the survey. And KPT⁴, (conducted annually) a sample size of 37 families for this monitoring period was set by PP as calculated in the separate Excel spreadsheet, in line with the applied methodology. The required precision of least 90/10 (a 90% confidence interval and a 10% margin of error) is applied in line with the applied methodology⁵ and the required confidence/precision level was met as all the randomly selected 37 households were reached and participated in the survey.</p>

² Please note that according the applied methodology the annual monitoring is chosen. In fact, as per the footnote 12 of the applied methodology: Biennial monitoring (i.e. monitoring once every two years) may be chosen only if the project proponents are able to demonstrate that the efficiency of the cook stove does not drop significantly as compared to the initial efficiency of the new device, over a time period of two years of typical usage.

³ 9981-0003_Project KPT Report 2016

⁴ Please note that according the applied methodology the annual monitoring is chosen. In fact, as per the footnote 12 of the applied methodology: Biennial monitoring (i.e. monitoring once every two years) may be chosen only if the project proponents are able to demonstrate that the efficiency of the cook stove does not drop significantly as compared to the initial efficiency of the new device, over a time period of two years of typical usage.

⁵ 9981-0003_Project KPT Report 2016

E.3.4.4. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	The verification team determined whether the calibration of the measuring equipment that has an impact on the claimed emission reductions is conducted by the PP at a frequency specified in the registered monitoring plan.
Findings	No CAR/CL was raised in this section
Conclusion	<p>The key monitoring equipment used for conducting the stove efficiencies is weighing scale. The appropriate QA/QC procedures have been followed for the monitoring parameters.</p> <p>The weighing scale used for the monitoring of parameters is Digital Spring Scale WeiHeng 40 kg max.; 10 gr. Precision.</p> <p>Calibration scale: Ohaus Ranger 3000 Series; 0.1 gr precision using a 5 kg certified reference weight. The identified standard deviation of the spring scales used for the KPT was 6.1 gr. Calibration performed is valid for the instruments used in the monitoring.</p>

E.3.5. Assessment of data and calculation of emission reductions or net removals**E.3.5.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks**

Means of verification	The verification team assessed whether the data and calculations of baseline emission resulting from the registered CPA-DD is correct. The verification team has checked whether calculations of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.								
Findings	No CAR/CL was raised in this section								
Conclusion	<p>The equations for baseline emissions, as provided in the monitoring report^{/02/} and confirmed with the registered CPA-DD and the methodology AMS-II.G, version 05 are:</p> $ER_y = B_{y,savings} * f_{NRB,y} * NCV_{biomass} * EF_{projected_fossilfuel} * N_{y,i}$ <p>Where:</p> <p>ER_y = Emission reductions during the year y in tCO₂e</p> <p>B_{y,savings} = Quantity of woody biomass that is saved in tonnes per device</p> <p>f_{NRB,y} = Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass using survey methods or government data or default country specific fraction of non-renewable woody biomass (f_{NRB}) values available on the CDM website</p> <p>NCV_{biomass} = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne, wet basis)</p> <p>EF_{projected_fossilfuel} = Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 tCO₂/TJ</p> <p>N_{y,i} = Number of project devices of type i operating in year y</p> <p>Determination of B_{y,savings}</p> <p>In order to determine ex post B_{y,savings} equation 2 of Option 1 described in paragraph 12 of AMS-II.G is chosen and therefore, the following equation is used:</p> $B_{y,saving} = B_{old} - B_{y,new,KPT}$ <p>Where:</p> <p>B_{y,savings} = Quantity of woody biomass that is saved in tonnes per device</p> <p>B_{old} = Quantity of woody biomass used in the absence of the project activity in tonnes per device</p> <p>B_{y,new,KPT} = Annual quantity of woody biomass used in year y in tonnes per device, measured as per the Kitchen Performance Test (KPT) protocol</p> <p>The verification team confirms that equations for baseline emissions provided in the monitoring report^{/02/} and confirmed with the registered CPA-DD and the methodology AMS-II.G, version 05</p> <table border="1"> <thead> <tr> <th>Parameter</th><th>Description</th><th>Unit</th><th>Value</th><th>Data Source</th></tr> </thead> </table>				Parameter	Description	Unit	Value	Data Source
Parameter	Description	Unit	Value	Data Source					

	B _{old}	Quantity of woody biomass used in the absence of the project activity in tonnes per device	t/device/year	6.601 ⁶	Calculated
	Usage rate	Based on the survey of 2016, 83%, of the respondents confirmed that the majority were using the project stoves daily. This usage rate (83%) is applied for the ER calculations ensuring that only the operational devices (i.e., project stoves which are used daily) are included in the ER calculations.	Percentage	83%	Survey
	LAF	Leakage adjustment factor to account for leakages		0.95	Methodology AMS-G.II
	B _{y,new, KPT}	Annual quantity of woody biomass used in year y in tonnes per device, measured as per the Kitchen Performance Test (KPT) protocol	t/device/year	1.956	Project KPT, See below
	f _{NRB, y}	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass		0.91	National Default Value. See section D.4 of the PoA-DD
	NCV _{biomass}	Net calorific value of the non-renewable woody biomass that is substituted	TJ/t	0.015	IPCC Default Value
	EF _{projected_fossilfuel}	Emission factor for the substitution of non-renewable	tCO ₂ /TJ	81.6	AMS-II G Default Value

⁶ As 10% of the project households have bought 2 project stoves and 90% of the project households have bought 1 project stove, the weighted average to be used in ER calculations can be calculated thus as follows:
 $(0.10 \times (0.5 \times 6.9486 \text{ t/device/year})) + (0.90 \times 6.9486 \text{ t/device/year}) = 6.6012 \text{ t/device/year}$. Please refer cell C40 in the 9981-0002_ER Calculations, sub-page "ERs per device".

		woody biomass by similar consumers			
	ER _y	Emission reductions during the year y in tCO _{2e}	tCO ₂ /device/year	4.81	Calculated
Total baseline emissions calculated are 7,948 tCO _{2e} .					

E.3.5.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	There are no project emissions identified in the monitoring methodology.
Findings	There is no CAR/CL raised in this section.
Conclusion	There are no project emissions identified in the monitoring methodology.

E.3.5.3. Calculation of leakage GHG emissions

Means of verification	The verification team assessed whether the data and calculations of leakage emission resulting from the registered PDD is correct. The verification team has checked whether calculations of leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
Findings	No CAR/CL was raised in this section
Conclusion	A default (0.95) Net to gross adjustment factor to account for leakages (B _{old}) has been considered by the project and thus it is in line with the requirement of monitoring methodology and the CPA-DD. Total leakages for the current monitoring period is 565 tCO _{2e} .

E.3.5.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the registered GS project activity. The verification team has checked whether calculations of GHG emission reduction have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
Findings	CAR04, CL05, CL06 and CL07 were raised in this section
Conclusion	Verification team confirms that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and calculations are done in accordance with the predefined formulae from registered CPA-DD. The total number of ERs achieved during the monitoring period is 7,948 tCO _{2e} . In summary, verification team confirms that actual emission reduction is lower than the estimate of the registered (included)/approved CPA-DD for the current monitoring period.

Title and UNFCCC reference number of the CPA	Baseline emissions or baseline net GHG removals by sinks (tCO _{2e})	Project emissions or actual net GHG removals by sinks (tCO _{2e})	Leakage (tCO _{2e})	GHG emission reductions or net GHG removals by sinks (tCO _{2e})		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
9981-002	7,948	0	565	0	7,383	7,383
Total	7,948	0	565	0	7,383	7,383

E.3.5.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA

Means of verification	The verification team has determined the VER achieved during this monitoring period with the estimated value and reason for increase if any.
Findings	No CAR/CL was raised in this section
Conclusion	The total number of ERs achieved during the monitoring period is 7,383 tCO _{2e} . In

	summary, verification team confirms that actual emission reduction is lower than the estimate of the registered (included)/approved CPA-DD for the current monitoring period.
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Title and UNFCCC reference number of the CPA	Value estimated in ex ante calculation in the included CPA-DD(s)	Actual values achieved by the CPAs during this monitoring period
9981-002	5,138 ⁷ tCO ₂ e	7,383 tCO ₂ e
Total	5,138 tCO ₂ e	7,383 tCO ₂ e

