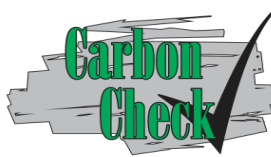


# VERIFICATION REPORT OF ONIL STOVES —GUATEMALA — USPANTÁN



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**Summary:**

C-Quest Capital LLC has appointed the validation/verification body Carbon Check (India) Private Ltd. to perform a verification of VCS Project Activity “ONIL Stoves —Guatemala – Uspantán” in Guatemala (hereafter “project activity”) for the period from 01-August-2017 to 31-July-2018.

HELPS International A.C. and C-Quest Capital registered the “PoA 8480: Distribution of ONIL Stoves— Guatemala” under the CDM on 19 December 2012 and included the first CPA, called: ONIL Stoves — Guatemala – Uspantán, on the same date.

The project proponent applied the approved CDM Methodology: AMS-II.G. Version 03 - Energy efficiency measures in thermal applications of non-renewable biomass. In addition, the Standard for Sampling and Surveys in CDM Project Activities and Programme of Activities version 3.0 (EB 69 Annex 4); Guidelines for Sampling and Surveys in CDM Project Activities and Programme of Activities version 2.0 are used; these documents includes the requirements for sampling and surveys applied to clean development mechanism projects and programme of activities (PoA) and specifies the reliability requirements and describes appropriate sampling methods and what is expected to be provided in a sampling plan.

The verification consisted of the following three phases: i) a desk review of the Monitoring Report ii) On-site Visit; iii) the resolution of outstanding issues and internal technical review followed by the issuance of the final verification report and opinion. In the course of the verification process 01 CAR and 01 CL were raised, all are open. The list of Clarification and Corrective Actions Requests (CL and CAR) is presented in this report.

CC IPL confirms that the project is implemented in accordance with the validated VCS-PD, CDM-SSC-PoA-DD, CDM-SSC-CPA-DD and the monitoring plan; and then, claimed emissions reductions are calculated without material misstatements.

CC IPL has performed the verification ONIL Stoves —Guatemala – Uspantán on the basis of all issues and criteria of VCS Standard version 3.7 and VCS Program Guide version 3.7 for VCS projects and also on the criteria given to provide for consistent project operations, monitoring and reporting. Hence, in CC IPL’s opinion the project correctly applies the baseline and monitoring methodology AMS-II.G.

Version 3 “Energy efficiency measures in thermal applications of non-renewable biomass” and meets the relevant UNFCCC requirements for the CDM Methodology, Voluntary Carbon Standard

requirements and the relevant host country criteria.

Therefore, CCIPL is able to certify that the emissions reductions from the “ONIL Stoves —Guatemala – Uspantán” project during the period from 01-August-2017 to 31-July-2018 amount to 37,508 tonnes of CO<sub>2</sub>e. The year-wise break up of verified emission reduction is as below :

Year	Baseline emissions or removals (tCO <sub>2</sub> e)	Project emissions or removals (tCO <sub>2</sub> e)	Leakage emissions (tCO <sub>2</sub> e)	Net GHG emission reductions or removals (tCO <sub>2</sub> e)
2017 (01/08/2017 to 31/07/2017)	15,715	0	0	15,715
2018 (01/01/2018 to 31/07/2018)	21,793	0	0	21,793
<b>Total</b>	<b>37,508</b>	<b>0</b>	<b>0</b>	<b>37,508</b>

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## 1 INTRODUCTION

### 1.1 Objective

HELPS International and C-Quest Capital LLC are project proponents of the project. C-Quest Capital LLC has appointed CCIPL for verification service for the registered VCS project - “ONIL Stoves —Guatemala – Uspantán” (VCS Project ID 1721) located in Guatemala against the requirement of VCS Program.

Verification is the periodic independent review and ex post determination of both quantitative and qualitative information by a Validation and Verification Body (VVB) of the monitored reductions in GHG emissions that have occurred as a result of the VCS project activity during a defined monitoring period. The purpose of verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data, and used to confirm the reductions in emissions is sufficient, definitive and presented in a concise and transparent manner. Carbon Check’s objective is to perform a thorough, independent assessment of the registered projects activities. In particular the, monitoring plan, monitoring report and the project’s compliance are verified against the relevant criteria and guidance documents provided by VCS. This allows for the confirmation that the project has been implemented in accordance with the registered VCS PD and conservative assumptions, as documented. And also to confirm if the monitoring plan is in compliance with the VCS PD and approved monitoring methodology. The objective of this verification was to verify and certify emission reductions reported for the “ONIL Stoves —Guatemala – Uspantán” for the period 01-August-2017 to 31-July-2018.

### 1.2 Scope and Criteria

The verification of this project is based on the registered Project Description , the Monitoring Report of this monitoring period /01/, emission reduction calculation spread sheet /03/, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

Carbon Check has employed a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The verification is carried out on the basis of the following requirements (latest available on VCS website at the time of verification), applicable for this project activity:

- VCS Standard
- VCS Program Guide
- VCS Validation and Verification Manual
- Approved CDM methodology
- Other relevant rules, including the host country legislation

The scope of this verification, by independent checking of objective evidence, is as follows:

- To verify that the project is implemented as described in the project description
- To assess the project’s compliance with other relevant rules including the host country legislation.
- To assess the implementation of the monitoring plan content as mentioned in the registered VCS-PD
- To confirm that the monitoring system is implemented and fully functional to generate voluntary emission reductions (VERs/VCUs) without any double counting and
- To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation /03/, /04/.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

The method and criteria used for verification consisted of the following phases:

1. Completeness check and desk review:
2. On site visit;
3. Resolution of outstanding issues and issuance of final verification report and applicable VCS Validation and Verification Deeds of Representation.

