




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

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the programme of activities (PoA)</b>	Domestic Cooking Stoves substitution programme in Mozambique (9981)	
<b>Version number(s) of the PoA-DD(s) to which this report applies</b>	05	
<b>Version number of the verification and certification report</b>	02.1	
<b>Completion date of the verification and certification report</b>	05/02/2019	
<b>Monitoring period number and duration of this monitoring period</b>	03 <sup>rd</sup> Monitoring Period 01/12/2016–31/12/2017	
<b>Number and version number of the monitoring report to which this report applies</b>	Batch no.03 of 03 Version 06, Dated 11/01/2019	
<b>Coordinating/managing entity (CME)</b>	Fondazione AVSI	
<b>Host Parties</b>	Host Parties of the PoA	Is this a host Party to a CPA covered in this report? (yes/no)
	The Republic of Mozambique	Yes
<b>Applied methodologies and standardized baselines</b>	AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass. Version 05.0	
<b>Mandatory sectoral scopes linked to the applied methodologies</b>	Sectoral Scope 03: Energy Demand	
<b>Conditional sectoral scopes linked to the applied methodologies, if applicable</b>	NA	
<b>Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report</b>	26,630 <sup>1</sup> tCO <sub>2</sub> e	
<b>Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report</b>	7592 tCO <sub>2</sub> e	

<sup>1</sup> Period 01/12/2016 - 31/12/2017

<b>Name and UNFCCC reference number of the DOE</b>	EPIS Sustainability Services Private Limited (E-0062) Issuance request number: 9981-MP2-MRP2
<b>Name, position and signature of the approver of the verification and certification report</b>	 K. Sudheendra, Director and Head Operations

## 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). The objectives of this verification are to verify and certify emission reductions reported for the included CPA (CPA 3) for the monitoring period of 01/12/2016–31/12/2017 (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 requirements 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 02.0<sup>1/</sup>, 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 PoA Project Design Document, version 05, dated 10/10/2014 and Component Project Design Document, version 02, dated 11/06/2016 (hereinafter referred to as PoA-DD<sup>2/</sup> and CPA-DD<sup>3/</sup>), corresponding Validation Report<sup>4/</sup> and Monitoring Report<sup>5/</sup> (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) No. 03: “Improved Cookstoves in Pemba ” 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 the city of Pemba in 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 PDD<sup>2/</sup> are in place, and that the project participants have operated the project activity as per the PDD<sup>2/</sup>. Thus the verification team has concluded that the project activity was implemented and operated as per PDD, 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 PDD. The start date of this monitoring period is 01/12/2016.

The monitoring report for this monitoring period is in compliance with the monitoring plan of the PDD. 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)”<sup>6/</sup> 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 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	Ramu	Sidda	EPIC	√	√	√	√
2.	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
3.	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	Project database records (Stove Selling Database 2015-2016 and Stove Selling Database 2017) and usage survey (Usage Survey Database 2017) were manually transferred from the hand-written survey records to the ER calculation spread sheet.	Verification team checked the Stove Selling Database 2015-2016 and Stove Selling Database 2017 <sup>/7/</sup> as well as the User Agreements of all the 51 sampled users <sup>/8/</sup> , which are legally-binding and considered credible. In addition, the verification team also conducted acceptance sampling of the sampled users, and visited 29 sampled users as well as 06 non-sampled users during the site visit. Later, information obtained during the site interview was checked against the database <sup>/7/</sup> and user agreements <sup>/8/</sup> provided by PP

**C.2. Consideration of materiality in conducting the verification**

In line with Guidelines for Application of materiality in verifications<sup>/9/</sup>, 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<sup>/10/</sup> 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, the quality of metering equipment including calibration requirements, 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<sup>/11/</sup> 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 6.0<sup>/12/</sup>. 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: 16/04/2018 to 18/04/2018				
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"> <li>1) an assessment of the implementation and operation of the project activity as per the validated PoA-DD/CPA-DD</li> <li>2) a review of information flows for generating, aggregating and reporting of the monitoring parameters</li> <li>3) interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the Monitoring Plan</li> <li>4) a cross-check between information provided in the MR and data from other sources</li> <li>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</li> <li>6) a review of calculations and assumptions made in determining the GHG data and ERs, and</li> <li>7) an identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters</li> <li>8) Review of the implementation status of the project activity</li> <li>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</li> </ol>	Project site	16/04/2018 to 18/04/2018	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	16/04/2018 to 18/04/2018	As Above in section D.2	Dr.D.Siddaramu and Mr.Adelio Muzima
2.	Cumbi	Cristina	AVSI		As Above in section D.2	
3.	Guiso	Antonio	Carbon Sink		As Above in section D.2	
4.	29 households in Cariaco, Alto Gingone & Natite localities of Pemba were visited				As Above in section D.2	

**D.4. Sampling approach**

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The total numbers of Improved Cook Stoves (ICS) distributed at the end of the monitoring period in the Project are 955 stoves (usage rate being 72.17%) in Vintage-1 and 4,776 stoves (usage rate being 92%) in Vintage-2. 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 CO<sub>2</sub> eq."

However, the verification team visited 29 households (and 06 households non-sampled users during the site visit) in Cariaco, Alto Gingone & Natite localities of Pemba. It was observed that all the cook stoves visited were in working condition and no discrepant records were observed with the published MR<sup>/11/</sup> and Stove Selling Database 2016-2017<sup>/07/</sup>. 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<sup>/13/</sup>.

**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
<b>General</b>			
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	01
CPA(s) considered for verification and covered in this report	00	00	00
<b>Programme of activities</b>			
Compliance of the programme implementation with the registered PoA-DD	CL01, CL02	00	00
Implementation and operation of the management system	CL12	00	00
Post-registration changes			
• Temporary deviations from the registered monitoring plan, applied methodology or applied standardized baseline	00	00	00
• Corrections	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 or project design	00	00	00
• Change of coordinating/managing entity	00	00	00
• Changes specific to afforestation and reforestation activities	00	00	00
<b>Component project activities</b>			
Compliance of the CPA implementation with the included CPA design document	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, CL07, CL14	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 and Usage survey	CL04, CL11	CAR08	00
Emergency and abnormal situations	CL08	00	00
Sampling	CL09	CAR05	
lifetime of the equipment	CL10	00	00
Document/Records submission	00	CAR01, CAR06, CAR07	00
Double counting	00	CAR12	00
<b>Total</b>	14	12	01

## SECTION E. Verification findings

### E.1. General

#### E.1.1. Compliance of the monitoring report with the monitoring report form

<b>Means of verification</b>	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.
<b>Findings</b>	CAR10 was raised in this section.
<b>Conclusion</b>	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) <sup>14/</sup> and the instructions therein for filling the CDM-PoA-MR-FORM <sup>15/</sup> . The monitoring report has been prepared in line with VVS-PoA, version 02.0.



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

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The verification team has reviewed the previous validation report and observed that there was 01 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)
Improved Cookstoves in Pemba (9981-0003)	Yes	01/08/2016	05	Yes. FVR for previous monitoring period where CPA 3 is included was uploaded already. (Issuance request number: 9981-MP1-MRP3)

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

<b>Means of verification</b>	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 PDD <sup>/2/</sup> are in place, and that the project participants have operated the project as per the registered PDD <sup>/2/</sup> .
<b>Findings</b>	CAR11, CL01 and CL02 were raised in this section.
<b>Conclusion</b>	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 CPA-DD and that all physical features of the project are in place. A total of 5,731 (i.e., 955 in Vintage I and 4,776 in Vintage II) "CH-2300" model charcoal cook stoves of Envirofit were distributed by the end of December 2017 in this CPA; But the usage rates being 72.17% and 92% respectively. . 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 <sup>/2/</sup> and CPA-DD <sup>/3/</sup> .

**E.2.2. Implementation and operation of the management system**

<b>Means of verification</b>	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 <sup>/3/</sup> .
<b>Findings</b>	CL12 was raised in this section
<b>Conclusion</b>	Verification team evaluated the management systems in place to implement the 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. 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.