E.3.5.6. Remarks on difference from estimated value in included CPA

Means of verification	The verification team checked the actual values achieved by the CPA during this monitoring period with the values estimated in ex-ante calculation in the included CPA-DD
Findings	No CAR/CL was raised in this section
Conclusion	<p>The CER achieved in this monitoring period is 7,383 tCO₂e as compared to ex-ante estimates of 5,138 tCO₂e indicated in the validated CPA-DD^{4/}. In summary, verification team confirms that actual emission reduction is higher than the estimate of the registered (included) CPA-DD for the current monitoring period.</p> <p>Firstly, in ex-ante and ex-post ER calculations two different calculations methods have been applied (in line with Section B.4.1 of the registered CPA-DD). For the ER calculations made at CPA-DD validation stage, in fact, a simplified calculation (option 2 equation 3 of the methodology was used) method based on the baseline cookstove and project cookstove efficiencies was applied. The ex-post calculations (option 1 equation 2 of the methodology was used) are based instead on a more precise calculation method applying the monitored values of average daily charcoal consumption in the project scenario.</p> <p>Secondly, at CPA-DD validation stage it was conservatively assumed that most of the households would buy two project stoves. As evident from the stove selling database instead only 10% of the families purchased two project stoves. Moreover, at CPA-DD validation stage it was conservatively assumed that only 80% of the distributed stoves would be operational. The monitoring survey confirmed instead that 83% of the distributed stoves were operational during the monitoring period.</p>

E.3.6. Assessment of reported sustainable development co-benefits

Means of verification	NA
Findings	NA
Conclusion	NA

E.3.7. Global stakeholder consultation

Means of verification	The project MR was webhosted on UNFCCC website
Findings	There is no CAR/CL raised in this section.
Conclusion	<p>The project MR was webhosted on UNFCCC website</p> <p>The comment period was from 19th February 2018 and no comments were received during this time</p>

SECTION F. Internal quality control

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After the completion of assessment by the verification team all the relevant documentation is submitted to a qualified, Independent Technical reviewer as part of EPIC' internal quality control system. A Technical reviewer team is appointed to review the draft final verification report (Draft FVR). The comments made by the Technical reviewer team are taken into consideration and incorporated in the final FVR. The technical reviewer team assesses whether all the reporting requirements have been fulfilled and whether all the issues raised were closed satisfactorily by the verification team with justification. The technical review process can also raise issues in this regard which is resolved further by the verification team to the satisfaction of the technical reviewer. The technical reviewer team either accepts or rejects the report made by the verification

⁷ Period 12/07/2016 - 30/11/2016

team. The final report (after resolutions of all findings) is then submitted to the Head-operations for review and approval.

SECTION G. Verification opinion

>>

EPIC Sustainability Services Private Limited (EPIC) has been contracted by Fondazione AVSI to undertake the independent verification of the registered CDM PoA titled “Domestic Cooking Stoves substitution programme in Mozambique” (PoA ID: 9981) covering CPA 002 titled “Domestic Cookstoves in Maputo (Mozambique), phase II”. The objectives of this verification are to verify and certify emission reductions reported for project activity of 12/07/2016 to 30/11/2016 (first and last day included); and to verify that the data reported are complete and transparent.

The verification team determines the conformity of the actual project activity and its operation with the validated project design document. EPIC has, by means of a desk review and an on-site visit, assessed that all physical features of the proposed project activity proposed in the PoA-DD / CPA-DD are in place, and that the project participants have operated the project activity as per the PoA-DD^[2]. Thus the verification team has concluded that the project activity was implemented and operated as per PoA-DD, and that all physical features of the project are in place.

The verification team, based on the site visit and document review, was able to conclude that the project activity has been commissioned and implemented as per the PoA-DD^[2]. The start date of this monitoring period is 12/07/2016

The monitoring report for this monitoring period is in compliance with the monitoring plan of the validated PDD. The verification team was able to confirm that the monitoring plan contained in the registered PDD is in accordance with the approved methodology applied by the project activity “AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass” (Version 05.0) and its applicable tools. It was confirmed during the site visit that the project activity during the current periodic verification is in accordance with the applicability criteria of the methodology.

The management of project participants is responsible for the preparation and reporting of GHG emissions data, and the reported GHG emission reduction on the basis set out within the project monitoring plan. The development and maintenance of records and reporting procedures in accordance with the monitoring plan, including the calculation and determination of GHG emission reduction from the project is the responsibility of the management of the project. It is the responsibility of EPIC to express an independent GHG verification opinion on the GHG emissions reductions and on the calculation of GHG emission reductions from the project for this monitoring period based on the reported emission reduction in the monitoring Report.

EPIC’s verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, as well as those defined by the CDM Executive board. EPIC’s approach was risk-based, drawing on an understanding of the risks associated with reported GHG emissions data and the controls in place to mitigate these. The examination includes assessment of evidence relevant to the amounts and disclosures in relation to the project’s GHG emission reductions for this monitoring period.

The verification team has planned and performed the work to obtain the information and explanations that is considered necessary to provide sufficient evidence for it to give reasonable assurance that the amount of calculated GHG emission reductions for this monitoring period were fairly stated.

The verification team has verified that the information included in the revised monitoring report is correct and that the emission reduction achieved has been determined correctly. Based on the information seen and evaluated, the verification team confirms the following:

Project title:	Domestic Cooking Stoves substitution programme in Mozambique (9981)
CDM PoA id:	9981
CPA 2 Title:	Domestic Cookstoves in Maputo (Mozambique), phase II
Crediting period of included CPA002:	12/07/2016 – 11/11/2023 (Renewable)
PoA-DD	Version 05, dated 10/10/2014
Registered CPA-DD	Version 2.1, dated 12/07/2016
Validated CPA-DD	Version 07, dated 24/09/2018
Monitoring report of the included	Version 5.0 dated 28/11/2018

CPA002.	
Methodology used for verification:	AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass" (Version 05.0)
Applicable monitoring period:	12/07/2016 to 30/11/2016 (first and last day included), second verification
Emissions reductions verified:	7,383 tCO ₂ e

SECTION H. Certification statement

>>

EPIC Sustainability Services Private Limited (EPIC has carried out the independent verification of the registered CDM PoA titled "Domestic Cooking Stoves substitution programme in Mozambique" (PoA ID: 9981) covering CPA 002 titled "Domestic Cooking Stoves in Maputo (Mozambique)" for the monitoring period of 12/07/2016 to 30/11/2016 (first and last day included).

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

EPIC takes responsibility for issuance of an independent verification statement on the reported GHG emission reductions from the project activity.

The verification was done on the basis of the baseline and monitoring methodology (End-use energy efficiency improvement; "AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass" (Version 05.0) and the monitoring report (version 05, dated 28/11/2018)^{/9/}. The verification included checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and the collection of evidence supporting the reported data.

The emission reductions are calculated correctly and EPIC could certify that the emission reductions from the CDM PoA id: 9981 "Domestic Cooking Stoves substitution programme in Mozambique" for the monitoring period of 12/07/2016 to 30/11/2016 (first and last day included) is 7,421 tonnes of CO₂ equivalent

Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CL	Clarification request
CME	Coordinating and Managing Entity
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CPA-DD	Component Project Design Document
DNA	Designated National Authority
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
KPT	Kitchen Performance Test
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
PoA-DD	Programme Design Document
PS	Project Standard
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

The following validation team has been assigned to carry out the verification of the project.

Name	Dr.D.Siddaramu	Dr.Vishnu	Mr Muzima Adelio	Mr. R. Vijaya raghavan
Role	Lead Auditor	Auditor	Host country expert	Technical Reviewer
Competence in relevant sectors	Sector 1	Sector 1	Sector 03	Sector 1 and 13
Responsibility	Document review, onsite, DVer preparation, DVer resolution, FVer preparation	Document review, DVer preparation, FVer preparation	Document review, onsite	Technical review

Dr. D. Siddaramu holds a M.Sc., Ph.D in Environmental Science, with over 16 years of experience. A qualified Clean Development Mechanism (CDM) Lead Auditor, successfully registered more than 30 projects with United Nations Framework Convention on Climate Change (UNFCCC) and Verified Carbon Standard registry (VCS) registry; well versed with both National and International legal regime. Has hands on experience in Environmental Impact Assessment (EIA) studies pertaining to different Ecosystem; monitoring, collection & analyzing environmental samples and conducting socio-economic surveys; data analysis. Conducting CDM/VCS audits, preparation of validation protocols and reports. He is qualified for Sector 1 based on CDM accreditation requirements and qualified lead auditor as per GS4GG EPIC accreditation.

Mr Adelio Muzuma holds a Degree in Applied Physics. From 2016 onwards has been working as freelancer for data collection and Surveys for household and community level projects implemented in multiple locations in Mozambique. He has performed several verification, validation, satisfaction surveys, CES, KPT based on random visits to beneficiaries of the systems and reported to the implementing partners. He has working

knowledge of the sector and is qualified as Technical and Host Country Expert for TA 3.1 Energy demand in accordance with the procedures of EPIC.