Carbon Check (India) Private Ltd. conducts all its work under strict rules to safeguard impartiality and ensure the independence of the verification team. The verification does not provide any consulting or recommendations for the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

### 1.3 Level of Assurance

Reasonable level of assurance

Limited level of assurance

### 1.4 Summary Description of the Project

ONIL Stoves —Guatemala – Uspantán involves the distribution and installation of ONIL Stoves for use by households in Guatemala; which includes 11,132 improved cook stoves benefiting families throughout the country. Before the adoption of the ONIL Stove, households in Guatemala used inefficient, conventional open fires.

HELPS International A.C is the implementer of this project. HELPS International A.C. manufactures the ONIL stoves and distributes them to communities throughout Guatemala.

This project was registered under the CDM as the “ONIL Stoves —Guatemala – Uspantán”/3/ which is first CPA of “PoA 8480 : Distribution of ONIL Stoves—Guatemala” (CDM PoA 8480) /2/.

## 2 VERIFICATION PROCESS

### 2.1 Method and Criteria

The method and criteria used for verification:

The verification consists of the following three phases:

1. Completeness check and desk review of the validation report, monitoring plan, monitoring report, monitoring methodology, VCS PD, applicable tools in particular attention to the frequency of measurements, quality of metering equipment’s including calibration requirements, QA/QC procedures and other relevant documents;
2. On-site visit (including follow-up interviews with project stakeholders, when deemed necessary). The on-site assignment includes the following;
  - An assignment of implementation and operation of project activity with respect to validated VCS PD;
  - Review of information flows for generating, aggregating and reporting the monitoring parameters;
  - Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with monitoring plan of the validated VCS PD;
  - Cross check of information and data provided in the monitoring report with plant logbooks, inventories, purchase records or similar data sources;
  - Check of monitoring equipment’s, calibration frequency and monitoring practice in-line with methodology and validated VCS PD;
  - Review of assumptions made in calculating the emission reduction;
  - Implementation of QA/QC procedure in-line with the validated VCS PD and methodology requirement.

Resolution of outstanding issues and the issuance of the final Verification report and if applicable, the VCS Validation and Verification Deeds of Representation.

### 2.2 Document Review

The registered VCS PD , VCS MR /01/, /02/, emission reduction calculation spread sheet /03/, /04/ and supporting documents related to the project implementation, project design, monitoring and baseline were reviewed as per VCS version 03 standard requirements. The desk review included:

- A review of the data and information presented to verify completeness and consistency in accordance with VCS version 03 requirements;

- A review of the approved monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, quality of monitoring equipment (including calibration requirements) and the quality assurance and quality control (QA/QC) procedures;
- An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of emission reductions.

Data input values were also checked from the records maintained by the project proponents. Results of calculations reported in the monitoring report were checked against data values as available from the project proponent in VER calculation sheet /03/, /04/.

These data values and other information related to project performance are available in the form of data records duly archived and maintained as per the quality assurance/quality control procedure specified as a part of monitoring plan in the registered VCS-PD .

Furthermore, the verification team used additional documentation by third parties like host-party legislation, technical reports referring to the project design or to the basic conditions and technical data.

## 2.3 Interviews

A site visit to the project activity was undertaken from 24/09/2018 to 26/09/2018 to assess the implementation and operation of the project activity and to review evidence, and interview key personnel to confirm evidence associated with the data generation, aggregation, and calculation and reporting of the monitoring parameters. The site visit addressed:

- An assessment of the project implementation and operation as per the PD (including physical inspection to confirm physical existence and operation of project components);
- Review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the monitoring plan in the monitoring report /01/,/02/.

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

S. No.	Name	Organization	Topic
/i/	Mr. Tridip Kumar Goswami	C-Quest Capital LLC	CER calculation and completeness of monitoring report, Electronic Monitoring system Project implementation and operation, Project design, monitoring procedure, data and information flow, compliance of monitoring plan with monitoring methodology and approved VCS-PD.
/ii/	Mr. Stephen Miller	Helps International	Roles and responsibility, Project Implementation and Operation status , Qualification and Training, Roles and responsibility.

/iii/	Mr. Jose Luis Loarca	Helps International	Data and information flow, Data input device, Roles and responsibility, Project implementation and operation, monitoring procedure.
/iv/	Mr. Oscar De Leon	Helps International	Data and information flow, Data input device, monitoring procedure.

## 2.4 Site Inspections

Site inspection was carried out to verify that the project is implemented in accordance with the applicable criteria. On-site assessment is necessary to check the monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks carried out during site inspection are:

- The on-site assessment included an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The duly calibration/testing of all metering equipment was checked.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data were checked completely.

During the site visit all monitoring data with respect to accuracy to ensure the calculation of emission reductions was checked. All the procedures and records were found authenticated and properly maintained as per the requirements of the project. The verification team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for the VCS.

## 2.5 Resolution of Findings

Material discrepancies identified in the course of the verification are addressed either as CARs, CLs or FARs. **Corrective action requests (CAR)** are issued, where:

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

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

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

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

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

A total of 01 CAR and 01 CL had been raised for the verification of the project activity *and all are closed*.

### **2.5.1 Forward Action Requests**

No FAR has been raised for the project activity during the monitoring period.