**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 permanent deviation from the registered PDD.

**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**

<b>Means of verification</b>	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 02.0".
<b>Findings</b>	CL13 was raised in this section
<b>Conclusion</b>	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 5,731 (i.e., 955 in Vintage I and 4,776 in Vintage II) "CH-2300" model charcoal cook stoves of Envirofit were distributed by the end of December 2017 in this CPA; But the usage rates being 72.17% and 92% respectively. . The CPA has been implemented in accordance with the registered PoA-DD/CPA-DD. In summary, the monitoring period is reasonable and the operation of the CPA is in accordance with the registered CPA-DD.

## 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 a temporary deviation for this monitoring period from the registered PDD.

In line with the registered Monitoring Plan included in the CPA-DD the quantity of woody biomass consumed in project scenario (i.e. parameter  $B_{y,new,KPT}$ ) is to be monitored annually or biennially through the Kitchen Performance Test. However, according the applied methodology (Footnote 12) the 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 cookstove does not drop significantly as compared to the initial efficiency of the new device, over a time period of two years of typical usage.

As the PP is not able to fulfill the requirement of demonstrating that the efficiency of the cookstoves doesn't drop significantly over a time period of two years, the KPT surveys are to be made annually for this project. In other words, the annual KPT surveys should be made in a way that the gap between the start date of the two consecutive KPT surveys is not more than 12 months<sup>2</sup>.

In the year 2016 the KPT was made starting 21/11/2016. To respect the annual rhythm of the monitoring, the consecutive KPT survey should have been started latest on 21/11/2017. However, due the practical reasons regarding the availability of the field team performing the KPT surveys in the project area, the starting date of the KPT of the year 2017 was needed to be postponed and, in fact, the PP was able to start the survey only on 7/12/2017. There is, thus, a gap between the consecutive surveys made in year 2016 and 2017 which is longer than 12 months.

As PP has been temporarily unable to monitor the CPA in accordance with the registered monitoring plan, a temporary deviation from the registered monitoring plan is sought in line with the CDM Project Standard for Programmes of Activities (version 02.0).

Below is demonstrated the compliance with the para 228 of the CDM Project Standard for Programmes of Activities (version 02.0):

**The nature of the deviation** - The registered monitoring plan requires that the monitoring of parameter  $B_{y,new,KPT}$  ("Annual quantity of woody biomass used in year y in tonnes per device, measured as per the Kitchen Performance Test (KPT) protocol") is made through the annual KPT surveys. In other words, the gap between two consecutive KPT surveys shall not longer than 12 months. However, for the start of the annual KPT survey of the year 2017 was delayed and thus started later than 12 months from the start of the previous KPT survey. The nature of this deviation is temporary and thus similar delay in the start of the KPT Survey is not foreseen to repeat in the later project years.

**The extent of the deviation** - The deviation of the registered monitoring plan is regarding the monitoring of the parameter  $B_{y,new,KPT}$  during the year 2017.

**The duration the non-confirm period** - The gap between the start date of the KPT survey made in 2016 (started on 21/11/2016) and the start date of the KPT survey made in 2017 (started on 7/12/2017), is more than the 12 months (a delay of 15 days).

**Proposed alternative monitoring arrangements for the non-confirming period** - In line with para 228 (a) of the CDM Project Standard for Programmes of Activities (version 02.0) the approval of the following alternative monitoring arrangement for the non-confirming period is proposed:

- It is proposed that a temporary deviation for the requirement of making the KPT Survey every 12 months is accepted for the year 2017. In other words, a 15 days delay in the KPT Survey starting date is proposed to be accepted for the year 2017.
- In consequence, it is proposed that the results of KPT Survey made starting 7/12/2017 can be considered applicable for the whole year of the 2017. In fact, the validation team accepted that the delay of 15 days in the survey start date would not impact significantly to the results of the KPT Survey. From the other hand, as the KPT survey (which results are being highly impacted on the conditions of the project stove) was made later than foreseen in the registered monitoring plan, there is no risk that

<sup>2</sup> As per the reply confirmed by the MP77 the Clarification Request SSC\_743 (available at: <https://cdm.unfccc.int/methodologies/SSCmethodologies/clarifications/43111>)

applying these results for the whole year of 2017 would lead to over-estimate the GHG emission reductions.

Moreover, line with para 228 (a) of the CDM Project Standard for Programmes of Activities (version 02.0) the following conservative assumption for the value of  $B_{y,new,KPT}$  is proposed to be applied:

To be conservative in the emission reduction calculations, PP proposes that the results of the KPT survey made in 2017 are, moreover, used for the period 01/12/2016-31/12/2016 instead of the results of the KPT survey made in 2016, which the validation team has accepted. This way it can be ensured that conservative assumptions regarding the values of parameter  $B_{y,new,KPT}$  are used and that there is no risk that the proposed temporary deviation would lead to over-estimate the emission reductions during this monitoring period of 01/12/2016 - 31/12/2017.

KPT 2016	From 21/11/2016 to 24/11/2016	0.994 kg of charcoal per day per household  Note: The KPT made in 2016 resulted as 0.994 kg of charcoal/day/hh for all the population (all stoves were considered to be part of the same age vintage. Stoves were distributed during July 2015 – January 2016)
KPT 2017	From 7/12/2017 to 19/12/2017	Vintage 1: 1.356 kg of charcoal per day per household  Vintage 2: 1.112 kg of charcoal per day per household  Note: vintage 1: stoves distributed between July 2015 to January 2016 Vintage 2: stoves distributed between April 2017 to Dec 2017

Hence KPT 2017 values were used for the vintage cook stoves during the monitoring period. The verification team based on the above infers that prior approval for this temporary change to the current monitoring period is not required via this notification as per the CDM project cycle procedure for programmes of activities, version 2.0, to the CPA003 under the PoA as the CME has used conservative approach. This is as per Appendix 2 of PS-PoA version 2.0

#### **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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There is no such inclusion 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**

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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**

<b>Means of verification</b>	The verification team determined whether the registered monitoring plan is in accordance with the applied methodology <sup>3/</sup> including applicable tools.
<b>Findings</b>	CAR02 and CAR09 were raised in this section
<b>Conclusion</b>	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**

<b>Means of verification</b>	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.
<b>Findings</b>	No CAR/CL was raised in this section
<b>Conclusion</b>	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.

**E.3.4.2. Data and parameters monitored**

<b>Means of verification</b>	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.
<b>Findings</b>	No CAR/CL was raised in this section
<b>Conclusion</b>	<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 biennially) a sample size of at least 51 families for vintage 1 and 53 families for vintage 2 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 not met for vintage 1. So lower bound value was used to calculate the resultant usage rate. Please refer Appendix 5 for details. The required confidence/precision level was met for vintage 2.</p> <p>KPT is made as an annual survey for this CPA<sup>3</sup> and therefore the required precision of least 90/10 (a 90% confidence interval and a 10% margin of error) is applied in line with the applied methodology<sup>4</sup> and the required confidence/precision level was met</p>

**E.3.4.3. Implementation of sampling plan**

<b>Means of verification</b>	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.
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<sup>3</sup> 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.