Mr. R. Vijayaraghavan holds BE in Mechanical Engineering, M.Tech in Energy Conservation and Management and MBA in Technology Management. He is certified as Energy Auditor by Bureau of Energy Efficiency (BEE), Government of India. He has 10 years of working experience in energy sector including validation / verification of fifty CDM and VCS/GS projects and has undergone extensive training on CDM validation and verification and has been qualified as technical reviewer for several sectoral scopes. He is also an ISO 26000 lead auditor certified by Professional Evaluation and Certification Board (PECB).

Dr. G. Vishnu holds a Masters and Doctorate in Environmental Science. He has around 8 years of experience in the field of research and consultancy related to water, wastewater, solid waste management systems, implementation of new, Cleaner Production technologies and biomass assessment studies. He has more than four years" experience in validation verification of more than thirty CDM, projects and has undergone extensive training on GHG validation and verification. He is a Lead Auditor for various technical areas. He is also an ISO 26000 lead auditor and ISO 50001 auditor certified by Professional Evaluation and Certification Board (PECB). He is a Certified Sustainability Assurance Practitioner (CSAP) from AccountAbility, UK. He is qualified as Lead Auditor based on EPICs CDM accreditation procedures.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	UNFCCC	Validation and Verification Standard for PoA, version 1.0	http://cdm.unfccc.int/Reference/index.html	UNFCCC
2	PP	Project Design Document (POA-DD), version 05, dated 10/10/2014	http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/6E3TWBSAG8IVRF/DZNJK12L4X0CYHOM/view	UNFCCC
3	PP	Registered Component Project Design Document (CPA-DD), version 05, dated 10/10/2014	http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/6E3TWBSAG8IVRF/DZNJK12L4X0CYHOM/view	UNFCCC
4	PP	Validated Component Project Design Document (CPA-DD), version 07, dated 24/09/2018	http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/6E3TWBSAG8IVRF/DZNJK12L4X0CYHOM/view	UNFCCC
5	Validation DoE	Validation Reports of POA-DD and CPA-DD	http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/6E3TWBSAG8IVRF/DZNJK12L4X0CYHOM/view	UNFCCC
6	PP	Final Monitoring Report, version 05, dated 28/11/2018	-	UNFCCC
7	UNFCCC	AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass, version 05.0	http://cdm.unfccc.int/methodologies/DB/HLXIKEIBAXBE4EHO24H5IAB824MBD8	UNFCCC
8	PP	9981-0001_Stove Selling Database 2015-2017	-	PP
9	PP (Third party)	Kitchen Performance Test (KPT)	-	Third party (GIZ)
10	PP	9981-0001_Usage Survey Database 2016		PP
11	PP	User Agreements		PP

12	UNFCCC	Guidelines for Application of materiality in verifications	http://cdm.unfccc.int/	UNFCCC
13	PP	Emission reduction calculation sheet	-	PP
14	PP	First MR, version 01	-	PP
15	UNFCCC	Standard for sampling and surveys for CDM project activities and Programme of Activities, version 07	http://cdm.unfccc.int/	UNFCCC
16	UNFCCC	CDM-PoA-MR-FORM, version 02.0	http://cdm.unfccc.int/Reference/PDDs_Forms/index.html	UNFCCC
17	Brouwer, R. and Falcão, M. P)	Brouwer and Falcão, 2004 (Brouwer, R. and Falcão, M. P., 2004	-	Third party

Appendix 4. Clarification requests, corrective action requests and forward action requests

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

FAR ID	NIL	Section no.	NA	Date: 10/05/2018
Description of FAR				
-				
Project participant response				Date: DD/MM/YY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YY

Table 2. CL from this verification

CL ID	01	Section no.	Part II, C.1 of MR, dated 15/01/2018	Date: 10/05/2018
Description of CL				
Please clarify;				
<ol style="list-style-type: none"> 1) In Table-2 of CPA – DD, version 02.1, dated 11/06/2016, it is indicated that “...Distribution of the stoves is foreseen to made during the years 2015–2017. During the project around <u>11,530 stoves will be distributed</u> (Table A-2)...” (A.3 of CPA-DD). 2) In section C.1 of MR, it is mentioned that “The stove distribution started on June 2015 and by 30th of November 2016 totally 6,705 energy efficient stoves has been distributed. Totally around <u>11,530 stoves</u> are foreseen to be distributed to the households under this CPA” (Part II, C.1 of MR). 3) In section C.1 of MR, it is mentioned that “.....Between June 2015 and July 2017 <u>totally 12,413 energy efficient stoves has been distributed</u>. In future years new stoves might be selected to be distributed”. 				
But, as per MR and ER sheets				
<ol style="list-style-type: none"> a) 1st Monitoring 6,705 stoves distributed by 30/11/2016 and 2nd Monitoring 12,413 stoves distributed by 31/12/2017 b) Vintage 1 - From June 2015 upto May 2016 3,749 with 3412 operational-Dec 2016) and Vintage 2 - Jul 2016 upto Jul 2017 8644 with 7711 operational-Dec 2017 				
Explain why such discrepancies are observed from CPA-DD to MR and ER sheets in the number of cook stoves distributed and operational.				
Project participant response				Date: 16/05/2018
<ol style="list-style-type: none"> 1) The CPA-DD includes the description of the stove distribution plan made <u>ex-ante</u>. The ex-ante defined plan was, in fact, to distribute totally 11,530 stoves between the years 2015-2017. The real distribution which has been realized (until 31/12/2017) is instead 12,413 stoves. 2) Section C.1 of MR 2016 (covering the period 12/07/2016–30/11/2016) indicates the total number of stoves) distributed from the project start until 30/11/2016 (equal to 6,705 stoves). 3) Section C.1 of MR 2017 (covering the period 01/12/2016 – 31/12/2017) states the total number of stoves distributed from the project start until 31/13/2017 (equal to 12,413 stoves). 4) The ER sheet indicates the number of stoves distributed each month (see the sub-page “Total CERs”, columns C and P). In fact, 3,412 stoves (Column C) + 8,644 (Column P) stoves equals 12,413 stoves. The number of operational stoves (indicated in the columns D and Q) is based on the Usage Rate determined through the project monitoring. 				
To clarify the number of the distributed stoves, the section C.1 of the MRs have been re-written in more clear way.				
Documentation provided by project participant				
9981-0002_Monitoring Report 2016_ver 02				
9981-0002_Monitoring Report 2017_ver 02				
DOE assessment				Date: 31/07/2018
The clarification by PP on the planned and actually number of stoves distributed is now clearly re-written in section C.1 of the MR. The ER spreadsheets were checked and found ok. Hence acceptable and CL01 is closed				

CL ID	02	Section no.	MR	Date: 10/05/2018
Description of CL				
Please clarify, what are Vintage 1 and Vintage 2, which are used in calculations of ER in the 2 nd monitoring.				
Project participant response				Date: 16/05/2018

The stoves under this CPA have been distributed between June 2015 and July 2017, thus covering a total distribution period of 26 months. The two vintages used for the monitoring (and consequently in the ER calculations) have been set as follows:

The Vintage 1: Stoves distributed between June 2015 – June 2016

The Vintage 2: Stoves distributed between July 2016 – July 2017

The stove vintages refer, in fact, to the age of stoves and they are set, in line with section D7.2 / “A.3 Sampling method” of the registered CPA-DD, with the aim to account the impact of the stove aging. The clarification regarding the age vintages has been added in the Section E.3 of the 2nd MR.

Documentation provided by project participant

9981-0002_Monitoring Report 2017_ver 02

DOE assessment

Date: 31/07/2018

The clarification by PP that the cookstoves distributed between June 2015 – June 2016 are called Vintage 1 and cookstoves distributed between July 2016 – July 2017 are called Vintage 2 is acceptable and CL02 is closed.