### **2.6 Eligibility for Validation Activities**

Validation/Verification body (VVB), Carbon Check (India) Private Ltd. holds accreditation for validation for the relevant sectoral scope 3 and is eligible for validation/verification for the project activity

## **3 VALIDATION FINDINGS**

### 3.1 Participation under Other GHG Programs

The project activity is also registered under CDM, with reference: PoA 8480. The component project activity is within programme of activity. Details of the CDM registration are the following:

- PoA 8480 : Distribution of ONIL Stoves—Guatemala, registration date 19 December 2012.
- CPA: ONIL Stoves —Guatemala – Uspantán, date of inclusion 19 December 2012 .

### 3.2 Methodology Deviations

No methodology deviations apply to the project activity and project meets the methodology criteria

### 3.3 Project Description Deviations

During the previous verification (for the monitoring period from 20-December-2010 to 31-July-2017), there was a project description deviation. This was due to the sampling method applied in the registered monitoring plan, which was multi-stage sampling. Given that the population being studied is relatively homogeneous with respect to the parameter being studied, therefore simple random sampling was chosen instead of multi-stage sampling method.

### 3.4 Grouped Project

N/A

## 4 VERIFICATION FINDINGS

### 4.1 Project Implementation Status

The implemented project involves distribution of fuel-efficient stoves in Guatemala. ONIL Stoves — Guatemala – Uspantán involves the distribution and installation of ONIL Stoves for use by households in Guatemala; which includes 11,132 improved cook stoves benefiting families throughout the country. Before the adoption of the ONIL Stove, households in Guatemala used inefficient, conventional open fires. The monitoring period 01-August-2017 to 31-July-2018 covered all these stoves.

During the visit CCIPL was able to verify that the project has been implemented as planned and as mentioned in the registered VCS-PD, CDM-SSC-PoA-DD and CDM-SSC-CPA-DD by visiting a sample of 08 households selected at random from the records available at the offices of the PP and the survey samples.

CC IPL verification team performed samples among households included in the monitoring system. Few of the samples were chosen from the list of households where the  $n_{y,j}$  and  $SS_y$  parameters were monitored, the other sample were chosen from households where the  $n_{new,i}$  were monitored (stoves where the WBTs were performed).

To verify the result of the calculation of confidence/precision, CCIPL has followed the Guideline: Sampling and surveys for CDM project activities and programmes of activities.

The project is already registered under CDM (another GHG program) as a CPA. Whereas, the project was included under the registered CDM PoA 8480 on 19 December 2012. Project participants have

provided confirmation that the carbon credits claimed under VCS will not be double counted under the CDM and vice-versa.

In addition, during desk review and on-site visit was confirmed that the project has not received or sought any other form of environmental credit for the project. Also, it was verified that the project has not been rejected from other GHG program after validation and; therefore, it was not necessary to a complete revalidation of the project against the VCS rules.

Overall the project activity was implemented as described in the registered/included VCS-PD and CDM-SSC-CPA-DD. Verification team confirmed that the component project implementation is in accordance with the project description contained in the registered/included VCS-PD and CDMSSC-CPA-DD. No material discrepancies were identified between project implementation and the project description.

Based on above assessment, verification team concluded that all physical features of the project activity in the registered CPA DD are in place and that the project participant has operated the project activity as per the registered CPA DD.

#### 4.2 Accuracy of GHG Emission Reduction and Removal Calculations

The monitoring has been carried out in accordance with the provision of monitoring plan; the verification team reviewed if:

- The monitoring of reductions in GHG emissions resulting from the proposed VCS project activity were implemented in accordance with the monitoring plan contained in the registered VCS-PD, CDM-SSC-PoA-DD and CDM-SSC-CPA-DD.
- The monitoring plan and the applied methodologies had been properly implemented and followed by the project participants.
- All parameters stated in the monitoring plan, the applied methodologies and relevant CDM EB decisions had been sufficiently monitored and updated.
- The responsibilities and authorities for monitoring and reporting were in accordance with the responsibilities and authorities stated in the monitoring plan.

The monitoring system and all applied procedures are in compliance with the monitoring plan contained in the registered VCS-PD, CDM-SSC-PoA-DD and CDM-SSC-CPA-DD and the applied methodology AMS-II.G. version 03, based on the information included in the final monitoring report, there are several procedures for data collecting depending on the methodology applicable for each step of the project. The PP performed the following monitoring steps:

1. **HELPS International: User registered stove.** HELPS International field personnel collected the information in the Registration Card from the users. Information was collected via a Registration Card filled by HELPS International staff and partner organizations. HELPS International staff double-checked the accuracy of the information and requested clarifications if needed.
2. **HELPS International: Data logged into database.** HELPS International trained staff inputted the information from the Registration Card into the database. HELPS International and CQC checked the database records and removed duplicates (this included completing the serial number, checking for name duplicates, etc...).

3. **HELPS International: Spot-checks (ongoing).** HELPS International visited locations in the field and reported updates to office either via telephone or forms. HELPS International personnel corrected the database and clearly marked stoves that were not installed, were given away, the end user died or left town, or had any other issues that made the stove no longer eligible to participate in the CPA. These stoves were excluded from the emission reduction calculations.
4. **Third Parties: Monitoring.** Third Parties followed the sampling plan outlined in the PoA-DD (Section E.7.2). Data was collected in the field from 01-August-2017 to 31-July-2018.
5. **CME Preparation of monitoring report.** CQC has prepared the final monitoring report and retained copies of the document.