<sup>4</sup> 9981-0003\_Project KPT Report 2016 and 2017

<b>Findings</b>	CAR05 and CL09 were raised in this section
<b>Conclusion</b>	<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<sup>18/</sup>. In the usage survey (conducted biennially) ) a sample size of at least 104 families (i.e., 51 families from Vintage I and 53 families from Vintage II ) for this monitoring period was set by PP as calculated in the separate Excel spread sheet, 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 not met for vintage 1 and So lower bound value was used to calculate the resultant usage rate.). The required confidence/precision level was met for vintage 2. The verification team has reviewed the user survey database 2017 where all the raw data needed for statistical analysis are available regarding the required precision. Hence accepted.</p> <p>KPT is made as an annual survey for this CPA<sup>5</sup> and therefore the required precision of least 90/10 (a 90% confidence interval and a 10% margin of error) is applied in line with the applied methodology<sup>6</sup> and the required confidence/precision level was met. The verification team has reviewed the KPT reports for 2016 and 2017 where all the raw data needed for statistical analysis are available regarding the required precision. Hence accepted.</p>

#### 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	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.										
	The verification reviewed the calibration reports and observed the following. The scales used are calibrated before put into use. The validity is 06 months from the calibration date. Model and serial number of the scale and that mentioned in the calibration certificate matches. Hence accepted.										
	<table><tr><td>KPT dates for CPA3</td><td>Calibration date</td><td>Calibration agency</td></tr><tr><td>21<sup>st</sup> November 2016 to 24<sup>th</sup> November 2016</td><td>21<sup>st</sup> November 2016 Used equipments were BECT 0014 and BECT 0016</td><td>Biomass Energy Certification &amp; Testing Centre (BECT)</td></tr><tr><td>7<sup>th</sup> November 2017 to 1<sup>st</sup> December 2017</td><td>6<sup>th</sup> November 2017  used equipments: PEM 1, PEM 2, PEM 3</td><td>Dipartimento di Scienze delle Produzioni Agroalimentari e dell'Ambiente, Università degli Studi di Firenze (DISPAA) – University of Florence, Italy</td></tr></table>			KPT dates for CPA3	Calibration date	Calibration agency	21 <sup>st</sup> November 2016 to 24 <sup>th</sup> November 2016	21 <sup>st</sup> November 2016 Used equipments were BECT 0014 and BECT 0016	Biomass Energy Certification & Testing Centre (BECT)	7 <sup>th</sup> November 2017 to 1 <sup>st</sup> December 2017	6 <sup>th</sup> November 2017  used equipments: PEM 1, PEM 2, PEM 3
KPT dates for CPA3	Calibration date	Calibration agency									
21 <sup>st</sup> November 2016 to 24 <sup>th</sup> November 2016	21 <sup>st</sup> November 2016 Used equipments were BECT 0014 and BECT 0016	Biomass Energy Certification & Testing Centre (BECT)									
7 <sup>th</sup> November 2017 to 1 <sup>st</sup> December 2017	6 <sup>th</sup> November 2017  used equipments: PEM 1, PEM 2, PEM 3	Dipartimento di Scienze delle Produzioni Agroalimentari e dell'Ambiente, Università degli Studi di Firenze (DISPAA) – University of Florence, Italy									
	The weighing scale used for the monitoring of parameters is Digital Spring Scale WeiHeng 40 kg max.; 10 gr. Precision. 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.										

<sup>5</sup> 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.

<sup>6</sup> 9981-0003\_Project KPT Report 2016

## 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<sup>/02/</sup> 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<sub>y</sub> =Emission reductions during the year y in tCO<sub>2</sub>e</p> <p>B<sub>y,saivings</sub> =Quantity of woody biomass that is saved in tonnes per device</p> <p>f<sub>NRB,y</sub> =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<sub>NRB</sub>) values available on the CDM website</p> <p>NCV<sub>biomass</sub> = 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<sub>projected_fossilfuel</sub> =Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 tCO<sub>2</sub>/TJ</p> <p>N<sub>y,i</sub>= Number of project devices of type i operating in year y</p> <p><b>Determination of B<sub>y,savings</sub></b></p> <p>In order to determine ex post B<sub>y,savings</sub> equation 2 of Option 1 described in paragraph 12 of AMS-II.G is chosen and therefore, the following equation will be used:</p> $B_{y,saving} = B_{old} - B_{y,new,KPT}$ <p>Where:</p> <p>B<sub>y,saivings</sub> =Quantity of woody biomass that is saved in tonnes per device</p> <p>B<sub>old</sub> =Quantity of woody biomass used in the absence of the project activity in tonnes per device</p> <p>B<sub>y,new,KPT</sub> =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<sup>/02/</sup> and confirmed with the registered CPA-DD and the methodology AMS-II.G, version 05</p> <table><tr><th>Parameter</th><th>Description</th><th>Unit</th><th>Value</th><th>Data Source</th></tr><tr><td>B<sub>old</sub></td><td>Quantity of woody biomass used in the absence of the project activity in tonnes per device</td><td>t/device/year</td><td>5.9680</td><td>Calculated</td></tr><tr><td>LAF</td><td>Leakage adjustment factor to account for leakages</td><td></td><td>0.95</td><td>Methodology AMS-G.II</td></tr><tr><td>B<sub>old_adjusted</sub></td><td>Adjusted quantity of woody biomass used in the absence of the project activity in tonnes</td><td>t/device/year</td><td>5.67</td><td>Calculated</td></tr><tr><td>B<sub>y,new, KPT</sub></td><td>Annual quantity of woody biomass used in year v in</td><td>t/device/year</td><td>3.534 for vintage 1 and 2.898</td><td>Project KPT, See below</td></tr></table>	Parameter	Description	Unit	Value	Data Source	B <sub>old</sub>	Quantity of woody biomass used in the absence of the project activity in tonnes per device	t/device/year	5.9680	Calculated	LAF	Leakage adjustment factor to account for leakages		0.95	Methodology AMS-G.II	B <sub>old_adjusted</sub>	Adjusted quantity of woody biomass used in the absence of the project activity in tonnes	t/device/year	5.67	Calculated	B <sub>y,new, KPT</sub>	Annual quantity of woody biomass used in year v in	t/device/year	3.534 for vintage 1 and 2.898	Project KPT, See below
Parameter	Description	Unit	Value	Data Source																						
B <sub>old</sub>	Quantity of woody biomass used in the absence of the project activity in tonnes per device	t/device/year	5.9680	Calculated																						
LAF	Leakage adjustment factor to account for leakages		0.95	Methodology AMS-G.II																						
B <sub>old_adjusted</sub>	Adjusted quantity of woody biomass used in the absence of the project activity in tonnes	t/device/year	5.67	Calculated																						
B <sub>y,new, KPT</sub>	Annual quantity of woody biomass used in year v in	t/device/year	3.534 for vintage 1 and 2.898	Project KPT, See below																						

		tonnes per device, measured as per the Kitchen Performance Test (KPT) <sup>/19/</sup> protocol			
$B_{y,savings\_adjusted}$	Quantity of woody biomass that is saved in tonnes per device	t/device/year	2.14 for vintage 1 and 2.77 for vintage 2	Calculated	
$f_{NRB, y}$	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 PDD	
$NCV_{biomass}$	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 woody biomass by similar consumers	tCO <sub>2</sub> /TJ	81.6	AMS-II G Default Value	
$ER_y$	Emission reductions during the year y in tCO <sub>2e</sub>	tCO <sub>2</sub> /device/year	2.38 for vintage 1 and 3.09 for vintage 2	Calculated	
Total baseline emissions calculated are 8,466 tCO <sub>2e</sub> .					

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

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

### E.3.5.3. Calculation of leakage GHG emissions

<b>Means of verification</b>	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.
<b>Findings</b>	No CAR/CL was raised in this section
<b>Conclusion</b>	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 874 tCO <sub>2e</sub> .

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

<b>Means of verification</b>	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.
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<b>Findings</b>	CAR04, CL05, CL06, CL07 and CL14 were raised in this section
<b>Conclusion</b>	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 7,592 tCO <sub>2</sub> e. 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 <sub>2</sub> e)	Project emissions or actual net GHG removals by sinks (tCO <sub>2</sub> e)	Leakage (tCO <sub>2</sub> e)	GHG emission reductions or net GHG removals by sinks (tCO <sub>2</sub> e)		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
9981-003	8,466	0	874	0	7,592	7,592
<b>Total</b>	8,466	0	874	0	7,592	7,592

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

<b>Means of verification</b>	The verification team has determined the VER achieved during this monitoring period with the estimated value and reason for increase if any.
<b>Findings</b>	No CAR/CL was raised in this section
<b>Conclusion</b>	The total number of ERs achieved during the monitoring period is 7,592 tCO <sub>2</sub> e. 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	Value estimated in ex ante calculation in the included CPA-DD(s)	Actual values achieved by the CPAs during this monitoring period
9981-003	26,630 tCO <sub>2</sub> e	7,592 <sup>7</sup> tCO <sub>2</sub> e
<b>Total</b>	26,630 tCO <sub>2</sub> e	7,592 tCO <sub>2</sub> e

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

<b>Means of verification</b>	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
<b>Findings</b>	No CAR/CL was raised in this section
<b>Conclusion</b>	The CER achieved in this monitoring period is 7,592 tCO <sub>2</sub> e as compared to ex-ante estimates of 26,630 tCO <sub>2</sub> e indicated in the registered CPA-DD. In summary, verification team confirms that actual emission reduction is lower than the estimate of the registered (included) CPA-DD for the current monitoring period.