CL ID	03	Section no.	MR	Date: 10/05/2018
Description of CL				
Please clarify; when the crediting period start date is from 12/07/2016 – 30/11/2016 for the 1 st monitoring and 01/12/2017 – 31/12/2017 is for the 2 nd monitoring. The cook stoves distributed and operational from 18/06/2015 is considered for ER calculations, why?				
Project participant response				Date: 16/05/2018
<p>The start date of the project activity (the stove distribution start date 18/06/2015) and the start date of the crediting period (the date when CPA was included under the PoA, 12/07/2016) have been determined in line with the CDM Project standard for programmes of activities and are in line with the registered CPA-DD.</p> <p>As evident from the ER spreadsheets, the ER calculations include only the emission reductions <u>generated</u> during the corresponding crediting periods (in other words, 12/07/2016 – 30/11/2016 for the 1st MR and 01/12/2017– 31/12/2017 is for the 2nd MR).</p> <p>Please refer to the Column E in 1st ER Spreadsheet and the Columns E and R in the 2nd ER Spreadsheet in which are indicated the months which are included in the emission reduction calculations.</p>				
Documentation provided by project participant				
<p>For further details the previously provided ER Spreadsheets may be referred:</p> <ul style="list-style-type: none">- 9981-0002_ER Calculations 2016- 9981-0002_ER Calculations 2017				
DOE assessment				Date: 31/07/2018
<p>The clarification by PP on crediting period start date is clear and acceptable. ER calculations during the corresponding crediting periods (in other words, 12/07/2016 – 30/11/2016 for the 1st MR) were checked and found ok. The cook stoves distributed and operational from August 2015 is not considered for ER calculations now. Hence CL03 is closed</p>				

CL ID	04	Section no.	Section C, page no.7 of MR, dated 15/01/2018	Date:	10/05/2018
Description of CL					
<p>Justify, how</p> <ol style="list-style-type: none"> 1. Usage survey conducted during 10/10/2016 – 01/11/2016 and 2. Kitchen Performance Test (KPT) conducted during 17/10/2016 – 20/10/2016 <p>holds good for the cook stoves distributed/operating crediting period start date 12/07/2016 and post October 2016.</p>					
Project participant response				Date: 16/05/2018	

Justification on the frequency and timing:

In line with to the applied AMS-II.G methodology (paragraph 22 and 23) and the registered CPA-DD (Section D.7.1) the KPT is to be made every year and the Usage Survey at least every two years. Moreover, the registered CPA-DD indicates that the monitoring activities should be conducted at latest 6 months after the end of the specific monitoring period (Section D.7.2).

During the crediting period covered by this verification both KPT and Usage Survey have been conducted annually within the 6 months limit and thus they are fulfilling the above indicated requirements regarding the monitoring frequency and timing. Consequently, the made monitoring activities can be hold good for the cookstoves distributed/operating at the crediting period start date 12/07/2016 and as post October 2016.

The below table summarizes the timing of the monitoring activities made for CPA 2

Monitoring Survey	Year 2016	Year 2017
KPT	17/10/2016 – 20/10/2016	20/11/2017 – 11/12/2017
Usage Survey	10/10/2016 – 01/11/2016	20/09/2017 – 15/11/2017

Justification on the representativeness:

In line with to the applied AMS-II.G methodology (paragraph 22 and 23) and the registered CPA-DD (Section D.7.1) the KPT has been made on a representative sample of all operating devices and Usage Survey on a representative sample of all devices. In fact, the CDM Guidelines for sampling and surveys for CDM project activities and programme of activities has been followed for determining the required sample sizes. Moreover, the Section E.3 of the MRs include the demonstration that the required confidence/precision level was met and that the samples were randomly selected and are representative of the population.

Documentation provided by project participant

For further information the previously provided documents may be referred:

- 9981-0002_Project KPT Report 2016 and 9981-0002_Project KPT Report 2017
- 9981-0002_Usage Survey database 2016 and 9981-0002_Usage Survey database 2017

DOE assessment**Date:** 31/07/2018

The justification on KPT and usage survey by PP is acceptable. PP has conducted KPT every year (KPT Report 2016) and the Usage Survey (Usage Survey Database 2016) at least every two years In line with to the applied AMS-II.G methodology (paragraph 22 and 23) and the registered CPA-DD (Section D.7.2). Hence CL04 is closed

CL ID	05	Section no.	A.3 of CPA DD	Date: 10/05/2018
Description of CL				
The PP is requested to clarify if the use of different fuels is foreseen, and in this case how the diversity is managed in the calculation of emission reductions, in particular with respect to conversion factors.				
Project participant response				Date: 16/05/2018
The main cooking fuel used in the project area is charcoal as evident from on the initial Baseline Survey made in the area as well as the from the Usage Surveys. In addition to charcoal, some families are using as secondary cooking fuels firewood, gas or electricity. The usage of these fuels is anyhow marginal compared to charcoal usage as described in the MRs.				
Within this context, there is no need to assume that the introduction of the project cookstoves would have a significant impact on the shares of different fuels used in the area. Therefore, only the changes in the charcoal consumption are included in the ER calculations (in other words, the impact of the additional fuels <u>is not accounted neither in the baseline nor in the project scenario</u>).				
Documentation provided by project participant				
N/A				
DOE assessment				Date: 31/07/2018
The main cooking fuel used in the project area is charcoal, which was evident from the site visit, initial Baseline Survey and Usage Survey data. PP is not accounting the use of additional fuels (i.e., LPG or electricity) in the ER calculations (i.e., baseline nor in the project scenario). Hence CL05 is closed				

CL ID	06	Section no.	MR and ER sheets	Date: 10/05/2018
Description of CL				

PP needs to clarify that how he has monitored and taken into account in estimation of ER that if traditional/old cook stoves are still operational.	
Project participant response	Date: 16/05/2018
<p>The monitoring has taken into account in estimation of ER the usage of traditional/old cookstoves in two ways:</p> <ol style="list-style-type: none"> 1) First of all, to be conservative only the families using the project cookstoves daily have been included in the ER calculations (determined through the Usage Survey) 2) Secondly, the monitoring of the project charcoal consumption with the KPT ensures that the total charcoal consumption is accounted in the project scenario (KPT measures the total fuel consumption of the sampled household without making difference if the consumption is made with the project stove or with baseline charcoal stove). 	
Documentation provided by project participant	
<p>For further details the previously provided ER Spreadsheets may be referred:</p> <ul style="list-style-type: none"> - 9981-0002_ER Calculations 2016 - 9981-0002_ER Calculations 2017 	
DOE assessment	Date: 31/07/2018
<p>The clarification by PP on impact of traditional (old) and project cook stoves not in use is clear. The impact of this on ER calculations is now clear from the ER calculation sheets, checked, found ok and acceptable as PP is not accounting the use of additional fuels (i.e., LPG or electricity) in ER calculations (i.e., baseline nor in the project scenario). Hence CL06 is closed</p>	

CL ID	07	Section no.	MR	Date: 10/05/2018
Description of CL				
<p>Please clarify how the samples were selected from domestic and non-domestic stove population. Also provide the reference of tools/calculations used for the selection of numbers as well as the determination of the sample sizes in the monitoring report.</p>				
Project participant response				Date: 16/05/2018
<p>As described in the registered CPA-DD, the target population shares similar socioeconomic circumstances and similar baseline cooking habits and can thus be considered homogenous compared to the continued use of the efficient cookstoves. In fact, all the stoves have been bought by local families and no institutional or purely commercial uses of the stoves have been identified by the Usage Surveys. Therefore, PP considers that the used sample selection method (random sample selection chosen out from the whole population or vintage wise populations) is appropriate and that there is no need to make difference between domestic and non-domestic users for the purpose of the sampling.</p> <p>The selection of the sample size has been made, in line with the registered CPA-DD, following the "Guidelines for sampling and surveys for CDM project activities and programme of activities". The sample size calculations are presented in the ER Spreadsheets in the sub-page "Sample size".</p> <p>The clarification regarding the used CDM guideline as well as the mentioning that the sample size calculations are presented in the ER Spreadsheet have been added in the Section E.3. of the MRs.</p>				
Documentation provided by project participant				
<p>9981-0002_Monitoring Report 2016_ver 02</p> <p>9981-0002_Monitoring Report 2017_ver 02</p>				
DOE assessment				Date: 31/07/2018
<p>From the usage survey (conducted biannual) submitted by PP; it is evident that a sample size of 53 families for this monitoring period was set as calculated in the separate Excel spreadsheet, in line with the applied methodology, is at least 95/10 (a 95% confidence interval and a 10% margin of error). The required confidence/precision level was met and 53 families were reached and participated to the survey. Hence the sample selection method (random sample selection chosen out from the whole population or vintage wise populations) is appropriate, so CL07 is closed</p>				

CL ID	08	Section no.	MR	Date: 10/05/2018
Description of CL				

When "Cook stoves are broken (i.e., not in use) and traditional (old) cook stoves are used", what is the impact and how such issues are accounted in ER calculations. Clarify	
Project participant response	Date: 16/05/2018
<p>The impact of the project cookstoves which are not used are accounted in the ER calculations in two ways:</p> <ul style="list-style-type: none"> - Only the project stoves being operational (in other words, being used daily) are included in the ER calculations. The number of operation stoves is determined through the Usage Survey made in the field. This procedure ensures that the project cookstoves which are not used (for example because they are broken) are excluded from the ER calculations. - Average daily charcoal consumes are measured via KPT procedure which measures the complete charcoal consumption within the project families. This monitoring procedure ensures that the impact of the continued use of traditional cookstoves are accounted in the ER calculations. 	
Documentation provided by project participant	
<p>For further details the previously provided ER Spreadsheets may be referred:</p> <ul style="list-style-type: none"> - 9981-0002_ER Calculations 2016 - 9981-0002_ER Calculations 2017 	
DOE assessment	Date: 31/07/2018
<p>The clarification by PP that, only the project stoves being operational (in other words, being used daily) are included in the ER calculations and project cookstoves which are not used (for example because they are broken) are excluded from the ER calculations is acceptable. The Usage Survey database was checked and found ok. Hence CL04 is closed</p>	

