



VERIFICATION & CERTIFICATION REPORT

MICROSOL S.A.S

UTSIL NAJ – CASA SALUDABLE PARA
TODOS

(GS Ref. No. 1377)

Monitoring Period
(27/12/2011 to 31/12/2014)

REPORT No.
GS.15.VER.005MP01

Date of this issue: 20/07/2016	KBS Ref. No.: GS.15.VER.005MP01	
Project Title:	Utsil Naj – Casa saludable para todos	
Organization:	KBS Certification Services Pvt. Ltd.	
Client:	MICROSOL S.A.S	
Monitoring Period:	27/12/2011 to 31/12/2014 (including both dates)	
Summary:		
KBS Certification Services Pvt. Ltd. Has performed the first verification of the GS PoA Utsil Naj – Casa saludable para todos-VPA 2, 3 and 4 and GS Ref. Number 1377. The verification includes confirming the implementation of the monitoring plan of the registered GS-PDD and the application of the monitoring methodology as per Gold Standard methodology: “Technologies and Practices to Displace Decentralized Thermal Energy Consumption – V.01”. A site visit was conducted to check the implementation of registered monitoring plan and verify the data submitted in the monitoring report. KBS confirms the following has been reviewed; (a) The registered GS-PoA DD, VPA DDs and the monitoring plan; (b) The validation report; (c) The applied monitoring methodology(ies); (d) The monitoring report to verify that it is as per the standardized format; (e) Any other information and references relevant to the project activity’s emission reductions (e.g. IPCC reports, or laboratory analysis and national regulations); (f) VER calculations sheets and all supporting documents; (g) Relevant decisions, clarifications and guidance from the GS; KBS Certification Services Pvt. Ltd. Confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 30,313 tCO₂e, 6,648 tCO₂e and 84,579 tCO₂e emission reductions during period 27/12/2011 up to 31/12/2014 from VPA 2, VPA 3 and VPA 4 respectively.		
Subject Group:	The Gold Standard Toolkit version 2.2	
Sectoral Scope(s):	Methodology:	Standardized Baseline
Energy demand	Gold Standard methodology: “Technologies and Practices to Displace Decentralized Thermal Energy Consumption – V.01	NA
Verification Team:		Monitoring report:
Team Leader	Kaushik Pal	First version 07/07/2016
Technical Expert	Kaushik Pal	Final version 14/03/2016
Local Expert	Kaushik Pal	
Independent Technical Reviewer Team:		Verification status:
Date	21/07/2016	☐ Findings not closed.
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Abbreviations

ASB	Approved Standardized baseline
AURA	Asesoría en Arquitectura y Urbanismo Social (LPP of VPA 4)
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CDT	Corazón de la Tierra (LPP of VPA 4)
CERs	Certified Emission Reductions
CL	Clarification Request
CME	Coordinating Managing Entity
CO ₂ e	Carbon dioxide equivalent
COP	Conference of Parties
DNA	Designated National Authority
DNH	Do Not Harm
DOE	Designated Operational Entity
ECC	Ecocomal (LPP of VPA 2)
ECP	E'copan (LPP of VPA 3)
EIA	Environmental Impact Assessment
ESM	Ecocina Stove Mexico (LPP of VPA 4)
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
FPP	Fondo para la Paz (LPP of VPA 4)
FPCV	Fondo Pro Cuenca Valle de Bravo (LPP of VPA 4)
GHGs	Greenhouse Gas(es)
GIRA	Grupo Interdisciplinario de Tecnología Rural Apropiada (LPP of VPA 4)
GS	Gold Standard
ICS	Improved Cook Stove
ISO	International Organization of Standardization
IPCC	Intergovernmental Panel on Climate Change
KS	Kitchen Survey
KT	Kitchen Test
KP	Kyoto Protocol
kWh	Kilo Watt Hour
LPP	Local Project Participant
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Plan
MWh	Mega Watt Hour
NGO	Non-governmental Organization
PE	Project Emissions
PDD	Project Design Document
PLF	Plant Load Factor
PS	Project Standard
PCP	Project Cycle Procedure
QA/QC	Quality Assurance/Quality Control
SD	Sustainable Development
SDM	Sustainable Development Matrix
STI	Stove Team International
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation & Verification Standard
VAD	Fundación Vamos a Dar (LPP of VPA 4)
VDQ	Vasco de Quiroga: Presencia en el Siglo XXI (LPP of VPA 4)
VER	Verified Emission Reduction
VPA	Voluntary Project Activity
VPA-DD	VPA Design Document

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1. INTRODUCTION

1.1 Objective

KBS has been commissioned by MICROSOL S.A.S to perform an independent verification of its registered GS project Utsil Naj – Casa saludable para todos, GS ref. no.1377,(VPA 2, VPA 3 and VPA 4) for the reported GHG emission reductions for the given monitoring period 27/12/2011 up to 31/12/2014 (both dates included). The GS projects must undergo independent third party verification and certification of emission reductions as the basis for issuance of Verified Emission Reductions (VERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the registered PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The actual monitoring systems & procedures and monitoring report conforms with the requirements of the approved monitoring plan and the approved monitoring methodology;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