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

<b>Means of verification</b>	NA
<b>Findings</b>	NA
<b>Conclusion</b>	NA

#### E.3.7. Global stakeholder consultation

<b>Means of verification</b>	The project MR was webhosted on UNFCCC website
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<sup>7</sup> Period 01/12/2016 - 31/12/2017

<b>Findings</b>	There is no CAR/CL raised in this section.
<b>Conclusion</b>	The project MR was webhosted on UNFCCC website <a href="https://cdm.unfccc.int/filestorage/7/1/M/71MJ1VXYG84FU6KBSQ3W59NOARPZCH/9981-0003_Monitoring%20Report%202017.pdf?t=NEZ8cGloa2FtfDDZsIGCXG7HDav5osb9zNHd">https://cdm.unfccc.int/filestorage/7/1/M/71MJ1VXYG84FU6KBSQ3W59NOARPZCH/9981-0003_Monitoring%20Report%202017.pdf?t=NEZ8cGloa2FtfDDZsIGCXG7HDav5osb9zNHd</a> The comment period was and no comments were received during this time

## 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 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 PoA titled "Domestic Cooking Stoves substitution programme in Mozambique" (POA 9981 ). The objectives of this verification are to verify and certify emission reductions reported for project activity of 01/12/2016 to 31/12/2017 (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<sup>/2/</sup>. 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<sup>/2/</sup>. The start date of this monitoring period is 01/12/2016.

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
Crediting period of included CPA03:	01/08/2016 to 31/07/2023 (Renewable)
PoA-DD CPA-DD Monitoring report of the included CPA03.	Version 05, dated 10/10/2014 Version 02, dated 11/06/2016 Version 6.0 dated 11/01/2019
Methodology used for verification:	AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass" (Version 05.0)
Applicable monitoring period:	01/12/2016 to 31/12/2017 (first and last day included), second verification
Emissions reductions verified:	7,592 tCO <sub>2</sub> e

## SECTION H. Certification statement

>>

EPIC Sustainability Services Private Limited (EPIC) has carried out the first verification of the emission reductions that have been reported for the CDM project id: 9981 "Domestic Cooking Stoves substitution programme in Mozambique" for the monitoring period of 01/12/2016 to 31/12/2017 (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 06, dated 11/01/2019)<sup>/9/</sup>. 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 01/12/2016 to 31/12/2017 (first and last day included) is 7,592 tonnes of CO<sub>2</sub> equivalent

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## 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 <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> 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
IPCC	Intergovernmental Panel on Climate Change
KPT	Kitchen Performance Test
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	Mr Muzima Adelio	Dr. G. Vishnu	Mr. R. Vijaya raghavan
Role	Lead Auditor	Host country expert	Auditor	Technical Reviewer
Competence in relevant sectors	Sector 1	Sector 03		Sector 03
Responsibility	Document review, onsite, DVer preparation, DVer resolution, FVer preparation	Document review, onsite	Document review,	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 EPIC accreditation.

**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.

**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).

### Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	UNFCCC	Validation and Verification Standard for PoA, version 2.0	<a href="https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20190102091604136/Reg_Stan05v02.pdf">https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20190102091604136/Reg_Stan05v02.pdf</a>	UNFCCC
2	PP	Project Design Document (POA-DD), version 05, dated 10/10/2014	<a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a>	UNFCCC
3	PP	Component Project Design Document (CPA-DD), version 02, dated 11/06/2016	<a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a>	UNFCCC
4	Validation DoE	Validation Reports of POA-DD and CPA-DD	<a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a>	UNFCCC
5	PP	Monitoring Report, version 01	<a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a>	UNFCCC
6	UNFCCC	AMS-II.G. Energy efficiency measures in thermal applications of non-renewable biomass, version 05.0	<a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a>	UNFCCC
7	PP	Stove Selling Database		PP

		2015-2016 and Stove Selling Database 2017		
8	PP	User Agreements		PP
9	UNFCCC	Guidelines for Application of materiality in verifications	<a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a>	UNFCCC
10	PP	Emission reduction calculation sheet		PP
12	PP	Final MR, version 06		PP
13	UNFCCC	Standard for sampling and surveys for CDM project activities and Programme of Activities, version 07	<a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a>	UNFCCC
14	UNFCCC	CDM-PoA-MR-FORM, version 02.0	<a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a>	UNFCCC
15	UNFCCC	CDM-PoA-MR-FORM	<a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a>	UNFCCC
16	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programme of activities", version 07	<a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a>	UNFCCC
17	PP (Third party)	Kitchen Performance Tests (KPT) for 2016 and 2017		Third party (GIZ)
18	PP (Third party)	Brouwer and Falcão, 2004 (Brouwer, R. and Falcão, M. P., 2004 National Directorate of New and Renewable Energy to elaborate Mozambique's Biomass Energy Strategy (2012): Mozambique Biomass Energy		Third party

		Strategy and Cuvilas et. al. (2010): Energy situation in Mozambique: A review		
19	PP	Stove Selling Database 2015-2016 & 2017		PP
20	PP	Usage Survey Database 2017		PP

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

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

FAR ID	01	Section no.	NA	Date: 02/04/2018
Description of FAR				
The PPs may chose the monitoring once every two years if they are abale to demonstrated 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. (raised during CPA3 inclusion report)				
Project participant response				Date: 16/04/2018
In fact, the KPT has been made always as annual survey. “KPT is made annually and thus, in line with the applied methodology, no need to demonstrate the efficiency changes				
Documentation provided by project participant				
NIL				
DOE assessment				Date: 31/07/2018
Since PP preferred to make it annual always, the verification team has accepted and closed the issue.				

Table 2. CL from this verification

CL ID	01	Section no.	MR	Date:	02/04/2018
<b>Description of CL</b>					
Please clarify;					
<ol style="list-style-type: none"> <li>1) In Table-2 (section A.3 of CPA-DD, version 02, 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>6,451 stoves will be distributed</u> (Table A-2)..."</li> <li>2) In section C.1 of MR, it is mentioned that "The stove distribution started on July 2015 and by the end of the 2nd monitoring period (by 31th of Dicember 2017) <u>5.731</u> energy efficient stoves has been distributed.</li> </ol>					
But, as per MR and ER sheets					
<ol style="list-style-type: none"> <li>a) 1<sup>st</sup> Monitoring 955 stoves distributed by 03/11/2016 and 2<sup>nd</sup> Monitoring 5,731 stoves distributed by 31/12/2017.</li> </ol>					
<b>Project participant response</b>				<b>Date:</b> 16/04/2018	

- 1) The CPA-DD includes the description of the stove distribution plan which has been defined ex-ante. The ex-ante defined plan was, in fact, to distribute totally 6,451 stoves between the years 2015-2017. The real distribution which has been realized (until 31/12/2017) has been a bit slower than foreseen and only 5,713 stoves has been distributed by the end of the year 2017.
- 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 955 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 5,713 stoves).
- 4) The ER spreadsheets indicate the number of stoves distributed each month (see the sub-page “Total CERs”, columns C and P). In fact, 955 stoves (Column C) + 4,776 (Column P) stoves equals 5,731 stoves. The number of operational stoves (indicated in the columns D and P) 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

9981-0003\_Monitoring Report 2016\_ver 02

9981-0003\_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

<b>CL ID</b>	02	<b>Section no.</b>	MR	<b>Date:</b> 02/04/2018
<b>Description of CL</b>				
Please clarify, what are Vintage 1 and Vintage 2, which are used in calculations of ER in the 2 <sup>nd</sup> monitoring.				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018
<p>The stoves under this CPA have been distributed between July 2015 - January 2016 and April 2017 - December 2017, covering thus two separate sets of distributions. The two vintages used for the monitoring (and consequently in the ER calculations) have been set consequently as follows:</p> <p>The Vintage 1: Stoves distributed between July 2015 – January 2016</p> <p>The Vintage 2: Stoves distributed between April 2017 – December 2017</p> <p>The stove vintages refer, in fact, to the age of stoves and they are set 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 2<sup>nd</sup> MR.</p>				
<b>Documentation provided by project participant</b>				
9981-0003_Monitoring Report 2017_ver 02				
<b>DOE assessment</b>				<b>Date:</b> 31/07/2018
The clarification by PP that the cookstoves distributed between July 2015 – January 2016 are called Vintage 1 and cookstoves distributed between April 2017 – December 2017 are called Vintage 2 is acceptable and CL02 is closed.				