CL ID	09	Section no.	MR	Date: 10/05/2018
Description of CL				
<p>The entire project data has been submitted by Carbonsink, as per the MR, the CME (i.e., Fondazione AVSI) is in charge for the training of the field staff responsible of the stove distribution and monitoring activities, PP is requested to clarify on how this requirement is met.</p>				
Project participant response				Date: 16/05/2018
<p>In line with the registered CPA-DD (Table D-6) Carbonsink is responsible for preparing the monitoring reports to be provided to DOE. The CME (AVSI Foundation) has further authorized Carbonsink to submit the MRs directly to DOE.</p> <p>Always in line with the CPA-DD (Table D-6), the CME is in charge of the field staff. In fact, the distribution and monitoring field staff (like stove promoters and Usage Survey implementers) as well as external entities (like GIZ for KPT) have been selected, hired and also trained by the CME. In generally, Carbonsink has been actively included in all of these processes to ensure that the CPA-DD and methodology requirements are fulfilled. In some cases, the CME has moreover authorized Carbonsink to take care directly a part of the training. For example, Carbonsink has organized the initial trainings for the monitoring staff implementing the usage surveys in the field.</p>				
Documentation provided by project participant				
N/A				
DOE assessment				Date: 31/07/2018
<p>The clarification on the role of Carbonsink and Fondazione AVSI is clear and acceptable. Hence CL09 is closed</p>				

CL ID	10	Section no.	MR	Date: 10/05/2018
Description of CL				
<p>As per PoA-DD, section B.7.1 "<i>....Water-Boiling-Test (WBT) protocol will be carried out in accordance with national standards (if available) or international standards or guidelines. Weighted average values will be used if more than one type of system is being introduced by the project activity</i>".</p> <p>Submit the records for verification as MR is silent on WBT protocol used.</p>				
Project participant response				Date: 16/05/2018

In line with the paragraph 23 of the applied methodology (AMS-II.G, ver05) and the Section B.7.1 of the registered PoA-DD, the efficiency of the cookstoves can be monitored using one of the following procedures: (a) Kitchen Performance Test (KPT), (b) Water Boiling Test (WBT) or (c) Controlled Cooking Test (CCT). As indicated in the registered CPA-DD (Section D.7.2), the option (a) Kitchen Performance Test (KPT) has been selected for the monitoring of this CPA and, therefore, only the descriptions related to KPT are included in the MRs.

Documentation provided by project participant	
N/A	
DOE assessment	Date: 31/07/2018
The clarification by PP that Kitchen Performance Test (KPT) has been selected for the monitoring of this CPA inline with the registered CPA-DD (Section D.7.2), option (a). Therefore, only the descriptions related to KPT are included in the MR is acceptable. Hence CL10 is closed	

CL ID	11	Section no.	MR	Date: 10/05/2018
Description of CL				
Please clarify; As per section A.5 PoA – DD, version 05, dated 10/10/2014, “... <i>The stove is highly durable, with an average lifetime of the equipment corresponding to seven years, and has five years warranty from the manufacturer (Envirofit, 2014)</i> ...”. Accordingly provide the evidence for lifetime of cook stoves. And the provision for replacement and warranty is not found described in registered CPA-DD and webhosted MR. Even the number of cook stoves that have been replaced (if any) is also missing from in the MR and ER sheets.				
Project participant response				Date: 16/05/2018
The written evidence regarding the estimated life span of the stoves has been provided by the stove producer, Envirofit. This document has been provided to DOE as requested. It is the same document which was (as indicated in the Section A.5 of the registered CPA-DD) provided as reference also during the CPA validation process. There have been no stove replacements within this CPA and consequently no records are presented in the MRs or included in the ER Spreadsheets.				
Documentation provided by project participant				
9981-0002_Envirofit 2014				
DOE assessment				Date: 31/07/2018
The clarification is acceptable, PP submitted the declaration from Envirofit was verified and found ok. Hence CL11 is closed				

CL ID	12	Section no.	MR	Date: 23/05/2018
Description of CL				
In section.E, page no.19, it is mentioned that “ <i>The families were offered a significant discount in case they gave away their old inefficient stove at the moment of buying the project stove and for this reason basically all the families have disposed at least one inefficient stove...</i> ”. Whereas the same was not evident from the discussion with CME and site personal during the site visit.				
Project participant response				Date: 06/06/2018
The families were encouraged to dispose their old inefficient stove at the moment when they bought the project stove by the stove seller team and awareness raising by informing the local population on the benefits of the usage of the improved stoves has been made also during the selling campaigns and initial stakeholder consultation. The Section E has been already updated regarding this issue it is now in line with made project activities.				
Documentation provided by project participant				
9981-0002_Monitoring Report 2016_ver 02 9981-0002_Monitoring Report 2017_ver 02				
DOE assessment				Date: 31/07/2018

PPs clarification that informing the local population were informed on the benefits of the usage of the improved stoves as part of the promotional campaigns and families were encouraged to dispose their old inefficient stove is acceptable. As, now Section E of the MR is revised for clarity, so acceptable. Hence CL12 is closed

CL ID	13	Section no.	MR	Date: 23/05/2018
Description of CL				
<p>During onsite assessment, from the sampled survey it was found that the</p> <ol style="list-style-type: none"> 1. Cook stoves broken and are not in use (ranging from year to months) and 2. Traditional (old) cook stoves are used regularly by some family i.e., weekly once/03-02 days in a week. <p>PP to clarify the impact of such issues in ER calculation.</p>				
Project participant response				Date: 06/06/2018
<p>In line with the approved monitoring plan two different monitoring field surveys have been made, ("Usage Survey" and "Kitchen Performance Test") and consequently, the emission reductions are calculated based on the results of these monitoring surveys.</p> <p>1. Broken stoves</p> <p>The Usage Survey Questionnaire included the following questions based on which the families who were not using the project stove, for example because the stove had got broken, have been excluded from the ER calculations:</p> <ul style="list-style-type: none"> - <i>Do you use the project stove (Yes / No).</i> If the reply was "No", the stove was excluded from the usage rate. - <i>How many meals do you cook with the project stove (number of meals/day)</i> If the reply was "0 times/day", the stove was excluded from the usage rate for conservativeness. <p>Thus, it is confirmed that the broken cookstoves as well as all the cookstove which are not used for some other reason or which are used <u>less than daily</u> have been excluded from the emission reduction calculations.</p> <p>2. Use of the traditional (old) stoves</p> <p>Part of the families using the project cookstoves have continued to use the traditional stoves as a secondary cooking method. Based on Usage Survey it is anyhow clear that the usage of the traditional stoves is marginal compared to the usage of the project stoves as described more specifically in each Monitoring Report.</p> <p>To be conservative, in fact, only the stoves which are used daily have used included in the ER calculations as described above. Moreover, it needs to be stressed that the usage of the traditional cookstoves is accounted in the ER calculations through the results of the annual Kitchen Performance tests (KPTs). In fact, <u>KPT measures the total daily charcoal consume</u> and thus accounts also the charcoal consumes caused by the eventual usage of the traditional stoves, being thus optimal monitoring method for the project situation.</p>				
Documentation provided by project participant				
-				
DOE assessment				Date: 31/07/2018
<p>During site visit, the verification team had visited 06 non-sampled users and found the above issues. Now from the clarification of PP that there is no impact of broken Cook stoves and/or use of Traditional (old) cook stoves on ER calculation is acceptable, as such cookstoves have not been considered for ER calculations. Hence CL13 is closed</p>				

Table 3. CAR from this verification

CAR ID	01	Section no.	A.2 (PoA-DD, Version 05, dated 10/10/2014)	Date: 10/05/2018
Description of CAR				

As per PoA-DD, Version 05, dated 10/10/2014; under A.2., 1. General operating and implementing framework of PoA, It is mentioned that *"Details concerning stove performance, distribution, and assembly will be provided at the CPA level. For each CPA under the proposed PoA stoves will have a unique serial number. Data collected during distribution and monitoring of each CPA will be stored in an electronic data management system, or monitoring database, for a minimum of two years past the crediting period. From this data, the emissions reductions of each CPA in the PoA will be determined. This system will be available for review by the Designated Operational Entity (DOE) during verification of each CPA"*.