1.2 Scope

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 review of monitoring report, supporting information and

- (a) The registered PDD, including the monitoring plan and the corresponding validation opinion(s);
- (b) Validation reports, Gold Standard Review report;
- (c) Monitoring report for the monitoring period under verification including VER calculations sheets and all supporting documents;
- (d) The applied monitoring methodology;
- (e) The applied standardized baseline (if applicable);
- (f) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- (g) All information and references relevant to the project activity's resulting in emission reductions

The project is assessed against the requirements of the GS Toolkit, version 2.2, Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

KBS has, based on the recommendations in the latest version of CDM Validation and Verification Standard, employed a rule-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

1.3 Description of the Project Activity

<i>Project Parties:</i>	<i>VPA 2: Guatemala, VPA 3: Honduras & VPA 4: Mexico</i>
<i>Title of project activity:</i>	<i>Utsil Naj – Casa saludable para todos (VPA 2, VPA 3 & VPA 4)</i>
<i>GS Registration No:</i>	<i>GS registration No. 1377</i>
<i>Registration date:</i>	<i>26/12/2013</i>

<i>Applied methodology:</i>	Gold Standard methodology: "Technologies and Practices to Displace Decentralized Thermal Energy Consumption – V.01
<i>Start date of crediting period:</i>	27/12/2011

<u>Project Participants:</u>	<u>Location of the project activity:</u>	
<u>VPA 2:</u> • Ecocomal • Stove Team International • Microsol	Guatemala which GPS coordinates are: Latitude: 14.5445 Longitude: -90.7997	
<u>VPA 3:</u> • E'copan (ECP) • Stove Team International • Microsol	Honduras which GPS coordinates are: Latitude: 14.8468 Longitude: -89.1587	
<u>VPA 4:</u> • Corazón de la Tierra (CDT) • Fondo Pro Cuenca Valle de Bravo (FPCV) • Fondo para la Paz (FPP) • Asesoría en Arquitectura y Urbanismo Social (AURA) • Grupo Interdisciplinario de Tecnología Rural Apropiable (GIRA) • Fundación Vamos a Dar (VAD) • Vasco de Quiroga: Presencia en el Siglo XXI (VDQ) • Ecocina Stove Mexico (ESM) • Stove Team International (STI) • MICROSOL	Guadalajara – State of Jalisco (CDT)	Geographic Coordinates
	Latitude	20.6899
	Longitude	-103.3356
	Mexico city – State of Mexico (FPCV-VAD-VDQ)	Geographic Coordinates
	Latitude	19.4326
	Longitude	-99.1332
	San Luis Potosi – State of San Luis Potosi (FPP)	Geographic Coordinates
	Latitude	22.1565
	Longitude	-100.9855
	Oaxaca – State of Oaxaca (FPP)	Geographic Coordinates
	Latitude	17.0669
	Longitude	-96.7203
	Veracruz – State of Veracruz (FPP)	Geographic Coordinates
	Latitude	19.1903
	Longitude	-96.1533
	Hermosillo – State of Sonora (AURA)	Geographic Coordinates
	Latitude	29.0892
	Longitude	-110.9613
	Morelia – State of Michoacán (GIRA)	Geographic Coordinates

	Latitude	19.7059
	Longitude	-101.1949
	Guanajuato – State of Guanajuato (ESM)	Geographic Coordinates
	Latitude	20.9170
	Longitude	-101.1617

The Programme of activities (PoA) “Utsil Naj – Casa saludable para todos” aims to disseminate technologies with strong social impacts to poor populations of El Salvador, Guatemala, Honduras, Mexico and Peru in order to improve their living conditions in a sustainable way with the implementation of Improved Cook Stoves and water filters. The project activities take place between 2007 and 2018 at least: the actual dissemination and transfer of improved cook stoves is the main part of the project activities but follow up and maintenance are also implemented in order to favour sustainability of the technology until 2018 and more. Various Local Project Proponents (LPPs) are associated within the VPAs for the proper implementation of the project activities, whereas MICROSOL is the Managing entity of the PoA. Microsol designs the PoA, writes all the carbon market related documents, trains the LPPs on carbon market related activities, coordinates locally the whole steps of carbon market processes (local stakeholder consultation, monitoring activities, validation, Gold Standard registration, verification, VERs issuance) and controls LPPs’ information production.

The three Voluntary Project Activities (VPAs) presented for first verification are part of the PoA, with the respective GS registration numbers: GS2439 (VPA2), GS2440 (VPA3), GS2441 (VPA4).

VPA 2 of this PoA, includes project activities implemented by Ecocomal (ECC), a Guatemalan enterprise disseminating improved cook stoves in the whole country with the objective of 20,127 improved cook stoves implemented during the first crediting period in Guatemala. This is the first monitoring period of this VPA: it starts from 01/04/2012 until 31/12/2014, both days included. The total emission reductions achieved in this monitoring period by the LPP are 30,313 tCO₂e.