<b>CL ID</b>	03	<b>Section no.</b>	MR and ER sheets	<b>Date:</b> 02/04/2018
<b>Description of CL</b>				
When the crediting period start date is from 01/08/2016 – 30/11/2016 for the 1 <sup>st</sup> monitoring and 01/12/2016 – 31/12/2017 is for the 2 <sup>nd</sup> monitoring. Then, why cook stoves distributed and operational from August 2015 is considered for ER calculations?				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018



The start date of the project activity (the stove distribution start date 15/07/2015) and the start date of the crediting period (the date when CPA was included under the PoA, 01/08/2016) have been determined in line with the CDM Project standard for programmes of activities and are in line with the registered CPA-DD.

As evident from the ER spread sheets, the ER calculations include only the emission reductions generated during the corresponding crediting periods (in other words, 01/08/2016 – 30/11/2016 for the 1<sup>st</sup> MR and 01/12/2017– 31/12/2017 is for the 2<sup>nd</sup> MR).

For the 1<sup>st</sup> MR, please refer to the Column E in the ER Spread sheet “9981-0003\_ER Calculations 2016\_ver02” / sub-page “Total CERs” and for the 2<sup>nd</sup> MR, the Columns E and Q in the ER Spread sheet “9981-0003\_ER Calculations 2017\_ver02” /sub-page “Total CERs” which are indicating the months included in the emission reduction calculations.

#### Documentation provided by project participant

For further details the previously provided ER Spread sheets may be referred:

- 9981-0003\_ER Calculations 2016
- 9981-0003\_ER Calculations 2017

#### DOE assessment

**Date:** 31/07/2018

The clarification by PP on crediting period start date is clear and acceptable. ER calculations during the corresponding crediting periods (in other words, 01/12/2017– 31/12/2017 is for the 2<sup>nd</sup> 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

<b>CL ID</b>	04	<b>Section no.</b>	Section C, page no.7 of MR, dated 15/01/2018	<b>Date:</b> 02/04/2018
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#### Description of CL

Justify, how

1. Usage survey conducted during 07/11/2017 – 01/12/2017 and
2. Kitchen Performance Test (KPT) conducted during 21/11/2016 – 24/11/2016 and 07/12/2017 – 19/12/2017

holds good for the cook stoves distributed/operating in the crediting period start date 01/08/2016

#### Project participant response

**Date:** 16/04/2018

#### 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.7.2) 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 KPTs have been conducted annually and Usage Survey every two years and all of them within the 6 months limit and thus they 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.

The below table summarizes the timing of the monitoring activities made for CPA 3

Monitoring Survey	Year 2016	Year 2017
KPT	21/11/2016 – 24/11/2016	07/12/2017 – 19/12/2017
Usage Survey	N/A	07/11/2017 – 01/12/2017

#### 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 have 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:	
<ul style="list-style-type: none"> <li>- 9981-0003_Project KPT Report 2016 and 9981-0003_Project KPT Report 2017</li> <li>- 9981-0003_Usage Survey Database 2017</li> </ul>	
<b>DOE assessment</b>	<b>Date:</b> 31/07/2018
The justification on KPT and usage survey by PP is acceptable. PP has conducted KPT every year (KPT Report 2016 and 2017) and the Usage Survey (Usage Survey Database 2017) 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	

<b>CL ID</b>	05	<b>Section no.</b>	A.3 of CPA DD	<b>Date:</b> 02/04/2018
<b>Description of CL</b>				
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.				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018
<p>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 project monitoring (Usage Survey). In addition to charcoal, some families are using as secondary cooking fuels gas or electricity. The usage of these fuels is anyhow marginal compared to charcoal usage.</p> <p>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>).</p>				
<b>Documentation provided by project participant</b>				
N/A				
<b>DOE assessment</b>				<b>Date:</b> 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 <u>accounting</u> the use of additional fuels (i.e., LPG or electricity) <u>in the ER calculations (i.e., baseline nor in the project scenario)</u> . Hence CL05 is closed				

<b>CL ID</b>	06	<b>Section no.</b>	MR and ER sheets	<b>Date:</b> 02/04/2018
<b>Description of CL</b>				
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				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018
<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"> <li>- 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.</li> <li>- 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.</li> </ul>				
<b>Documentation provided by project participant</b>				
<p>For further info ER Calculation spreadsheets may be consulted:</p> <p>9981-0003_ER Calculations 2016</p> <p>9981-0003_ER Calculations 2017</p>				
<b>DOE assessment</b>				<b>Date:</b> 31/07/2018

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

<b>CL ID</b>	07	<b>Section no.</b>	MR and ER sheets	<b>Date:</b> 02/04/2018
<b>Description of CL</b>				
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.				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018
<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"> <li>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)</li> <li>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).</li> </ol>				
<b>Documentation provided by project participant</b>				
<p>For further info ER Calculation spreadsheets may be consulted:</p> <p>9981-0003_ER Calculations 2016</p> <p>9981-0003_ER Calculations 2017</p>				
<b>DOE assessment</b>				<b>Date:</b> 31/07/2018
The clarification by PP on impact of traditional/old cook stoves are still operational on ER calculations is now clear from the ER calculation sheets, checked, found ok and acceptable. Hence CL07 is closed				

<b>CL ID</b>	08	<b>Section no.</b>	MR	<b>Date:</b> 02/04/2018
<b>Description of CL</b>				
Please clarify if there are any procedures for emergency and abnormal situations in the project activity.				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018
<p>The project monitoring has been implemented and described in line with the registered PoA-DD, CPA-DD as well as the applied methodology. During the current verification period there has not been identified any emergency or abnormal situations which would have needed particular procedures to be applied and thus neither any related description is included in the MRs.</p>				
<b>Documentation provided by project participant</b>				
N/A				
<b>DOE assessment</b>				<b>Date:</b> 31/07/2018
The clarification PP that in the current verification period there has not been any emergency or abnormal situations which would have needed particular procedures to be applied and thus neither any related description is included in the MRs is acceptable. Hence CL08 is closed				

<b>CL ID</b>	09	<b>Section no.</b>	MR	<b>Date:</b> 02/04/2018
<b>Description of CL</b>				
Please clarify how the samples were selected from cook 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.				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018

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 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.

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".

The clarification regarding the used CDM guideline as well as the mentioning that the sample size calculations are presented in the ER Spreadsheet has been added in the Section E.3. of the MRs.

#### Documentation provided by project participant

9981-0003\_Monitoring Report 2016\_ver 02

9981-0003\_Monitoring Report 2017\_ver 02

#### DOE assessment

Date: 31/07/2018

From the usage survey (conducted biennially ) submitted by PP; it is evident that a sample size of 104 families (51 from vintage 1 and 53 from vintage 2) 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. Hence the sample selection method (random sample selection chosen out from the whole population or vintage wise populations) is appropriate, so CL09 is closed

CL ID	10	Section no.	MR	Date: 02/04/2018
<b>Description of CL</b>				
Please clarify; As per section A.5 PoA – DD, version 05, dated 10/10/2014, "...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)..". 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.				
<b>Project participant response</b>				<b>Date: 16/04/2018</b>
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.				
<b>Documentation provided by project participant</b>				
9981-0003_Envirofit 2014				
<b>DOE assessment</b>				<b>Date: 31/07/2018</b>
The clarification is acceptable, PP submitted the declaration from Envirofit was verified and found ok. Hence CL10 is closed				

CL ID	11	Section no.	MR	Date: 02/04/2018
<b>Description of CL</b>				
As per PoA-DD, section B.7.1 "...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". Submit the records for verification as MR is silent on WBT protocol used.				