Accordingly submit the documents for verification

Project participant response	Date: 16/05/2018
<p>The electronic data management system referred in the Section A.2 of the PoA-DD is meaning the totality of the databases, reports and other documents related to each CPA which are stored. The stored documentations are including:</p> <ul style="list-style-type: none"> - databases like stove selling database and Usage Survey database - reports like Baseline Survey and KPT Survey reports - documents like MRs <p>In line with the PoA, the above-mentioned documents have been submitted to the DOE for verification.</p>	
Documentation provided by project participant	
<ul style="list-style-type: none"> - 9981-0002_Stove Selling Database 2017 - 9981-0002_Usage Survey Database 2016 and 9981-0002_Usage Survey Database 2017 - 9981-0002_Baselines Survey - Cooperação CMD_2012 - 9981-0002_Project KPT Report 2016 and 9981-0002_Project KPT Report 2017 - 9981-0002_Monitoring Report 2016_ver 02 - 9981-0002_Monitoring Report 2017_ver 02 	
DOE assessment	Date: 31/07/2018
The requested documents were submitted, checked and found ok. Hence CAR01 is closed	

CAR ID	02	Section no.	MR	Date: 10/05/2018
Description of CAR				
Provide details as per para 25 of the methodology <i>"In order to assess the leakage described above, monitoring shall include data on the amount of woody biomass saved under the project activity that is used by non-project households/users (who previously used renewable energy sources). Other data on non-renewable woody biomass use required for leakage assessment shall also be collected"</i> .				
Project participant response				Date: 16/05/2018
Like described in Section D.7.2 (page 30) of the registered CPA-DD, to account for leakage a net to gross adjustment factor of 0.95 (option c of paragraph 29 of the applied AMS-II.G methodology) is applied. In this case monitoring of leakage is not required.				
Documentation provided by project participant				
N/A				
DOE assessment				Date: 31/07/2018
The justification for not monitoring leakage provided by PP is now in line with the applied methodology is acceptable. Hence CAR02 is closed				

CAR ID	03	Section no.	MR	Date: 10/05/2018
Description of CAR				
As per the methodology <i>"Biennial monitoring (i.e., monitoring once every two years) may be chosen, if the project proponents are able to demonstrate that the efficiency of the cook stove does not drop significantly as compared to the initial efficiency of the new device, over a time period of two years of typical usage"</i> . Accordingly, provide record/report to justify biennial monitoring for most of the parameters in the project.				
Project participant response				Date: 16/05/2018

As specified in the Section D.7.2 of the registered CPA-DD, the above referred sentence (i.e. footnote 55 of the CPA-DD) as well as the footnote 12 of the applied AMS-II.G. methodology are referring only to the KPT procedure. During this verification period KPTs have been made anyhow annually and thus there is no need for additional proofs or justifications.

During this verification period also the Usage Survey has been made annually which is in line with the paragraph 22 of the applied AMS-II.G methodology requiring the stove usage to be monitored at least ones every two years (biennial).

Documentation provided by project participant	
N/A	
DOE assessment	Date: 31/07/2018
The justification for monitoring i.e., KPT/usage survey provided by PP is now in line with the applied methodology is acceptable. Hence CAR03 is closed	

CAR ID	04	Section no.	MR	Date: 10/05/2018
Description of CAR				
It is not clear from the MR				
<ul style="list-style-type: none"> a) How monitoring has ensured that the replaced low efficiency appliances are disposed off and are not used within the boundary or within the region. b) If baseline stoves are continued to be used, then how wood fuel consumption of those cook stoves are excluded in ER calculations 				
Project participant response				Date: 16/05/2018
<ul style="list-style-type: none"> a) Usage Survey included a question to find out if the baseline low efficiency stoves have been sold or donated further. The Usage Survey find out that only few families had sold or donated their old stoves further. Please see page 18 of the MR 2016 and page 20 of the MR 2017 for more details. As the low efficiency charcoal cookstoves are the most common cooking methods used in the project area and easily available anyhow both within the project boundary as well as with the region. Therefore, it is not likely that the resold/donated low efficiency stoves made for non-project families would have any significant impact on overall usage of the inefficient charcoal stoves or fuel consumption within the project boundary or within the region. In fact, it would be most likely that the resold/donated low efficiency stoves would replace only older low efficiency cookstoves. Moreover, each project family has been encouraged to dispose their old inefficient stove at the moment they bought the project stove. The project activities also make awareness raising by informing the local population on the benefits of the usage of the improved stoves. b) Monitoring (i.e. Usage Survey) determines the share of the operational devices which is then applied in the ER calculations ensuring that the project devices which are not used are excluded from the calculations. Moreover, monitoring of the project charcoal consumption with the KPT procedure ensures that also the charcoal consumption caused by the eventual continued usage of the baseline stoves in the project scenario is accounted in the ER calculations. In fact, KPT measures the total fuel consumption of the sampled household without making difference if the fuel consumption is made with the project stove or with baseline charcoal stove. 				
Documentation provided by project participant				
9981-0002_Monitoring Report 2016_ver 02 9981-0002_Monitoring Report 2017_ver 02				
DOE assessment				Date: 31/07/2018
The justification for KPT/usage survey and ER calculations provided by PP is now acceptable. Hence CAR04 is closed				

CAR ID	05	Section no.	MR	Date: 10/05/2018
Description of CAR				
It is not clearly explained and justified in the Monitoring report				
<ul style="list-style-type: none"> a) How the samples represent the complete population of cook stoves distributed and b) How the sample size of 53 (1st and 2nd Monitoring) cook stoves for usage survey and sample size of 38 & 36 (1st and 2nd Monitoring) for KPT has been determined 				
Project participant response				Date: 16/05/2018

- a) The samples used for the usage survey and KPTs are representative of the complete population of project cookstoves distributed within the area by the end of each monitoring period in question as justified below.

First of all, for both of the monitoring periods the monitoring activities have been made during the last months before the end of the monitoring period in question to ensure that most of the distributed stoves are already in use. Please note also that the distributed stoves are included in the ER calculations only starting from the beginning of the following month (for example stoves distributed during September 2017, are included in the ER Calculations only from the beginning of the October 2017).

In case of the 1st monitoring (covering the period 12/07/2016-30/11/2016) and in case of the 2nd monitoring (covering the period 01/12/2016-31/12/2017) the samples were drawn within the stoves distributed by the time of the monitoring activity start. As there are no differences between the distribution methods made before and after the monitoring activities in question or any other differences in environmental, social or economic situations, the samples drawn out from stoves distributed by the monitoring survey start can be considered representative for the whole stove populations included in the verification.

- b) The minimum sample sizes have been determined, in line with the registered CPA-DD (page 32), by following the "Guidelines for sampling and surveys for CDM project activities and programme of activities". The specific calculations regarding the minimum sample sizes are presented in the ER Spreadsheets in the sub-page "Sample size". The below table summarizes instead the effective sample sizes used for the CPA 2 monitoring as described also in the Section E.3 of MRs. Moreover, the same section of the MRs includes the demonstration that the required confidence/precision levels were met and that the samples were randomly selected.

As shown in the below table, different sample sizes have used for the different monitoring periods. This is because the total number of the distributed stoves is different between the two periods: For the first monitoring the total population was 6,705 and only one vintage was covered. For the second monitoring made in 2017 the total population to be monitored was instead 12,413 and it covered two vintages.

	1 st monitoring (2016)	2 nd monitoring (2017)
Number of the distributed stoves	6,705	Vintage 1: 3,749 Vintage 2: 8,664 Total: 12,413
Sample size – Usage Survey	53	Vintage 1: 53 Vintage 2: 53 Total: 106
Sample size – KPT	38	Vintage 1: 18 Vintage 2: 18 Total: 36
Reference in ER Spreadsheets	9981-0002_ER Calculations 2016, sub-page "Sample size". In particular, see the cell B-36 for the Usage Survey and the cell B-15 for the KPT.	9981-0002_ER Calculations 2017, sub-page "Sample size". In particular, see the cell AB-36 for the Usage Survey and the cell Z-15 for the KPT.