VPA 3 of this PoA, includes project activities implemented by E'copan (ECP), a Hondurian enterprise disseminating improved cook stoves in the whole country with the objective of 18,890 improved cook stoves implemented during the first crediting period in Honduras. This is the first monitoring period of this VPA: it goes from 27/12/2011 until 31/12/2014, both days included. The total emission reductions achieved in this monitoring period by the LPP are 6,648 tCO₂e.

VPA 4 of this PoA, includes project activities implemented in eight states of Mexico by nine LPPs (Local Project Participants). The project activities are the dissemination and transfer of 122,682 improved cook stoves during the first crediting period in the states of Jalisco, Mexico, San Luis Potosi, Veracruz, Sonora, Michoacán, Oaxaca and Guanajuato in Mexico. This is the first monitoring period of this VPA: it goes from 27/12/2011 until 31/12/2014, both days included. The total emission reductions achieved in this monitoring period by the LPPs are 84,579 tCO₂e.

2. METHODOLOGY

KBS follows a rule based verification approach, wherein, as a first step, the contract review is undertaken as per latest version of CDM Accreditation Standard. Subsequently, after the contract is signed, the monitoring report of the project activity is made publicly available at UNFCCC website as per CDM procedures.

A desk review of the project documentation is undertaken, which is followed by an onsite visit by the members of verification team in accordance with the latest version of CDM AS. The verification protocol is filled by the verification team that is based on standard auditing practices and latest version of CDM VVS, to capture the assessment of applicable CDM requirements viz., latest version of CDM Project Standard, registered PDD, applied methodology/ies, applied standardized baseline and/or tools and recent decisions. The verification protocol provides transparent means to record the observations and compliances by the verification team members and the nonconformities, if any. The verification protocol is an internal document, and is available on request. Following are the major milestones for the verification under consideration.

Duration of verification

<i>Verification Contract</i>	02/12/2015
<i>On site verification</i>	16/01/2016 to 19/01/2016
<i>Draft Verification Report</i>	08/02/2016
<i>Final Verification Report</i>	20/07/2016

2.1 Review of Documentation

A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A 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 quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section 'References'

2.2 Site Visits

A site visit is undertaken by members of verification team, involving but not limited to,

- An assessment of the implementation and operation of the implemented GS project activity as per the registered GS-PDD and GS passport;
- A 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 approved monitoring plan;
- A cross-check between information provided in the monitoring report and data from other sources such as plant log books, inventories, purchase records or similar data sources;
- A check of the monitoring equipment, including calibration performance and observations of monitoring practices against the requirements of the PDD, the selected methodology and the selected standardized baseline;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;

- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The site visit for this verification assessment was undertaken by Kaushik Pal (Team Leader, Local Expert and Technical Expert) and details are mentioned below;

Location	Mexico City, Toluca and Oaxaca, Mexico.	
Dates	16/01/2016 to 19/01/2016	
Key points discussed	Name of person interviewed	Designation, Organization
Implementation and Operation of the GS project activity based on Registered Monitoring Plan and physical features of the project activity as per GS-PDD	Arthur Laurent Claire Cuisset	CEO, Microsol Technical Director, Microsol
Information flows for generating, aggregating and reporting the monitoring parameters	Monserrat Benitez Mejia Ivan Lalothe Mena	Education coordinator-VAD State Co-ordinator-FPP
Competency of the operating personnel and monitoring personnel	Oscar Noel Mejía Domínguez Azucena Pérez Salazar Mario López López	Supervisor of the operational Center Community Technician Community Technician
Ex Post Sampling Survey and data collection procedures	Arthur Laurent Claire Cuisset	CEO, Microsol Technical Director, Microsol
Quality Control and Quality Assurance procedures against the registered monitoring plan	Arthur Laurent Claire Cuisset	CEO, Microsol Technical Director, Microsol
Calculation and assumptions made in determining the GHG data and emission reductions	Arthur Laurent Claire Cuisset	CEO, Microsol Technical Director, Microsol
Compliance with Gold Standard criterion and relevant guidance with respect to registered monitoring plan	Claire Cuisset	Technical Director, Microsol

2.3 Reporting of Findings

During the course of verification the findings may be raised as under;

CAR is raised if one of the following occurs:

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

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

FAR is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

The verification report contains (section 7) all CARs, CLs and FARs raised during this verification in transparent manner and provides clear information of the issues raised, response received and its resolutions, including the changes in the documents. Additionally, major changes between the webhosted MR and final MR are presented under Section 6 (below the Reference) for easy reference.

2.4 Verification Assessment

Based on the desk review and site visit the team leader fills in the verification protocol to identify and record the findings in the context of the project activity. The findings are communicated to the client in the findings document (section 7 of report). The project documentation, including responses to the findings is reviewed by the team leader in consultation with team members, wherever appropriate. The team leader prepares the draft verification report subject to closure or non-closure of the findings.