<b>Project participant response</b>	<b>Date:</b> 16/04/2018
<p>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).</p> <p>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.</p>	
<b>Documentation provided by project participant</b>	
N/A	
<b>DOE assessment</b>	<b>Date:</b> 31/07/2018
<p>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 CL11 is closed</p>	

<b>CL ID</b>	12	<b>Section no.</b>	MR	<b>Date:</b> 02/04/2018
<b>Description of CL</b>				
<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>				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018
<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>				
<b>Documentation provided by project participant</b>				
N/A				
<b>DOE assessment</b>				<b>Date:</b> 31/07/2018
<p>The clarification on the role of Carbonsink and Fondazione AVSI is clear and acceptable. Hence CL12 is closed</p>				

<b>CL ID</b>	13	<b>Section no.</b>	MR	<b>Date:</b> 23/05/2018
<b>Description of CL</b>				
<p>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.</p>				
<b>Project participant response</b>				<b>Date:</b> 06/06/2018
<p>The families were encouraged to dispose their old inefficient stove at the moment when they bought the project stove and awareness raising by informing the local population on the benefits of the usage of the improved stoves has been made as part of the promotional campaigns and during the initial stakeholder consultation. The Section E of the MRs has been updated regarding this issue.</p>				
<b>Documentation provided by project participant</b>				

9981-0003_Monitoring Report 2016_ver 03	
9981-0003_Monitoring Report 2017_ver 03	
<b>DOE assessment</b>	<b>Date:</b> 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 CL13 is closed	

<b>CL ID</b>	14	<b>Section no.</b>	MR	<b>Date:</b> 23/05/2018
<b>Description of CL</b>				
<p>During onsite assessment, from the non-sampled survey it was found that the</p> <ol style="list-style-type: none"> <li>1. Cook stoves broken and are not in use (ranging from year to months) and</li> <li>2. Traditional (old) cook stoves are used regularly by some family i.e., weekly once/03-02 days in a week.</li> </ol> <p>PP to clarify the impact of such issues in ER calculation.</p>				
<b>Project participant response</b>				<b>Date:</b> 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><b>1. Broken stoves</b></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"> <li>- <i>Do you use the project stove (Yes / No).</i> If the reply was "No", the stove was excluded from the usage rate.</li> <li>- <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.</li> </ul> <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 <b>less than daily</b> have been excluded from the emission reduction calculations.</p> <p><b>2. Use of the traditional (old) stoves</b></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, <b>KPT measures the total daily charcoal consume</b> and thus accounts also the charcoal consume caused by the eventual usage of the traditional stoves, being thus optimal monitoring method for the project situation.</p>				
<b>Documentation provided by project participant</b>				
NIL				
<b>DOE assessment</b>				<b>Date:</b> 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 CL14 is closed</p>				

Table 3. CAR from this verification

<b>CAR ID</b>	01	<b>Section no.</b>	A.2 (PoA-DD, Version 05, dated 10/10/2014)	<b>Date:</b> 02/04/2018
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Description of CAR	
<p>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 <i>“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”.</i></p> <p>Accordingly submit the documents for verification</p>	
Project participant response	Date: 16/04/2018
<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"> <li>- databases like stove selling database and Usage Survey database</li> <li>- reports like Baseline Survey and KPT Survey reports</li> <li>- documents like MRs</li> </ul> <p>In line with the PoA, the above-mentioned documents have been already submitted to the DOE for verification.</p>	
Documentation provided by project participant	
<ul style="list-style-type: none"> <li>- 9981-0003_Stove Selling Database 2015-2016 and 9981-0003_Stove Selling Database 2017</li> <li>- 9981-0003_Usage Survey Database 2017</li> <li>- 9981-0003_Baseline KPT Report</li> <li>- 9981-0003_Project KPT Report 2016 and 9981-0003_Project KPT Report 2016</li> <li>- 9981-0003_Monitoring Report 2016_ver 02</li> <li>- 9981-0003_Monitoring Report 2017_ver 02</li> </ul>	
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: 02/04/2018
Description of CAR				
<p>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></p>				
Project participant response				Date: 16/04/2018
<p>Like described in Section D.7.2 (page 29) 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.</p>				
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: 02/04/2018
Description of CAR				

As per the methodology “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”.

Accordingly, provide record/report to justify biennial monitoring for most of the parameters in the project.

<b>Project participant response</b>	<b>Date:</b> 16/04/2018
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 <u>to the KPT procedure</u> . 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 the Usage Survey has been made every two years which is in line with the paragraph 22 of the applied AMS-II.G methodology.	
<b>Documentation provided by project participant</b>	
N/A	
<b>DOE assessment</b>	<b>Date:</b> 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	

<b>CAR ID</b>	04	<b>Section no.</b>	MR	<b>Date:</b> 02/04/2018
<b>Description of CAR</b>				
It is not clear from the MR				
<ul style="list-style-type: none"> <li>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.</li> <li>b) If baseline stoves are continued to be used, then how wood fuel consumption of those cook stoves are excluded in ER calculations</li> </ul>				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018
<ul style="list-style-type: none"> <li>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 16 of the MR 2016 and page 17 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.</li> <li>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.</li> </ul>				
<b>Documentation provided by project participant</b>				
9981-0003_Monitoring Report 2016_ver 02 9981-0003_Monitoring Report 2017_ver 02				
<b>DOE assessment</b>				<b>Date:</b> 31/07/2018
The justification for KPT/usage survey and ER calculations provided by PP is now acceptable. Hence CAR04 is closed				



<b>CAR ID</b>	05	<b>Section no.</b>	MR	<b>Date:</b> 02/04/2018															
<b>Description of CAR</b>																			
<p>It is not clearly explained and justified in the Monitoring report</p> <p>a) How the samples represent the complete population of cook stoves distributed and</p> <p>b) How the sample size of 51 and 104 (1<sup>st</sup> and 2<sup>nd</sup> Monitoring of CPA-03) cook stoves for usage survey and sample size of 37 &amp; 36 (1<sup>st</sup> and 2<sup>nd</sup> Monitoring) for KPT has been determined</p>																			
<b>Project participant response</b>				<b>Date:</b> 16/04/2018															
<p>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.</p> <p>First of all, for the both 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).</p> <p>In case of the 1<sup>st</sup> monitoring (covering the period 12/07/2016-30/11/2016) the sample was drawn within the all the stoves distributed in the area at the moment (the distribution had been stopped in fact since January 2016).</p> <p>For the 2<sup>nd</sup> monitoring (covering the period 01/12/2016-31/12/2017) instead all the stoves distributed by the end of September 2017 were included in the monitoring population. For this time, the stove distribution continued also during the months of October, November and December during which 750 additional stoves were distributed. As there are no differences between the distribution methods before and after September 2017 or any other differences in environmental, social or economic situations, the sample covering the stoves distributed by the end of September 2017 can be considered re-representative for the whole stove populations included in the verification.</p> <p>b) The minimum sample sizes have been determined, in line with the registered CPA-DD (page 31), by following the "Guidelines for sampling and surveys for CDM project activities and programme of activities". The specific calculations regarding <u>the minimum sample sizes</u> 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 3 monitoring as described also in the Section E.3 of MRs.</p> <p>As shown in the 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 made in 2016 the total population was 955 and only one age-vintage was covered. For the second monitoring made in 2017 the total population to be monitored was instead 5,731 and it covered two age-vintages.</p> <table border="1"> <thead> <tr> <th></th> <th>1<sup>st</sup> monitoring (2016)</th> <th>2<sup>nd</sup> monitoring (2017)</th> </tr> </thead> <tbody> <tr> <td>Number of the distributed stoves</td> <td>955</td> <td>Vintage 1: 955 <u>Vintage 2: 4,776</u> Total: 5,731</td> </tr> <tr> <td>Sample size – Usage Survey</td> <td>N/A</td> <td>Vintage 1: 51 <u>Vintage 2: 53</u> Total: 104</td> </tr> <tr> <td>Sample size – KPT</td> <td>37</td> <td>Vintage 1: 18 <u>Vintage 2: 18</u> Total: 36</td> </tr> <tr> <td>Reference in ER Spreadsheets</td> <td>9981-0003_ER Calculations 2016, sub-page "Sample size". In particularly, see the cell B-36 for the Usage Survey and the cell B-15 for the KPT.</td> <td>9981-0003_ER Calculations 2017, sub-page "Sample size". In particularly, see the cell Q-36 for the Usage Survey and the cell O-15 for the KPT.</td> </tr> </tbody> </table>						1 <sup>st</sup> monitoring (2016)	2 <sup>nd</sup> monitoring (2017)	Number of the distributed stoves	955	Vintage 1: 955 <u>Vintage 2: 4,776</u> Total: 5,731	Sample size – Usage Survey	N/A	Vintage 1: 51 <u>Vintage 2: 53</u> Total: 104	Sample size – KPT	37	Vintage 1: 18 <u>Vintage 2: 18</u> Total: 36	Reference in ER Spreadsheets	9981-0003_ER Calculations 2016, sub-page "Sample size". In particularly, see the cell B-36 for the Usage Survey and the cell B-15 for the KPT.	9981-0003_ER Calculations 2017, sub-page "Sample size". In particularly, see the cell Q-36 for the Usage Survey and the cell O-15 for the KPT.
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<b>Documentation provided by project participant</b>																			