Documentation provided by project participant

For further info ER Calculation spreadsheets may be consulted:

- 9981-0002_ER Calculations 2016
- 9981-0002_ER Calculations 2017

DOE assessment

Date: 31/07/2018

The required confidence/precision level [95/10 (a 95% confidence interval and a 10% margin of error)] is met and 53 families were reached and participated to the survey. Hence, the justification for sample size and selection provided by PP is acceptable. The ER calculations sheets were checked and found ok. Hence CAR05 is closed

CAR ID	06	Section no.	SECTION C (PoA-DD, Version 05, dated 10/10/2014)	Date: 10/05/2018
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Description of CAR	
<p>As per PoA-DD, Version 05, dated 10/10/2014; SECTION C. Management system, page no.9, under f) Measures for continuous improvements of the PoA management system, it is mentioned that “<i>Project participants of the PoA in close collaboration with the CPA implementers, will undertake an annual review of the overall PoA management system, including identifying any problems with stove distribution, stove use in the homes, monitoring of the stove use and overall database maintenance. This review will ensure that the best practices are maintained through the lifetime of the PoA. If the methodology and standards are updated, the PoA management system might be improved too</i>”.</p> <p>PP to provide the records/documents on</p> <ol style="list-style-type: none"> 1. Annual review of the overall PoA management system 2. Identified problems with stove distribution as recorded 3. Stove use in the homes 4. Method/procedure of monitoring of the stove use and overall database maintenance and 5. Any other Best practices maintained through the lifetime of the PoA 	
Project participant response	Date: 16/05/2018
<p>There are currently 3 on-going CPAs under this PoA. All of these CPAs are implemented in the field by AVSI Foundation (CME of the PoA) and their MRs for verification have been prepared by Carbonsink (one of the PoA participants). This has permitted an easy and continuous information exchange. In addition to AVSI Foundation and Carbonsink, there are two other PoA participants which have been updated and consulted for any proposals for improvements when necessary using mainly conference calls. No separate reports or tracking of these activities have been made.</p> <p>As the all of the current CPAs are implemented by AVSI Foundation, the role of AVSI has been essential in informing and updating the other partners on issues like stove distribution status, stove usage monitoring in the field and other monitoring activities. For this purpose, AVSI Foundation, together with Carbonsink, have for example regularly updated the carbon credit buyer (in this case NEFCO who is also one of the PoA partner) which summaries the made activities, their current status, eventual delays in monthly distribution and solutions and provisions for the coming months (covering issues like stove distribution status, stove usage monitoring and other monitoring activities as well as the validation and verification process updates). Moreover, as an example of an improvement on the CPA management practices can be mentioned the new on-line based monitoring application which was introduced for improving the monitoring of all the three CPAs.</p>	
Documentation provided by project participant	
<p>The following documents, which covers the requested issues, have been shared with DOE regarding the CPA 2:</p> <ul style="list-style-type: none"> - 9981-0002_Stove Selling Database 2017 - 9981-0002_Usage Survey Database 2016 and 9981-0002_Usage Survey Database 2017 - 9981-0002_Project KPT Report 2016 and 9981-0002_Project KPT Report 2017 - 9981-0002_Monitoring Report 2016_ver 02 - 9981-0002_Monitoring Report 2017_ver 02 - 9981-0002_Summary Report for NEFCO_Sep 2017 - Feb 2018 	
DOE assessment	Date: 31/07/2018
The requested documents were submitted, checked and found ok. Hence CAR06 is closed	

CAR ID	07	Section no.	CPA-DD	Date: 10/05/2018
Description of CAR				
<p>PP to submit records/documents on</p> <ol style="list-style-type: none"> 1. Water Boiling Test (WBT) report (Table D.4, page no.17 of CPA DD) 2. Operational lifetime of the cook stove distributed in the project (Section A.5., page no.04 of CPA DD) 3. The records of calibration for the instruments (weighing scale, Thermometer, etc.,) used in the KPT and WBT tests. 4. Training records for the project monitoring staff and 5. Agreements made with GIZ and the work instructions or procedures issued to them. 				
Project participant response				Date: 16/05/2018

3. The Water Boiling Test (WBT) mentioned in the table D-4 of the registered CPA-DD has been made by the Colorado State University for determining of thermal efficiency the Envirofit CH-2200 stove model. The report has been provided to DOE as requested.
4. The written evidence regarding the estimated life span of the stoves as indicated by the stove producer, Envirofit, has been provided to DOE as requested.
5. The calibration procedure of the weighting scale used for the KPT is described in the KPT Report provided to DOE. Please refer the page 12 of the "Project KPT Report 2016". As described in CL12 monitoring of this CPA is not made by using WBT.
6. The following trainings have been organized for the monitoring staff
 - 9-11 October 2016: Three days training for the Usage Survey field team organized by AVSI (Alessandro Galimberti) and Carbonsink (Antonio Guiso). The training including initial theoretical training regarding the survey and it's correct filling as well as practical training and follow up during the first days of the Usage Survey implementation in the field. Totally 5 participants (Celso Langa (responsible of the field team), Angela Mbuiangue, Ester Agostinho, Halima Virgilio Cumbana and Jorge Chicavane).
 - 18-20 September 2017: Three days training for the Usage Survey field team organized by AVSI (Anna Benetello) and Carbonsink (Antonio Guiso). The training including initial theoretical training regarding the survey and practical training and follow up during the first days of the Usage Survey implementation in the field. Totally 3 participants (Celso Langa (responsible of the field team), Cristina Cumbe and Jorge Chicavane).
 - Initial training for the stove promoters (made initially in June 2015 and repeated whenever a new promoter/promoters have been hired): 8-10 days initial training made for the stove promoters included the following topics: human training (soft skills as politeness, motivation to work, sense of responsibility, honesty, team working, civil education, etc.); introduction and objectives of the project; use and maintenance of the product; logistical and administrative procedures; GPS coordinates registration and sales visit simulations; sales coaching with experienced ICSs Sales Promoters.
7. The collaboration between AVSI and German Development Cooperation (GIZ) is made within the framework of Energising Development (EnDev) programme within which GIZ is offering services, like implementation of KPT, to AVSI. In fact, GIZ is highly experienced and internationally known entity working for several decades with cookstove projects and it is implementing the KPTs following the international standard protocol approved by the Global Alliance for Clean Cookstoves. For this purpose, the GIZ's Mozambican team has been trained in the KPT workshop organized 16-20 of June 2013 by Berkeley Air Monitoring Group and United States Environmental Protection Agency EPA (See for example the Project KPT Report 2016, Section 8 "Quality Assurance"). In line with the above-named framework contract and as specified in the Project KPT Report, the KPTs has been implemented by following international standard protocol prepared by Shell Foundation which is approved by the Global Alliance for Clean Cookstoves.
 AVSI provided to GIZ the following main material and info before GIZ started the KPT in the field:
 - Stove selling database
 - Minimum sample size
 - Confidence/precision levels to be respected and reached by the KPT.

Documentation provided by project participant	
1.	9981-0002_Clorado State University 2013
2.	9981-0002_Envirofit 2014
3.	9981-0002_Project KPT Report 2016
4.	9981-0002_Monitoring Report 2016_ver02 and 9981-0002_Monitoring Report 2017_ver02
5.	9981-0002_Project KPT Report 2016
DOE assessment	Date: 31/07/2018
The requested documents are submitted, checked and found ok. Hence CAR07 is closed	

CAR ID	08	Section no.	MR	Date:	10/05/2018
Description of CAR					

PP to submit	
<ol style="list-style-type: none"> 1. Details/records of usage survey conducted during 10/10/2016 – 01/11/2016 (Section C, page no.7 of MR) 2. KPT - Testing period from 17th to 20th of October 2016 and 20th November to 11th December 2017 (1st and 2nd Monitoring). 	
Project participant response	Date: 16/05/2018
The requested documents have been submitted to DOE.	
Documentation provided by project participant	
<ol style="list-style-type: none"> 1. 9981-0002_Usage Survey Database 2016 2. 9981-0002_Project KPT Report 2016 and 9981-0002_Project KPT Report 2017 	
DOE assessment	Date: 31/07/2018
The requested documents were submitted, checked and found ok. Hence CAR08 is closed	

CAR ID	09	Section no.	Section C of MR	Date: 10/05/2018
Description of CAR				
In section B.5 of PoA – DD, version 05, dated 10/10/2014, for meth eligibility criteria no.13 it is mentioned that <i>“End users will enter into an agreement transferring rights to the CERs generated by CPA in return for the subsidized improved stove and its on-going maintenance over a lifetime of the each CPA”</i> . When the length of the first crediting period is 7 years and can be renewed at most three times, for a maximum total length of 21 years. Justify				
Project participant response				Date: 16/05/2018
Like described in the Section A.3 of the registered CPA-DD, end users have entered into an agreement transferring rights to the CERs generated by the CPA in return for the subsidized price of the improved stove. This form has been, in fact, approved already during the project validation and inclusion under the PoA. Moreover, during the stove distribution each family has been informed on the correct stove usage and cleaning procedures to be followed for conserving the stove in best way and for maximising its duration. Please note that the expected operational lifetime of this CPA is 7 years and 00 months as indicated in the Section A.8.2 of the registered CPA-DD.				
Documentation provided by project participant				
N/A				
DOE assessment				Date: 31/07/2018
The justification by PP on the expected operational lifetime and length of the crediting period is acceptable. Hence CAR09 is closed				