2.5 Internal Quality Control

The draft verification report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by KBS are duly followed and the verification report/opinion is reached in an objective manner and complies with the applicable CDM requirements.

The independent technical reviewer may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before the request for issuance is submitted to UNFCCC. The final decision is taken by the Manager Technical and Certification. The technical reviewer and Manager T&C can be same person.

The final decision is authorized by Managing Director, KBS once the report is approved by the Manager T&C.

3. VERIFICATION FINDINGS

3.1 Remaining Issues (FARs from Previous Validation or Verification)

Discussion:

During the validation of the PoA, the Gold Standard review team raised 5 FARs for the first verification. **Findings:**

In this context CAR 08 was raised and subsequently closed out. Please refer Section 07 of this report for the detailed description.

Opinion:

This is the first periodic verification and there were 05 FARs raised by the GS review team during the validation stage. All the concerns were assessed by the verifying DoE in a transparent way with the help of documentary evidences and extensive interviews with the end users/ households.

During on-site survey, it was checked from the delivery act that the carbon waiver clause has been incorporated to each household and it was also clarified by households that they know about the carbon waiver clause and they have no complain on that part.

At the same time HHs informed about the regular involvement of the VPA implementers in the communities for the operational problem of ICS and fixing up those issues through proper maintenance activity.

It was observed that few of HHs are using LPG for morning tea/ coffee just because of quick and easy process. They hardly use it because of its cost, thus it can be considered as secondary fuel.

Dry and wet seasonality factor were taken care during the ER calculation process and same were verified with the ER sheet and interview during site visit.

3.2 Compliance of project implementation with registered GS-PDD

Discussion:

The implementation of the project means the installation of Improved Cook Stoves at the end users' house. This implementation has been organised by the LPP with the help of CME. The status of implementation of ICS is mentioned below VPA wise:

VPA 2:

Number of ICS installed per year

LPP:	ECOCOMAL	
Model:	Ecocina	Ecoplancha
2012 ICS number	664	456
2013 ICS number	689	690
2014 ICS number	-	751
TOTAL OF ICS INSTALLED	1,353	1,897

VPA 3:

Number of ICS installed per year

LPP:	ECP
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Model:	Ecocina
2011 ICS number	36
2012 ICS number	841
2013 ICS number	589
TOTAL OF ICS INSTALLED	1,466

VPA 4:

Number of ICS installed per year

LPP:	AURA	ESM	FPCV		FPP		RED Patsari
Model:	Patsari	Ecocina	Plancha	Tierra compactada	ONIL	Patsari	Patsari
Year							
2007 ICS number	-	-	-	-	-	204	-
2008 ICS number	-	-	-	-	-	39	570
2009 ICS number	39	-	251	-	-	274	338
2010 ICS number	1,217	-	163	-	-	415	917
2011 ICS number	2,120	-	283	26	771	187	588
2012 ICS number	3,499	-	65	168	97	346	328
2013 ICS number	1,175	194	-	234	-	125	307
2014 ICS number	1,883	-	-	164	-	294	59
TOTAL OF ICS INSTALLED	9,933	194	762	592	868	1,884	3,107

The ICS were installed at the respective households based on the eligibility criteria fulfilment. The same were reviewed during the on site assessment and found satisfactory. The LPP CDT of VPA 4 did not follow the methodological requirement to capture the data required for the emission reduction value. Insufficient data along with wrong sampling lead to invalid surveys. The same was reviewed during the site visit and communication with CDT and Microsol were checked, which reconfirmed that LPP CDT knew their error and aware that they will not eligible for the verification activity for this monitoring period.

Comparison of actual emission reductions with the estimated emission reductions:

The actual emission reductions achieved for the monitoring period are higher than the estimated emission reductions stated in the registered VPA2. Due to misinterpretation and wrong choice of data yielded to wrong estimation of emission reduction value. The project is situated in Guatemala whereas the baseline assumption made with different country (i.e. Honduras and Mexico) data where the wood consumption pattern is completely different. Wood consumption data obtained in these countries were much lower than in Guatemala which undervalued the estimations, above all the baseline wood consumption (7.20 kg/ICS/day in the VPA-DD compared to 24.12 kg/ICS/day obtained in the BLKT for the verification). In addition to this the ageing factor considered during baseline assumption was on higher side. The cumulative effect of these two parameters made the estimation very low as compared to the actual emission reduction value. The comparison has been provided below:

Monitoring period	Total Emission reductions as per the registered VPA-DD for VPA2 (tCO ₂ e)	Actual values achieved VPA2 (tCO ₂ e)
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01/04/2012 to 31/12/2014 (Both dates included)	4,995	30,313
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The actual emission reductions achieved for the monitoring period are higher than the estimated emission reductions stated in the registered VPA3. Due to misinterpretation and wrong choice of data i.e. Honduras and Mexico both wood consumption data yielded to wrong estimation of emission reduction value. Wood consumption data in Mexico were much lower than in Honduras which undervalued the estimations, above all the baseline wood consumption (7.20 kg/ICS/day in the VPA-DD compared to 13.21 kg/ICS/day obtained in the BLKT for the verification). In addition to this the ageing factor considered during baseline assumption was on higher side and at the same time the eligibility factor also estimated low (68.7% vs. 89.29%). The cumulative effect of these three parameters made the estimation slightly low as compared to the actual emission reduction value.