For further info ER Calculation spreadsheets may be consulted:

9981-0003\_ER Calculations 2016

9981-0003\_ER Calculations 2017

<b>DOE assessment</b>	<b>Date:</b> 31/07/2018
The required confidence/precision level [95/10 (a 95% confidence interval and a 10% margin of error)] is met and 104 families (51 families from vintage 1 and 53 families from vintage 2) participated in 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	

<b>CAR ID</b>	06	<b>Section no.</b>	SECTION C (PoA-DD, Version 05, dated 10/10/2014)	<b>Date:</b> 02/04/2018
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#### Description of CAR

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 “*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.*”

PP to provide the records/documents on

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

<b>Project participant response</b>	<b>Date:</b> 16/04/2018
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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.

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.

#### Documentation provided by project participant

The following documents, which covers the requested issues, have been shared with DOE regarding the CPA 3:

- 9981-0003\_Stove Selling Database 2015-2016 and 9981-0003\_Stove Selling Database 2017
- 9981-0003\_Usage Survey database 2017
- 9981-0003\_Project KPT Report 2016 and 9981-0003\_Project KPT Report 2017
- 9981-0003\_Monitoring Report 2016\_ver 02
- 9981-0003\_Monitoring Report 2017\_ver 02
- 9981-0003\_Summary Report for NEFCO\_Sep 2017 - Feb 2018

<b>DOE assessment</b>	<b>Date:</b> 31/07/2018
The requested documents were submitted, checked and found ok. Hence CAR06 is closed	

<b>CAR ID</b>	07	<b>Section no.</b>	CPA DD	<b>Date:</b> 02/04/2018
<b>Description of CAR</b>				
PP to submit records/documents on				
<ol style="list-style-type: none"> <li>1. Water Boiling Test (WBT) report</li> <li>2. Operational lifetime of the cook stove distributed in the project</li> <li>3. The records of calibration for the instruments (Weighing scale, Thermometer, etc.,) used in the KPT and WBT tests.</li> <li>4. Training records for the project monitoring staff and</li> <li>5. Agreements made with GIZ and the work instructions or procedures issued to them.</li> </ol>				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018
<ol style="list-style-type: none"> <li>1. 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.</li> <li>2. 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.</li> <li>3. The calibration procedure of the weighting scale used for the KPT is described in the KPT Report provided to DOE. Please refer the page 13 of the report "Project KPT Report 2016". As described in CL 12, the monitoring of this CPA is not made by using WBT.</li> <li>4. The following training has been organized for the monitoring staff</li> <li>5. <u>7-8 November 2017</u>: 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 (Jose Vintane Malingana Paolo, Antonio Jordao and Marcelino Marques).</li> <li>6. <u>Initial training for the stove promoters (made initially in July 2015 and repeated whenever a new promoter/promoters have been hired)</u>: 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.</li> <li>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.</li> <li>8. AVSI provided to GIZ the following main material and info before GIZ started the KPT in the field: <ul style="list-style-type: none"> <li>- Stove selling database</li> <li>- Minimum sample size</li> <li>- Confidence/precision levels to be respected and reached by the KPT.</li> </ul> </li> </ol>				
<b>Documentation provided by project participant</b>				

1. 9981-0003_Clorado State University 2013
2. 9981-0003_Envirofit 2014
3. 9981-0003_Project KPT Report 2016
4. 9981-0003_Monitoring Report 2016_ver02 and 9981-0003_Monitoring Report 2017_ver02
5. 9981-0003_Project KPT Report 2016
<b>DOE assessment</b>
<b>Date:</b> 31/07/2018
The requested documents are submitted, checked and found ok. Hence CAR07 is closed

<b>CAR ID</b>	08	<b>Section no.</b>	Section C of MR	<b>Date:</b> 02/04/2018
<b>Description of CAR</b>				
PP to submit				
1. Details/records of usage survey conducted during 07/11/2017 – 01/12/2017 and 2. KPT - Testing period from 21/11/2016 – 24/11/2016 and 07/12/2017 – 19/12/2017 (1 <sup>st</sup> and 2 <sup>nd</sup> Monitoring).				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018
The requested documents have been submitted to DOE.				
<b>Documentation provided by project participant</b>				
1. 9981-0003_Usage Survey Database 2017 2. 9981-0003_Project KPT Report 2016 and 9981-0003_Project KPT Report 2017				
<b>DOE assessment</b>				<b>Date:</b> 31/07/2018
The requested documents were submitted, checked and found ok. Hence CAR08 is closed				

<b>CAR ID</b>	09	<b>Section no.</b>	MR	<b>Date:</b> 02/04/2018
<b>Description of CAR</b>				
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				
<b>Project participant response</b>				<b>Date:</b> 16/04/2018
Like described in the Section A.3 of the registered CPA-DD (see eligibility criteria 13), 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.				
<b>Documentation provided by project participant</b>				
N/A				
<b>DOE assessment</b>				<b>Date:</b> 31/07/2018
The justification by PP on the expected operational lifetime and length of the crediting period is acceptable. Hence CAR09 is closed				

<b>CAR ID</b>	10	<b>Section no.</b>	MR	<b>Date:</b> 02/04/2018
<b>Description of CAR</b>				

The following sections of MR is not as per the CDM PoA MR form filling guidelines:	
<ol style="list-style-type: none"> <li>1. Section A.1.2. CPAs included in the PoA heading missing</li> <li>2. B.1. Description of implemented PoA, information is incomplete and</li> </ol>	
<b>Project participant response</b>	<b>Date:</b> 16/04/2018
<ol style="list-style-type: none"> <li>1. The heading has been corrected as noted.</li> <li>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.</li> </ol>	
<b>Documentation provided by project participant</b>	
9981-0003_Monitoring Report 2016_ver02 9981-0003_Monitoring Report 2017_ver02	
<b>DOE assessment</b>	<b>Date:</b> 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	

<b>CAR ID</b>	11	<b>Section no.</b>	MR, Section A.1	<b>Date:</b> 23/05/2018
<b>Description of CAR</b>				
<p>As discussed in</p> <ol style="list-style-type: none"> <li>1. PoA-DD, Version 05, dated 10/10/2014; Section A.6,</li> <li>2. CPA-DD, Version 02, dated 11/06/2016; Section A.5,</li> <li>3. MR, Version 01, dated 22/12/2017; Section A.1,</li> </ol> <p>the Coordinating and Managing Entity (CME) was supposed to distribute "CH-2200" Charcoal Cook Stove model. But during site visit it was observed that all the households are distributed with "CH-2300" Charcoal Cook Stove model. Why?</p>				
<b>Project participant response</b>				<b>Date:</b> 06/06/2018

The reason for changing of the stove model from the initially foreseen CH-2200 to CH-2300 is because Envirofit is not anymore production of the stove model CH-2200 and thus did not have available anymore the CH-2200 stoves for. The technical design and consequently the thermal efficiency of the model CH-2300 is anyhow completely equal with the initially foreseen CH-2200 model. The only difference between these two models is the small improvement made in the design of the cooking pot holder making it more robust in the usage and more suitable for cooking with different types of pots. The pot holder is made from rugged cast in both models and it is a separate item which can be taken off or changed by the stove users. Therefore, for the project families the CH-2200 and CH-2300 are totally equal in their daily usage and all the same dishes can be cooked with both models.