Steps 1, 2 and 3 captured end user information and populated the database, as well as provided database quality control. Step 4 involved sampling surveys to capture data on continuous use of stove ( $n_{y,j}$ ) and use of baseline or secondary fires ( $SS_y$ ) as well as stove efficiency ( $\eta_{new,i}$ ) as described in the table below.

Parameter	Description of Parameter	Sampling approach (outcome in brackets)
$n_{y,j}$	Proportion of ONIL Stoves still in operation	Visual inspection of the premises to see if ONIL stove is operational and in use. Interview with end user if required to verify that ONIL stove is still in use (Yes/No)
$SS_y$	Percentage of continued baseline stove use among ONIL stove households in the database	Interview with end user and visual inspection to determine if a baseline (replaced) stove is still being used in addition to ONIL stove (Yes/No)
$\eta_{new,i}$	Thermal Efficiency of operational ONIL Stoves	ONIL Stoves will be tested using WBTs (ONIL stove thermal efficiency)

Two different type of sampling surveys were performed: one gathered information needed for the monitoring of  $n_{y,j}$  and  $SS_y$ , another one to the monitoring of  $\eta_{new,i}$  parameter.

Sampling captured information on monitoring variables with required confidence/precision (in that case as a single CPA is sampled, it is required a 90/10 confidence/precision for annual monitoring). A simple random sampling was used.

The sample size calculation has been conducted in the corresponding Sample calculation spread sheet. The validation team has reviewed the revised information and found them consistent with Guideline: Sampling and surveys for CDM project activities and programme of activities /22/.

CC IPL considers the technical references used were adequate taking into account the methodology and the EB provisions and guidelines for sampling. CC IPL was able to reproduce the calculation obtaining the same results.

The collected data are summarized in a survey report provided to the verification team. The verification team checked the figures during the on-site visit by means of the review of the central database, household visits, and the handwritten records.

CCIPL considers the procedure for sampling to be accurate, conservative and following the approved methodology AMS-II.G ver. 03 and the EB guidance for sampling.

The actual achieved confidence/precision obtained by CCIPL (when reproducing the calculations) was the same than the indicated by the project proponent for each survey. Therefore, the requirement has been met.

During the visit CCIPL was able to verify that the project has been implemented as planned and as mentioned in the registered VCS-PD by visiting a sample of 08 households selected at random from the records available at the offices of the PP in respective zones and city offices and the survey samples. CCIPL verification team preformed samples among households included in the monitoring system.

#### **CCIPL's verification on-site sampling:**

CCIPL has followed paragraph 20 to 31 of the Standard for sampling and surveys for CDM project activities and programme of activities, version 07.0.

CCIPL confirms that the selected samples (as elaborated in the MR) by the project proponent for their monitoring surveys are representative of the population and that the required confidence and precision have been met. This is in line with the requirement of paragraph 21-22 of the sampling Standard and has been explained before.

In line with the requirements of the standard for sampling, CCIPL has designed an acceptance sampling, and has verified a total of 08 records (during the on-site visit to customer households and has found PPs survey records to be acceptable within the limits required of the applied standard as described below.

CCIPL's sample size of 08 records for onsite visit was deemed to be adequate due to the following reasons:

CCIPL selected an acceptable quality level at 1% (following the guidance of the Standard for sampling and surveys for CDM project activities and programme of activities version 07.0). In line with paragraph 29 of the sampling standard, the maximum discrepancy (unacceptable quality level) was fixed at 20% of the determined sample size.

The maximum errors associated with the determination indicated in paragraph above shall remain at levels indicated below:

- A 10% chance that the DOE will wrongly reject the PPs records (producer's risk).
- A 20% chance that the DOE will wrongly accept the PPs records (consumer's risk).

This total sample size of 08 records (is taken from table 1 of the Standard for sampling and surveys for CDM project activities and programme of activities, version 07.0).

Hence, CCIPL confirms that the sampling size and the method of onsite verification were in line with the requirements of the sampling standard and confirms that the monitoring for the verified period has been carried out in accordance with the monitoring plan.

Therefore, in CCIPL's opinion emission reductions have been calculated in accordance with the applied methodology AMS-II.G version 03; registered CPA-DD; and the registered VCS-PD. The PP has used monitored data and ex-ante fixed data including default values as mandated/permitted by the applied methodology. The values used for calculation of GHG emission reductions have been thoroughly checked by the verification team and was found appropriate and correct. The spread sheet submitted by the PP clearly and transparently mentions values of the data parameters used for calculation of emission reductions. The calculations are traceable and follow logical steps. The input values have been verified from the reliable and authentic sources including monitoring records and applied methodology. The emission reductions calculated were compared with the emission reduction spread sheet and found to be correct. No significant reporting risks have been identified for the data reported. The details of monitoring parameters used for calculation of emission reductions are provided below:

### Monitored Parameters

<b>Data / Parameter</b>	Number of ONIL Stoves in operation during the monitoring period. ( $n_{y,i}$ )
<b>Measuring frequency</b>	-
<b>Recording frequency</b>	Data from Registration Cards was uploaded to database continuously to come up with the overall number of stoves installed under the CPA. Monitoring surveys captured the fraction of operational ONIL stoves.
<b>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</b>	Yes.
<b>Type of monitoring equipment</b>	Not applicable. Monitoring surveys and registration card records loaded into CPA database.
<b>Value(s) of monitored parameter</b>	8,970 = 0.8058 multiplied by 11,132 stoves eligible in the database. Note: The percentage of ONIL stove was found in operation from the survey is 80.58%.
<b>Is accuracy of the monitoring equipment as stated in the PDD?</b>	Not applicable
<b>Calibration frequency /interval</b>	Not applicable
<b>Is the calibration interval in line with the monitoring plan of the PDD?</b>	Not applicable
<b>Company performing the calibration</b>	Not applicable
<b>Did calibration confirm proper functioning of monitoring equipment? (Yes / No)</b>	Not applicable