The comparison has been provided below:

Monitoring period	Total Emission reductions as per the registered VPA-DD for VPA3 (tCO ₂ e)	Actual values achieved VPA3 (tCO ₂ e)
27/12/2011 to 31/12/2014 (Both dates included)	5,417	6,648

The actual emission reductions achieved for the monitoring period are lower than the estimated emission reductions stated in the registered VPA4. The comparison has been provided below:

Monitoring period	Total Emission reductions as per the registered VPA-DD for VPA4 (tCO ₂ e)	Actual values achieved VPA4 (tCO ₂ e)
27/12/2011 to 31/12/2014 (Both dates included)	147,304	84,579

Findings:

In this context CAR 04 was raised and subsequently closed out. Please refer Section 07 of this report for the detailed description.

Opinion:

During the verification a site visit was carried out. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipment, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the registered PoA-DD and VPA-DDs.

3.3 Compliance of monitoring plan with the monitoring methodology including applicable tool(s) and Standardized baseline

Discussion:

The monitoring system and all applied procedures are completely in compliance to the registered monitoring plan and/or authorized by GS. The monitoring plan broadly depends on two teams working together for the accurate results. First team is the LPP who is the direct contact point with the end users and updating the initial files with respect to the monitoring methodology. After the initial updating CME plays the pivotal role to calculate the Emission Reduction value accurately based on the applied methodology. Microsol (CME) is also responsible for the training to the LPPs and in turn LPPs are accountable for the capacity building for the end users during the stove installation

process. During the site visit, the assessment team enquired the process with LPPs as well as end users to have the confidence level on the monitoring system of the PoA and found that the percolation of the training to all level was carried out appropriately and documented the same as per the methodology requirement. Please see the next section for the individual parameter wise compliance.

The monitoring of GHG emission reductions consists in the performance of periodical kitchen surveys and tests to evaluate the reduction on fuel consumption so as other sustainable indicators from the utilization of improved cook stoves.

A sample of the kitchen surveys and tests performed during the monitoring period were checked. Evidences were available to the verification team to check the compliance of the monitoring plan and GS monitoring matrix. The reporting procedures reflect the requirements of the monitoring plan. All relevant data is collected continuously and stored during the current monitoring period.

Verification of sampling approach applied by PP:

In accordance with Annex 4 of the applied Gold Standard methodology “Technologies and Practices to displace decentralized thermal energy consumption, version 01”, the verification team confirms the 90% level of confidence and with a 10% margin of error while determining the sample size for the monitoring survey by VPA implementers. The VPA implementers has carried out the Kitchen Survey and designed the sampling plan in accordance with the registered GS-PDD. The Project monitoring survey was carried out by adapting the questionnaire template as prescribed in the applied methodology. Verification team checked the same from monitoring survey form used by surveyor.

As per the registered sampling plan the number of representative households surveyed on random basis by VPA implementers. Verification team has independently checked the calculation of optimal sample size applying the method as per registered GS-PDD and found the sample size is reproducible. The sample size selected also confirms the desired 90% level of confidence and with a 10% margin of error. Hence , the verification team confirms that the survey carried out by VPA implementers is in accordance with Gold Standard methodology “Technologies and Practices to displace decentralized thermal energy consumption, version 01”. The following table elaborates the sample sizes for the current monitoring period determined by the VPA implementers:

VPA 2:

LPP	ECOCOMAL	
ICS Model	Ecocina	Ecoplancha
Number of ICS installed	1,353	1,897
Sample size	123	174

VPA 3:

LPP	ECP
ICS Model	Ecocina
Number of ICS installed	1,466
Sample size	140

VPA 4:

LPP	AURA	ESM	FPCV		FPP		RED Patsari
ICS Model	Patsari	Ecocina	Plancha	Tierra compacta	ONIL	Patsari	Parsari
Number of ICS installed	9,933	194	762	592	868	1,884	3,107
Sample size	135	111	189	118	112	250	230

Sampling approach applied by verification team for cross verification:

In order to check the information provided by the KS and KT presented by the PP, the verification team has selected randomly provinces, districts and communities to perform interviews with the beneficiaries.

This sampling was not done based on the weight of each community in the whole programme of activities as the interviews have been performed only at VPA 4. At VPA 4, 100 interviews have been performed in two regions (Toluca and Oaxaca) of Mexico– 50 in each; and interviewed various question as per applied methodology to see the effectiveness of the ICS in terms of technology as well as social indicators. In these two regions two different LPPs (VAD and FPP) and two different ICS models (Patsari stove and Onil stove) end users were surveyed. Thus two different project scenarios were visited: the Patsari stove implemented by the RED PATSARI and the Onil stove implemented by FPP.