For the above reasons it was not considered relevant to make any specific communications or for example additional stakeholder consultations regarding the new updated stove model. Moreover, as shown in the below table, the stove model CH-2300 is in line with the requirements set in the eligibility criteria nro 3 of the PoA-DD regarding the stove design (see the eligibility criteria nro 03 in page 6 of the PoA-DD ver05).

Criteria as stated in the eligibility criteria nro 3 of the PoA-DD	CH-2300	CH-2200
specified efficiency of at least 20% tested in compliance with WBT, CCT or KPT	42.3 %	42.3 %
biomass fired (for example charcoal or firewood)	Charcoal	Charcoal
stove technology based on combustion or gasification	Combustion	Combustion
single pot or multi pot	Single pot	Single pot
portable or fixed	Portable	Portable
unit size (height x width x depth) between 10 x 15 x 15 cm and 100 x 100 x 100 cm	15.4 x 31.3 x 22.9 cm	15.4 x 31.3 x 22.9 cm

The correct name of the used stove model as well as a justification for this the change have been added in the in the MRs.

#### Documentation provided by project participant

Nil

#### DOE assessment

Date: 31/07/2018

The justification by PP for distributing CH-2300 is acceptable. As the initially foreseen CH-2200 stove model production by Envirofit was not available. And as the technical design and thermal efficiency of the model of CH-2300 is completely equal with the initially foreseen CH-2200 model. Hence CAR11 is closed

CAR ID	12	Section no.	B	Date:	23/05/2018
<b>Description of CAR</b>					
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.					
<b>Project participant response</b>					<b>Date:</b> 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 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.					

<b>Documentation provided by project participant</b>	
Nil	
<b>DOE assessment</b>	<b>Date:</b> 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 CAR12 is closed	

Table 4. FAR from this verification

<b>FAR ID</b>	Nil	<b>Section No.</b>	NA	<b>Date:</b> 02/04/2018
<b>Description of FAR</b>				
-				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
-				
<b>Documentation provided by project participant</b>				
-				
<b>DOE assessment</b>				<b>Date:</b> 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 (<math>NCV_{biomass}</math>) 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 ( $EF_{projected\_fossilfuel}$ tCO <sub>2</sub> /TJ)	<p>PP has selected AMS-II.G default value i.e., 81.6 tCO<sub>2</sub>/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 tCO<sub>2</sub>/TJ is to be used as emission factor for the substitution of non-renewable woody biomass by similar consumers (<math>EF_{projected\_fossilfuel}</math>) 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 of 5.9680 based on localsurvey . 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. <math>B_{old}</math> 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 835.9 kg/device/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 (<math>B_{old}</math>) 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., 2004<sup>18/</sup>. Wood fuel consumption in Maputo, Mozambique. Biomass and Bioenergy. Volume 27, Issue 3, September 2004, Pages 233–245. Available at <a href="http://www.sciencedirect.com">www.sciencedirect.com</a>). This same is supported also by recent studies like National Directorate of New and Renewable Energy to elaborate Mozambique's Biomass Energy Strategy (2012): Mozambique Biomass Energy Strategy and Cuvilas et. al. (2010): Energy situation in Mozambique: A review.</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). <math>B_{old}</math> will be multiplied by a net to gross adjustment factor to account for leakages. In this case surveys are not required.</p>



## Data and parameters monitored

<p>Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass (<math>f_{NRB,y}</math>, Fraction)</p>	<p>PP has applied a default Country specific fraction of non-renewable woody biomass (<math>f_{NRB}</math>) value available on the CDM website (site visited 15/12/2016, <a href="http://cdm.unfccc.int/DNA/fNRB/index.html">http://cdm.unfccc.int/DNA/fNRB/index.html</a>) i.e., 0.91.</p> <p>It is used for calculation of project emissions or actual net GHG removals by sinks.</p>																																													
<p>Annual quantity of woody biomass used during the project activity in tonnes per device, determined through a survey (<math>B_{y,new,KPT}</math>, t/device/year)=3.534 tonnes of charcoal per device per year for vintage 1 and 2.898 tonnes of charcoal per device per year for vintage 2</p> <p>Achieved precision for KPT = 8.0% and 7.7% for vintage 1 and vintage 2 respectively</p> <p>Source: KPT 2017</p> <p>Note:</p> <p>Initial annual KPT was conducted during 21/11/2016 to 24/11/2016. As per the CPA-DD, the next KPT should have happened in 21<sup>st</sup> November 2017. But to some practical reasons, it was found started only on 7/12/2017 (more than one year). Accordingly, CME considered KPT 2017 (KPT 2017 is more conservative than KPT 2016) for the whole monitoring period.</p>	<p>PP has applied a measured based on Kitchen Performance Test Report 2016 and 2017. 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"><li>In KPT, (conducted annually) a sample size of 36 families (18 from vintage 1 stoves and 18 from vintage 2 stoves) 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 methodology and the required confidence/precision level was met.</li><li>The KPT is conducted by trained monitoring personal</li></ul>																																													
<p><b>Number of project devices of type i operating in year y (<math>N_{y,i}</math>, Number)</b></p> <p>Usage rate = 82% and 92% for vintage 1 and vintage 2 respectively as usage survey report</p> <p>Achieved precision = 12.4% and 7.6% for vintage 1 and vintage 2 respectively (lower bound value was used vintage 1)</p> <p>Resultant usage rates = 72.17% and 92% for vintage 1 and vintage 2 respectively</p>	<p>PP has applied a measured value</p> <table><tr><th>Year</th><th>Month</th><th>VINTAGE 1 Number of operational devices</th><th>VINTAGE 2 Number of operational devices</th></tr><tr><td>2016</td><td>December</td><td>689</td><td>-</td></tr><tr><td rowspan="12">2017</td><td>January</td><td>689</td><td>-</td></tr><tr><td>February</td><td>689</td><td>-</td></tr><tr><td>March</td><td>689</td><td>-</td></tr><tr><td>April</td><td>689</td><td>-</td></tr><tr><td>May</td><td>689</td><td>817</td></tr><tr><td>June</td><td>689</td><td>1,547</td></tr><tr><td>July</td><td>689</td><td>2,173</td></tr><tr><td>August</td><td>689</td><td>2,824</td></tr><tr><td>September</td><td>689</td><td>3,373</td></tr><tr><td>October</td><td>689</td><td>3,704</td></tr><tr><td>November</td><td>689</td><td>3,952</td></tr><tr><td>December</td><td>689</td><td>4,216</td></tr></table> <p>The verification team reviewed the Project database records (Stove Selling Database 2015-2016 and Stove Selling Database 2017<sup>/19/</sup>) and usage survey (Usage Survey Database 2017<sup>/20/</sup>) and. In the usage survey</p>	Year	Month	VINTAGE 1 Number of operational devices	VINTAGE 2 Number of operational devices	2016	December	689	-	2017	January	689	-	February	689	-	March	689	-	April	689	-	May	689	817	June	689	1,547	July	689	2,173	August	689	2,824	September	689	3,373	October	689	3,704	November	689	3,952	December	689	4,216
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	<p>(conducted biennially) a sample size of 104 families for this monitoring period (51 from vintage 1 stoves and 53 from vintage 2 stoves) 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 not met for vintage 1. Accordingly, lower bound approach was used.</p> <p>It is used for calculation of project emissions or actual net GHG removals by sinks and shall remain within the limit of 180 GWh<sub>th</sub> for type II CDM project activities.</p>
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### 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.
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