<b>Is(are) calibration(s) valid for the whole reporting period?</b>	Not applicable
<b>If applicable, has the reported data been crosschecked with other available data?</b>	Yes, with hand-written records and personal information from households interviewed during on-site visit
<b>How were the values in the monitoring report verified</b>	Cross checked with the actual data available at the time of the site visit and were also checked with records of PP for the monitoring period (01-August-2017 to 31-July-2018) in form of PDF and Excel files and the database register.
<b>Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?</b>	Yes. The PP system assures the traceability of all records and the spreadsheets could assure correct emission reduction calculations in a transparent way

<b>Data / Parameter</b>	The fraction of ongoing baseline stove use within the population of in-use ONIL Stoves during a monitoring period. ( $SS_y$ )
<b>Measuring frequency</b>	Once per monitoring period
<b>Recording frequency</b>	Once per monitoring period
<b>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</b>	Yes.
<b>Type of monitoring equipment</b>	Not applicable. Calculated from surveys. Data for this parameter was collected using the same survey for the fraction of $n_{y,j}$ . The number of households with operational ONIL stoves and continuing to use baseline stoves divided by the total number of households with operational ONIL Stoves.
<b>Value(s) of monitored parameter</b>	22.10%
<b>Is accuracy of the monitoring equipment as stated in the PDD?</b>	Not applicable
<b>Calibration frequency /interval</b>	Not applicable
<b>Is the calibration interval in line with the monitoring plan of the PDD?</b>	Not applicable

<b>Company performing the calibration</b>	Not applicable
<b>Did calibration confirm proper functioning of monitoring equipment? (Yes / No)</b>	Not applicable
<b>Is(are) calibration(s) valid for the whole reporting period?</b>	Not applicable
<b>If applicable, has the reported data been crosschecked with other available data?</b>	Yes, with handwritten registers and personal information from households interviewed during on-site visit
<b>How were the values in the monitoring report verified</b>	Cross checked actual data available at the time of the site visit and were checked records of PP for the monitoring period (01-August-2017 to 31-July-2018) in form of PDF and Excel files and the database register.
<b>Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?</b>	Yes. The PP system assures the traceability of all records and the spreadsheets could assure correct emission reduction calculations in a transparent way

<b>Data / Parameter:</b>	<b>Efficiency of the ICS (<math>\eta_{new,i}</math>)</b>
<b>Measuring frequency</b>	Water Boiling Tests were implemented over stove samples of 2010, 2011, 2012,2013, 2014,2015 , 2016 and 2017 vintages (i.e. installed during 2010 and 2011) during monitoring period.
<b>Recording frequency</b>	-
<b>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</b>	Yes.
<b>Type of monitoring equipment</b>	<ul style="list-style-type: none"> <li>• Digital scales</li> <li>• Firewood moisture meters</li> <li>• Digital thermometers</li> <li>• Thermocouples</li> </ul> <p>The Water Boiling Test (WBT) protocol used was the WBT version 4.2.2 published by the Global Alliance for Clean Cook stoves.</p>

<b>Value(s) of monitored parameter</b>	<b>Vintage</b>	<b>Efficiency</b>
	1	0.2730
	2	0.2639
	3	0.2610
	4	0.2707
	5	0.2673
	6	0.2682
	7	0.2705
	8	0.2679
	9	0.2720
2	0.2639	
<b>Is accuracy of the monitoring equipment as stated in the PDD?</b>	Not applicable	
<b>Calibration frequency /interval</b>	Not applicable	
<b>Is the calibration interval in line with the monitoring plan of the PDD?</b>	Not applicable	
<b>Company performing the calibration:</b>	The WBTs were conducted by trained staff.	
<b>Did calibration confirm proper functioning of monitoring equipment? (Yes / No)</b>	Not applicable	
<b>Is(are) calibration(s) valid for the whole reporting period?</b>	Not applicable	
<b>If applicable, has the reported data been crosschecked with other available data?</b>	Yes, with handwritten registers and personal information from households interviewed during on-site visit	
<b>How were the values in the monitoring report verified</b>	Cross checked with the records in form PDF and Excel files and the database register of WBT reports.	

<b>Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?</b>	Yes. The PP system assures the traceability of all records and the spread-sheets could assure correct emission reduction calculations in a transparent way
--	--

<b>Data / Parameter</b>	<b>Fraction of CPA monitoring period the stove is in operation (weeks in operation/total weeks in monitoring period) (<math>t_{yj}</math>)</b>
<b>Measuring frequency</b>	-
<b>Recording frequency</b>	Continuous monitoring. Registration Cards or surveys have date of installation of ONIL stoves. These dates are input in CPA database.
<b>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)</b>	Yes.
<b>Type of monitoring equipment</b>	Not applicable.
<b>Value(s) of monitored parameter</b>	1
<b>Is accuracy of the monitoring equipment as stated in the PDD?</b>	Not applicable
<b>Calibration frequency /interval</b>	Not applicable
<b>Is the calibration interval in line with the monitoring plan of the PDD?</b>	Not applicable
<b>Company performing the calibration</b>	Not applicable
<b>Did calibration confirm proper functioning of monitoring equipment? (Yes / No)</b>	Not applicable
<b>Is(are) calibration(s) valid for the whole reporting period?</b>	Not applicable
<b>If applicable, has the reported data been crosschecked with other available data?</b>	Yes, with handwritten registers and personal information from households interviewed during on-site visit

<b>How were the values in the monitoring report verified</b>	Cross checked of actual data available at the time of the site visit and were checked with records of PP for the monitoring period (01-August-2017 to 31-July-2018) in form of PDF and Excel files and the database register.
<b>Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?</b>	Yes. The PP system assures the traceability of all records and the spreadsheets could assure correct emission reduction calculations in a transparent way

Furthermore, after review fixed parameters/ex-ante parameters used for calculation of emission reductions, verification team conclude that it has been properly used on determining emission reduction calculation.