The current scenario was reviewed and found the increased rate of usage of the implemented ICS for its good features and efficiency, which is saving the consumption of wood as compared to the baseline stoves.

The sampling was done as follows:

The approach applied by the DOE for the interviews followed the PoA rules that states:

- For 1 to 10 VPAs for which issuance of credits is requested, all the scenarios of 1 VPA selected
- Once the VPA(s) to be verified are randomly selected, the DOE randomly selects for a site visit 1 project scenario out of each batch of 3 scenarios.

In the current monitoring period 3 VPAs are presented for verification: VPAs 2, 3 and 4. The DOE

selected randomly the VPA4 which corresponds to Mexico. In this VPA, 7 project scenarios are presented for verification: LPP AURA – Patsari model, LPP ESM – Ecocina model, LPP FPCV – Plancha model, LPP FPCV – Tierra compactada model, LPP FPP – Onil model, LPP FPP – Patsari model, LPP RED PATSARI – Patsari model. Two out of these project scenarios have been randomly selected by the DOE and have been visited: LPP FPP – Onil model and LPP RED PATSARI – Patsari model.

No additional interviews were conducted in the other VPAs as it is not required in the PoA-DD.

Site visit of 105 households among the 4 communities of VPA 4, where two types of stove distributed by the two different LPPs (VAD & FPP). The details of the households are mentioned below.

Table 1: Interviews with beneficiaries with installed improved cook stoves-

Region: Guarda La Lagunita locality, region of Toluca, Mexico (LPP: VAD)

Survey	Beneficiary/Interviewed Person*
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1	Antonia Calzoncin Espindola (I.D.no.CAEA550531MMCLSN09)
2	Bonifacia Bartolo Silvestre (I.D.no.BASB620308MMCRLN03)
3	Catalina Bartolo Ambrosio (I.D.no.BAAC680213MMCRMT05)
4	Emiliana Ramirez Cruz (I.D.no.RACE720620MMCMRM04)
5	Enriqueta Ramirez Chavez (I.D.no.RACE601015MMCMHN12)
6	Esperanza Perez Gomez (I.D.no.PEGE390515MMCRMS02)
7	Feliciana Anastacio Rafael (I.D.no.AARF500628MMCNFL09)
8	Juana Mendoza (I.D.no.MEXJ430509MMCNXN04)
9	MA Cristina Villanueva Rafael (I.D.no.VIRC691025MMCLFR01)
10	MA Del Carmen Pina Primero (I.D.no.PIXC450411MMCXXR06)
11	MA Isabel Pina Rojas (I.D.no.PIRI720304MMCXJS00)
12	MA Magdalena Marin Pablo (I.D.no.MAPM701124MMCRBG07)
13	Margarita Esteban Isidro (I.D.no.EEiM550215MMCSSR03)
14	Maria Isabel Ambrocio cruz (I.D.no.AOC1481105MMCMRS04)
15	Maria Taresa Pina Rojas (I.D.no.PIRT840717MMCXJR02)
16	Reyna Guadalupe Cruz (I.D.no.GUCR720106MMCDRY00)
17	Teresa Ambrocio Cruz (I.D.no.AOCT381006MMCMRR03)
18	Teresa Flores Esteban (I.D.no.FOET530519MMCLSR09)
19	Valentina Perez Martinez (I.D.no.PEMV870214MMCRRL04)
20	Victoria Esteban Isidro (I.D.no.EEIV571027MMCSSC07)

Table 2: Interviews with beneficiaries with installed improved cook stoves-
Region: San Miguel Del Centro locality, region of Toluca, Mexico (LPP: VAD)

Survey	Beneficiary/Interviewed Person*
1	Alicia Gonzalez Dionicio (I.D.no.GODA760122MMCNNL02)
2	Antonia Hernandez Santiago (I.D.no.HESA700907MMCRNN09)
3	Antonina Silvestre Isidro (I.D.no.SIAA850909MMCLSN05)
4	Claudia Vicente Esteban (I.D.no.Viec861031MMCCSL02)
5	Concepcion Colin Segundo (I.D.no.COSC750914MMCLGN07)
6	Consuelo Segundo Cruz (I.D.no.SECC810410MMCGRN06)