CAR ID	10	Section no.	MR	Date: 10/05/2018
Description of CAR				
The following sections of MR is not as per the CDM PoA MR form filling guidelines:				
<ol style="list-style-type: none"> 1. Section A.1.2. CPAs included in the PoA heading missing 2. B.1. Description of implemented PoA, information is incomplete and 3. F.6. Remarks on increase in achieved emission reductions – justification not provided 				
Project participant response				Date: 16/05/2018
<ol style="list-style-type: none"> 1. The heading has been corrected as noted. 2. The description in B.1. has been updated to include more detailed information, for example, on the competencies of the personnel and the implemented training activities. 3. The section F.6. has been updated with a justification regarding the increase in achieved emission reductions. 				
Documentation provided by project participant				
9981-0002_Monitoring Report 2016_ver02 9981-0002_Monitoring Report 2017_ver02				
DOE assessment				Date: 31/07/2018

The sections of MR are now revised as per the CDM PoA MR form filling guidelines, checked and found ok. So acceptable. Hence CAR10 is closed

CAR ID	11	Section no.	B	Date: 23/05/2018
Description of CAR				
As per section.B of MR (page no.4), "...The CPA ensures that double counting of emission reductions is avoided, through the identification of each stove with a unique identification number..." However, during the visit and interview with the improved cook stove users, it was observed that, serial numbers were not legible (in some cases). How it is ascertained that the traceability and double counting of the stove will not be impacted.				
Project participant response				Date: 06/06/2018
In the cases where the stove serial number has been difficult to read (because the stove has been very dirty), it has been anyhow possible to identify the stove owner through confirming the correspondence with the other detailed information recorded in the stove selling database like the gps coordinates and the name of the person. In fact, the stove selling database contains for each project cookstove owner the following information recorded together with the unique serial number of the stove: owner's name, personal ID when available, address, GPS point and telephone number when available. Consequently, it can be ensured that there is no risk for double counting.				
Documentation provided by project participant				
-				
DOE assessment				Date: 31/07/2018
From the cookstoves database, usage survey data and in the site visit the unique serial number of the stove, owner's name, personal ID, address, GPS point and telephone number were crossed check and found ok. The step taken by PP to avoid double counting of emission reductions is acceptable. Hence CAR11 is closed				

Table 4. FAR from this verification

FAR ID	Nil	Section No.	NA	Date: 10/05/2018
Description of FAR				
-				
Project participant response				Date: DD/MM/YYYY
-				
Documentation provided by project participant				
-				
DOE assessment				Date: DD/MM/YYYY
-				

Appendix 5.

Data and parameters fixed ex-ante

Net calorific value of the non-renewable woody biomass that is substituted (NCV_{biomass} , TJ/t)	<p>PP has selected IPCC default value i.e., 0.015 TJ/t. It is used for calculation of project emissions or actual net GHG removals by sinks, fixed at PoA level and for entire crediting period of the CPA.</p> <p>The verification team confirms that IPCC default value for wood fuel is 0.015 TJ/tonne can be used for net calorific value of the non-renewable woody biomass that is substituted (NCV_{biomass}) which is in line with the applied methodology (AMS-II.G, paragraph 11)</p>
Emission factor for the substitution of non-renewable woody biomass by similar consumers ($EF_{\text{projected_fossilfuel}}$ tCO ₂ /TJ)	<p>PP has selected AMS-II.G default value i.e., 81.6 tCO₂/TJ. It is used for calculation of project emissions or actual net GHG removals by sinks, fixed at PoA level and for entire crediting period of the CPA.</p> <p>The verification team confirms that the value of 81.6 tCO₂/TJ is to be used as emission factor for the substitution of non-renewable woody biomass by similar consumers ($EF_{\text{projected_fossilfuel}}$) is in line with the applied methodology (AMS-II.G, paragraph 11)</p>
Quantity of woody biomass used in the absence of the project activity in tonnes per device (B_{old} , t/device/year)	<p>PP has applied value 6.080 for 2015 and 2016⁸ based on local usage survey (i.e., Baseline KPT). It is used for calculation of project emissions or actual net GHG removals by sinks, fixed at PoA level and for entire crediting period of the CPA. B_{old} will be multiplied by a net to gross adjustment factor (LAF) to account for leakages.</p> <p>Based on the Baseline KPT the average baseline charcoal consumption per device is to be 973.2 kg of charcoal/household/year.</p> <p>The verification team confirms that the value applied is in accordance to paragraph 14 of the methodology, the quantity of woody biomass (B_{old}) is determined by using a credible local conversion factor determined from literature. Here the conversion factor of 7.14 is chosen based on the study of Brouwer and Falcão, 2004 (Brouwer, R. and Falcão, M. P., 2004¹⁷). Wood fuel consumption in Maputo, Mozambique. Biomass and Bioenergy. Volume 27, Issue 3, September 2004, Pages 233–245. Available at www.sciencedirect.com)</p>
Leakage adjustment factor to account for leakages (LAF, Fraction)	<p>PP has applied AMS-II.G default value i.e., 0.95. It is used for calculation of leakage, fixed at PoA level and for entire crediting period of the CPA.</p> <p>The verification team confirms that the value applied is in accordance to paragraph AMS-II.G (option c of the paragraph 29). B_{old} will be multiplied by a net to gross adjustment factor to account for leakages. In this case surveys are not required.</p>

⁸ As 25% of the project households have bought 2 project stoves and 75% of the project households have bought 1 project stoves, the weighted average to be used in ER calculations can be calculated as follows:
 $(0.25 \times (0.5 \times 6.9486 \text{ t/device/year})) + (0.75 \times 6.9486 \text{ t/device/year}) = 6.0801 \text{ t/device/year}$. Please refer cell C40 in the 9981-0002_ER Calculations, sub-page "ERs per device"

Data and parameters monitored

Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass ($f_{NRB,y}$, Fraction)	PP has applied a default Country specific fraction of non-renewable woody biomass (f_{NRB}) value available on the CDM website (http://cdm.unfccc.int/DNA/fNRB/index.html) i.e., 0.91. It is used for calculation of project emissions or actual net GHG removals by sinks.																	
Annual quantity of woody biomass used during the project activity in tonnes per device, determined through a survey ($B_{y,new,KPT}$, t/device/year)	<p>PP has applied a measured value of 1.956 t/device/year based on Kitchen Performance Test Report of 2016. It is used for calculation of project emissions or actual net GHG removals by sinks.</p> <p>The verification team confirms that the value</p> <ul style="list-style-type: none">• In the usage survey (conducted biannual) a sample size of 53 families for this monitoring period was set by PP as calculated in the separate Excel spreadsheet, in line with the applied methodology, is at least 95/10 (a 95% confidence interval and a 10% margin of error). The required confidence/precision level was met and reached. The required confidence/precision level was met as all the randomly selected 53 households were reached and participated in the survey.• In KPT, (conducted annually) a sample size of 38 families for this monitoring period was set by PP as calculated in the separate Excel spreadsheet, in line with the applied methodology. The required precision of least 90/10 (a 90% confidence interval and a 10% margin of error) is applied in line with the applied methodology⁹ and the required confidence/precision level was met as all the randomly selected 38 households were reached and participated in the survey.• The KPT is conducted by trained monitoring personal																	
Number of project devices of type i operating in year y ($N_{y,i}$, Number)	<p>PP has applied a measured value</p> <table><tr><th>Year</th><th>Month</th><th>Number of operational devices</th></tr><tr><td rowspan="5">2016</td><td>July</td><td>3,112</td></tr><tr><td>August</td><td>3,464</td></tr><tr><td>September</td><td>3,845</td></tr><tr><td>October</td><td>4,380</td></tr><tr><td>November</td><td>4,830</td></tr><tr><td colspan="2">Total</td><td>4,830</td></tr></table> <p>The verification team reviewed the Project database records (Stove Selling Database 2015-2016 and Stove Selling Database 2016) and usage survey (Usage Survey Database 2016) and confirms that, 83% are considered operational. It is used for calculation of project emissions or actual net GHG removals by sinks and shall remain within the limit of 180 GWh_{th} for type II CDM project activities.</p>	Year	Month	Number of operational devices	2016	July	3,112	August	3,464	September	3,845	October	4,380	November	4,830	Total		4,830
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2016	July	3,112																
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⁹ 9981-0002_Project KPT Report 2016

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	29 December 2017	Revision to align with the requirements of the “CDM validation and verification standard for programme of activities” (version 01.0).
01.0	5 June 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: programme of activities, verifying and certifying		