The different data sources mentioned above permit the comparison of the data and the detection of any deviation between them.

### Emission reduction (ER)

The methodology does not calculate baseline and project emissions separately.

Instead, the methodology calculates emission reduction using the following equations:

$$ER = B_{y,saving} \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\ fossil\ fuel} \times L$$

Where:

$ER_y$  : Emissions reductions during the year in tCO<sub>2</sub>e

$B_{y,saving}$  : Quantity of woody biomass that is saved in tonnes

$f_{NRB,y}$  : Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass (0.87)

$NCV_{biomass}$  : Net calorific value of non-renewable woody biomass that is substituted (IPCC default value for fuel wood 0.015 TJ/tonne)

$EF_{projected\ fossil\ fuel}$  : Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 tCO<sub>2</sub>/TJ

$L$  : A net to gross adjustment factor (0.95 default) is applied above (equation (1) of AMS II.G, version 3) in order to adjust  $B_{old}$  to account for leakages as per paragraph 13 (a) of the methodology.

To calculate  $B_{y,saving}$  we use Option 2 (paragraph 6 of AMS II.G)

$$B_{y,saving} = B_{old} \times \left(1 - \frac{n_{old}}{n_{new}}\right)$$

Where:

$B_{old}$  : Quantity of wood fuel used in the absence of the project activity in tonnes

$n_{old}$  : A default value of 0.10 may be optionally used if the replaced system is a three stone fire, or a conventional system with no improved combustion air supply or flue gas ventilation system, i.e. without a grate or a chimney.

$n_{new}$  : Efficiency of the system being deployed as part of the project activity (fraction), as determined using the Water Boiling Test (WBT) protocol. And

$$B_{y,saving} = B_{old,adjusted} \times \sum_{i=1}^n N_{y,i} \left(1 - \frac{n_{old}}{n_{new,i}}\right)$$

Where:

$N_{y,i}$  : Total number of stoves in operation for a full monitoring period equivalent within each SSC-CPA

$n_{old}$  : Efficiency of the baseline system/s being replaced. The 0.10 default value is used as the replaced systems are three-stone fires or conventional systems lacking improved combustion air supply mechanism and flue gas ventilation system i.e., traditional stoves.

$n_{new,i}$  : Efficiency of the system being deployed as part of the project activity (fraction), as determined using the Water Boiling Test (WBT) protocol

It is noted that the formula and calculation used for baseline calculation in the monitoring report and ER sheet is in compliance with the registered CDM-SSC-PoA-DD, CDM-SSC-CPA-DD and VCS-PD. The default values and data used in the final monitoring report are in-line with the registered CDM-SSC-PoA-DD, CDM-SSC-CPA-DD and VCS-PD. Hence, accepted by the verification team of CCIPL.

The reported emission reductions are equivalent to 37,508 tCO<sub>2e</sub> during the reported monitoring period (01-August-2017 to 31-July-2018). According to the registered CDM-SSC-PoA-DD, CDM-SSC-CPA-DD and VCS-PD, the estimated average emission reductions are equivalent to 42,773 tCO<sub>2</sub> per year. The reported average emission reductions per year are lower than the estimated average emission reductions.

PP provided the spreadsheet /03/ used for calculating the GHG emission reductions. CCIPL has reproduced all these calculations to obtain the same results, hence, they are deemed appropriate and consistent with the evidence provided and cross-checked by CCIPL. Furthermore, appropriate methods and formulae for calculating emission reductions have been followed, and assumptions and emission factors correctly applied and justified.

### Project Emission (PE)

Not Applicable.

**Leakage (L)**

Not Applicable.

According to the applied methodology, a net-to-gross adjustment factor of leakage of 0.95 is applied to calculate the emission reductions for the monitoring period.

PP provided the spreadsheets used for calculating the GHG emission reductions. CCIPL has reproduced all these calculations to obtain the same results, hence, they are deemed quantified correctly in accordance with the project description and applied methodology; consistent with the evidence provided and cross-checked by CCIPL. Furthermore, appropriate methods and formulae for calculating baseline emissions, project emissions and leakage have been followed, and assumptions and emission factor correctly applied and justified.

<b>CAR ID</b>	01	<b>Section no.</b>	--	<b>Date</b> : 01/10/2018
<b>Description of CAR</b>				
Year-wise break up (for the year 2017 and 2018) emission reduction needs to be provided in the monitoring report.				
<b>Project Proponent response</b>				<b>Date</b> : 17/11/2018
Year-wise break up (for the year 2017 and 2018) emission reductions have been provided in the revised monitoring report.				
<b>Documentation provided by Project Proponent</b>				
VCS MR ONIL Stoves Guatemala - (CPA1) ver 2 Guatemala CPA 001 - ER calculation sheet ver 2				
<b>DOE assessment</b>				<b>Date:</b> 21/11/2018
Required revision has been done by the project proponent, checked and confirmed by the verification team. CAR is closed.				