7	Cristina Isidro Chico (IICC510725MMCSHR04)
8	Dorotea Bartolo Garcia (I.D.no.BAGD741109MMCRRR09)
9	Gloria Marin Guzman (I.D.no.MAGG660127MMNRZL07)
10	Graciela Bartolio Silvestre (I.D.no.BASG781101MMCRLR04)
11	Graciana Campos Bartolo (I.D.no.CABG901229MMCMRR09)
12	Gregoria Angel Chico (I.D.no.AECG810506MMCNHR07)
13	Josefa Cruz Santiago (I.D.no.CUSJ440319MMCRNS05)
14	Julia Bartolo Esteban (I.D.no.BAEJ750709MMCRSL01)
15	Julia Cruz Dionicio (I.D.no.CUDJ451103MMCRNL06)
16	Julia Ramirez Martinez (I.D.no.RAMJ450314MMCMRL02)
17	Juventina Cruz Campos (I.D.no.CUCJ780126MMCRMV07)
18	Leticia Bentura Bartolo (I.D.no.BEBL830722MMCNRT08)
19	MA Del Carmen Chico Reyes (I.D.no.CIRC500716MMCHYR08)
20	MA Fidelina Dionicio Rafael (I.D.no.DIRF670916MMCNFD03)
21	MA Isabel Ortego Ramirez (I.D.no.OERI660708MMCRMS06)
22	Margarita Ramirez De Jesus (I.D.no.RAJM650531MMCMSR07)
23	Maria Del Carmen Cruz Ambrocio (I.D.no.CUAC690715MMCRMRO1)
24	Maria Del Carmen Dionicio Guillermo (I.D.no.DIGC490905MMCNLR02)
25	Maria Esther Cano Gomez (I.D.no.CAGE631229MMCNMS08)
26	Maria Isabel Gonzalez Reyes (I.D.no.GORI871019MMCNYS09)
27	Maria Juana Ortega Ramirez (I.D.no.OERJ640207MMCRMN09)
28	Mariana Isidro Campos (I.D.no.IICM680602MMCSMR07)
29	Marlen Lopez Ramirez (I.D.no.LORM860222MMCPMR05)
30	Raquel Martinez Gonzalez (I.D.no.MAGR790405MMCRNQ09)
31	Rosalba Anselmo Garcia (I.D.no.AEGR811130MMCNRS10)

Table 3: Interviews with beneficiaries with installed improved cook stoves-
Region: San Jose Monteverde locality, region of Oaxaca, Mexico (LPP: FPP)

Survey	Beneficiary/Interviewed Person*
1	Antalia santigo Pena

	(I.D.no.SAPA791114MOCNXN05)
2	Antolia Bautista Cruz (I.D.no.BXCA870902HOCTRN08)
3	Aurelia Lopez cruz (I.D.no.LXCA591202MOCPRR04)
4	Brijida Ortiz Ortiz (I.D.no.OIOB720214MOCRRR08)
5	Cecilia Lopez Bautista (I.D.no.LPDTCC71112220M201)
6	Celestino Bautista Cruz (I.D.no.BTCRCL6980420H900)
7	Cesilia Brutista Lopez
8	Crilio Santiago
9	Fabian Bautista Lopez (I.D.no.BALF760120HOVTPB04)
10	Felipe Bautista Bautista (I.D.no.BABF710413HOCTTL03)
11	Florencia Santiage Bautista (I.D.no.SABF808301MOCNTL02)
12	Florencia Santiago Martinez (I.D.no.SAMF811101MOCNRL01)
13	Gregoria Antonio lopez (I.D.no.AOLG840903HOCNPR03)
14	Gregorio Bautista Bautista (I.D.no.BABG640508HOCCTTR06)
15	Gregorio Pena Hernandez (I.D.no.PEHG731001HOCXRR05)
16	Ines Bautista Ortiz (I.D.no.BAO1820120MOCTRN09)
17	Jasista Lopez Lopez (I.D.no.LOLJ690712MOCPPS06)
18	Juana Bautista Bautista (I.D.no.BABJ711205MOCTTN17)
19	Julia Hernandez bautista (I.D.no.HRBTJL69021620M400)
20	Laura Bautista Santiago (I.D.no.BASL890919MOCTNR05)
21	Luis Ortiz Lopez (I.D.No.OILL820615HOCRPS00)
22	Luis Mendez Bautista (I.D.no.MNBTL74031520M400)
23	Marcelina Bautista Lopez (I.D.no.BALM760717MOCTPR09)
24	Marcelo Lopez bautista (I.D.no.LOBM900814HOCPTR04)
25	Margarita Bautista Bautista (I.D.no.BABM721201MOCTTR02)
26	Martina Miranda Bautista (I.D.no.MIBM661201MOCRTTR00)
27	Miguel Santiago Lopez (I.D.no.SALM791118HOCNPG02)
28	Ofelia Sanjun Bautista (I.D.no.SABO870817MOCNTF00)
29	Paula Bautista Hernandez (I.D.no.BAHP850226MOCTRL09)
30	Pedro Bautista Cruz (I.D.no.BACP770330HOCTRD04)

31	Prisiliano Bautista Pablo (I.D.no.BAPP800104HOCTBR06)
32	Rafael Pena Hernandez (I.D.no.PEHRRF90092620H700)
33	Tomasa Ortiz Lopez (I.D.no.ORLPTM78010620M800)
34	Victor Antonio Lopez (I.D.no.AOLV580728HOCNPC08)

Table 4: Interviews with beneficiaries with installed improved cook stoves-
Region: Santa Maria de las Nieves Monteverde locality, region of Oaxaca, Mexico (LPP: FPP)