<b>CL ID</b>	01	<b>Section no.</b>	Section 4.1	<b>Date</b> : 01/10/2018
<b>Description of CL</b>				
Project Proponent is requested to provide evidence to demonstrate (as reflected in the previous issuance documents) that carbon credits claimed under VCS will not be double counted under the CDM and vice-versa.				
<b>Project Proponent response</b>				<b>Date</b> : 17/11/2018

Till to date, no new request of CER issuance is made under CDM.	
<b>Documentation provided by Project Proponent</b>	
<i>The link to CDM website for PoA 8480 Distribution of ONIL Stoves—Guatemala</i>	
<a href="http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/NQIZR3S1J58FLTHUKMB2X6PY07CE49/view">http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/NQIZR3S1J58FLTHUKMB2X6PY07CE49/view</a>	
<b>DOE assessment</b>	<b>Date:</b> 21/11/2018
Verification team based on review of UNFCCC website confirmed that till now there is no issuance request ort publication of monitoring report of this CPA. Hence the justification provided by project proponent is acceptable. CL is closed.	

#### 4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

CC IPL was able to confirm that the calculations are based on authentic data. The spreadsheets used to calculate the VCU calculations and all figures were tracked, checked and found to be consistent.

The quality of supporting evidences submitted to the VVB for verification is adequate and found to be verifiable. The transfer of carbon rights and other supporting documents related to quality and maintenance were checked by the verification team during the site visit to confirm the authenticity of the documents and to check the correctness of the calculation.

The verification team can confirm that sufficient evidence is available for the whole monitoring period and the same is verifiable and that the data collection system meets the requirements of the monitoring plan and the applied methodology according to the assessment carried out on site and in the document review

Verification team confirms that the quality of evidence to determine the GHG reductions and removals produced was found satisfactory. The detailed information flow with the roles and responsibilities of the individuals and the monitoring system have been provided in the VCS-MR.

#### 4.4 Non-Permanence Risk Analysis

As the project activity is a non-AFOLU project activity no risk related to non-permanence has been identified for the project activity.

### 5 SAFEGUARDS

#### 5.1 No Net Harm

This project was registered under the CDM as the “ONIL Stoves —Guatemala – Uspantán”/3/ which is first CPA of “PoA 8480 : Distribution of ONIL Stoves—Guatemala” (CDM PoA8480) /2/.

Based on review of the PoA DD /14/ and CPA DD /15/, it is confirmed that the ONIL Stove installed under this project presents positive environmental impacts wherever they are applied and no negative environmental impacts have been identified.

## 5.2 Local Stakeholder Consultation

This project was registered under the CDM as the “ONIL Stoves —Guatemala – Uspantán”/3/ which is first CPA of “PoA 8480 : Distribution of ONIL Stoves—Guatemala” (CDM PoA8480) /2/.

Based on review of the PoA DD /14/ and CPA DD /15/, The local stakeholder consultation was done at PoA level, prior to the registration of the PoA.

The outcomes from the local stakeholder consultation is available in Section D of the PoA-DD /14/,/15/

## 6 VERIFICATION CONCLUSION

Carbon Check has performed the verification of the project activity “ONIL Stoves —Guatemala – Uspantán” in Guatemala, with regards to the relevant requirements for VCS project activities.

The conclusions can be summarised as follows:

- The project is implemented and installed as planned and described in the registered VCS PD and project activity confirms with the verification criteria for project and their GHG emission reductions or removals set out in the VCS rules.
- The monitoring plan is in accordance with the applied approved methodology, i.e. AMS II G, version 03.0 and monitoring plan as sought out in the registered VCS-PD .
- The monitoring system is in place and functional. The project has generated verifiable GHG emission reductions.

As the result of the verification of project activities, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. Carbon Check (India) Private Ltd. herewith confirms that the project has achieved emission reductions in the below mentioned reporting period as follows. The project complies with the verification criteria for projects and their GHG emissions reductions or removals set out in VCS rules. Verification period: From [01/08/2017] to [31/07/2018].

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO <sub>2</sub> e)	Project emissions or removals (tCO <sub>2</sub> e)	Leakage emissions (tCO <sub>2</sub> e)	Net GHG emission reductions or removals (tCO <sub>2</sub> e)
2017 (01/08/2017 to 31/07/2017)	15,715	0	0	15,715

2018 (01/01/2018 to 31/07/2018)	21,793	0	0	21,793
<b>Total</b>	<b>37,508</b>	<b>0</b>	<b>0</b>	<b>37,508</b>

## APPENDIX 1: REFERENCES

S. No.	Document
/01/	Monitoring report (draft)
/02/	Monitoring Report (final)
/03/	ER spread sheet corresponding to /01/
/04/	ER spread sheet corresponding to /02/
/05/	CPA Monitoring Records pertaining to: <ol style="list-style-type: none"> <li>1. Efficiency of the system being deployed as part of the project activity</li> <li>2. Total number of stoves installed</li> <li>3. Stove Operation Fraction – used to determine the share of distributed stoves that are still operating, measured ex-post through sampling</li> <li>4. The fraction of end users that are still using baseline (replaced) stoves. The amount of woody biomass consumption that is consumed through the continued use of old stoves</li> </ol>
/06/	CPA distribution records including evidence for the dates of distribution and first distribution of stove in each of the CPAs
/07/	Evidence for the stove specifications for stove type distributed under the CPAs including the efficiency in the monitoring period
/08/	Proof of Carbon Credits waiver by end users
/09/	Sample copies sales receipt / user agreement
/10/	<ol style="list-style-type: none"> <li>1. Water boiling test records</li> <li>2. Copy of the protocol for conducting WBT for the cook stoves</li> </ol>
/11/	Records of the measuring equipment used for WBT
/13/	VCS-PD version 02, dated 06/12/2017
/14/	Registered Clean Development Mechanism Small-Scale Programme Of Activities Design Document (CDM-SSC-PoA-DD), version 6, dated on 12 December 2012.
/15/	Clean development mechanism small-scale program activity design document (CDM-SSCCPA-DD), version 06, dated 12 December 2012.
/16/	CDM methodology AMS II.G., version 03 “Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass”
/17/	Websites referred: <ol style="list-style-type: none"> <li>a) <a href="http://www.v-c-s.org/project/vcs-program/">http://www.v-c-s.org/project/vcs-program/</a></li> <li>b) <a href="https://cdm.unfccc.int">https://cdm.unfccc.int</a></li> <li>c) <a href="http://www.ipcc-nggip.iges.or.jp/public/2006gl/">http://www.ipcc-nggip.iges.or.jp/public/2006gl/</a></li> </ol>
/19/	<ul style="list-style-type: none"> <li>• VCS Standard , version 03.7</li> <li>• VCS Program Guide version 03.7</li> <li>• VCS Validation and Verification Manual, version 03.2</li> <li>• <i>Registration and Issuance Process v3.8</i></li> </ul>
/20/	VCS Program Definitions version 03.7
/21/	VCS PD and VCS MR Template
/22/	<ol style="list-style-type: none"> <li>1. Standard: Sampling and surveys for CDM project activities and programmes of activities, version 07.0</li> <li>2. Guidelines for sampling and surveys for CDM project activities and programme of activities, version 04.0</li> </ol>

## APPENDIX 2: ABBREVIATION

<b>BAU</b>	Business As Usual
<b>CA</b>	Corrective Action / Clarification Action
<b>CER</b>	Certified Emission Reduction
<b>CAR</b>	Corrective Action Request
<b>CC IPL</b>	Carbon Check (India) Private Ltd.
<b>CDM</b>	Clean Development Mechanism
<b>CER</b>	Certified Emission Reduction
<b>CL</b>	Clarification Request
<b>CO<sub>2</sub></b>	Carbon Dioxide
<b>CO<sub>2e</sub></b>	Carbon Dioxide Equivalent
<b>DOE</b>	Designated Operational Entities
<b>DVR</b>	Draft Validation Report
<b>EB</b>	CDM Executive Board
<b>EF</b>	Emission Factor
<b>FA</b>	Final Approval
<b>FAR</b>	Forward Action Request
<b>FVR</b>	Final validation Report
<b>GHG</b>	Greenhouse gas(es)
<b>GWh</b>	Giga Watt Hour
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>MWh</b>	Mega Watt Hour
<b>OSV</b>	On Site Visit
<b>QC/QA</b>	Quality control/Quality assurance
<b>TA</b>	Technical Area
<b>TR</b>	Technical Review
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>VCS</b>	Verified Carbon Standard
<b>VVB</b>	Validation / Verification Body

APPENDIX 3: COMPETENCY CERTIFICATES



**Carbon Check (India) Private Ltd.**

**Vikash Kumar Singh**

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator  Team Leader  Technical reviewer   
 Verifier  Technical Expert  Local Expert<sup>1</sup>

In the following Technical Areas:

TA 1.1  TA 3.1  TA 5.2  TA 9.2  TA 13.2   
 TA 1.2  TA 4.1  TA 8.1  TA 10.1  TA 14.1   
 TA 2.1  TA 5.1  TA 9.1  TA 13.1

Mr. Amit Anand  
CEO

Date of Approval  
24/12/2019

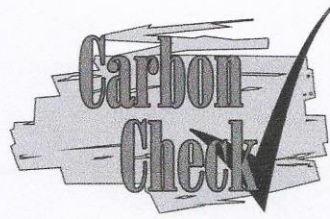
Valid Till  
23/12/2020

**Revision History of the Document**

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2016	Annual Revision
24/12/2017	Annual Revision
24/12/2018	Annual Revision
24/12/2019	Annual Revision

<sup>1</sup> India, South Africa

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 Registered in India: U74930DL2012PTC232495  
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 e-mail: [info@carboncheck.co.in](mailto:info@carboncheck.co.in)



**Carbon Check (India) Private Ltd.**

**Sanjay Agarwalla**

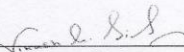
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 06.0):

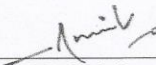
*For following functions:*

Validator  Team Leader  Technical reviewer   
 Verifier  Technical Expert  Local Expert<sup>1</sup>

*In the following Technical Areas:*

TA 1.1  TA 3.1  TA 5.2  TA 9.2  TA 13.2   
 TA 1.2  TA 4.1  TA 8.1  TA 10.1  TA 14.1   
 TA 2.1  TA 5.1  TA 9.1  TA 13.1

  
 Mr. Vikash Kumar Singh  
 Compliance Officer

  
 Mr. Amit Anand  
 CEO

**Date of Approval**  
 24/12/2019

**Valid Till**  
 23/12/2020

**Revision History of the Document**

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24/12/2018	Annual Revision
24/12/2019	Annual Revision

<sup>1</sup> India

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