Survey	Beneficiary/Interviewed Person*
1	Bernarda Santiago Bautista (I.D.no.SABB840820MOCNTR03)
2	Claudia Lopez Bautista (I.D.no.LOBC821203MOCPTL06)
3	Donato Bautista Ortiz (I.D.no.BAOD850807HOCTRN05)
4	Felipa Bautista Lopez (I.D.no.BALF460611MOCTPL02)
5	Francisca Bautista Pena (I.D.no.BAPF770817MOCTXR08)
6	Hilaria Bautista Pena (I.D.no.BAPH601202MOCTXL11)
7	Hilaria Pena Bautista (I.D.no.PEBH681203MOCXTL08)
8	Isabel Pablo (I.D.no.PAXI511209MOCBXS09)
9	Juana Santiago Bautista (I.D.no.SABJ710808MOCNTN17)
10	Magdalena Bautista Bautista (I.D.no.BTBTMG50072820M801)
11	Maura Ortiz Hernandez (I.D.no.OIHM660213MOCRRR02)
12	Regina Santiago pena (I.D.no.SAPR800910MOCNXG09)
13	Reina Bautista Pena (I.D.no.BAPR811023MOCTXN04)
14	Silvia Martinez Ortiz (I.D.no.MRORSL73041220M000)
15	Teresa Pablo Santiago (I.D.no.PBSNTP66030720M101)
16	Teresa Pena Bautista (I.D.no.PEBTTR75021120M900)
17	Teresa Santiago Lopez (I.D.no.SALT791002MOCNPR01)
18	Ysabel Lopez Bautista (I.D.no.LOBY710708MOCPTS06)
19	Ysabel Pena Ortiz (I.D.no.PEOY680508MOCXRS02)
20	Alicia Santiago lopez (I.D.no.PEOY680508MOCXRS02)

Some photographic Evidences collected during on-site survey as follows:

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LPP: FPP team with DoE



LPP: VAD team office



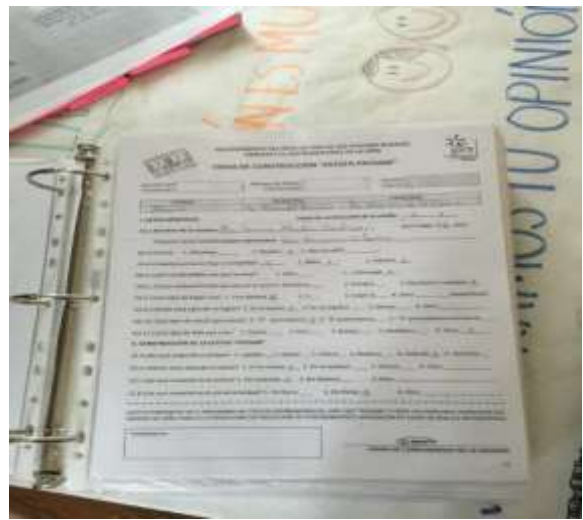
Patsari stove



ONIL stove



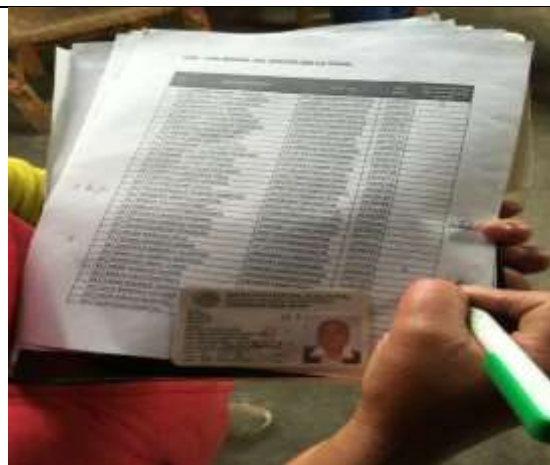
Interviewing household by DoE



Delivery act verification on-site



Interviewing CME (Microsol) the QA/QC process



Household's Identity verification

Findings:

In this context CAR 01, CAR 02, CL 03 was raised and subsequently closed out. Please refer Section 07 of this report for the detailed description.

Opinion:

The monitoring system is in compliance with the applied monitoring methodology (GS Methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption – V.01, version 01). The improved cook stoves fuel consumption is monitored and reported appropriately by the performance of kitchen surveys and tests.

Additional GS requirements are the monitoring of social-environmental contributions, which are described in the section 3.5 of this report. Corresponding evidences were available to verification team.

During site visit it was noted by the assessment team that end users are happy with the ICS and using it spontaneously. Most of them indicated that the Improved Cook Stoves are saving woods and eliminated the smoke from the kitchen. Previous inefficient stoves are there in the houses in very small number and they use it only during large meals on Sundays/ Holidays, which in turn taken as project emission for the emission reduction calculation during project scenario survey. The assessment is in opinion that the project is working effectively and creating the benefit to the households in terms of money saving, good air quality and income generation through employment.

3.4 Post registration changes, if any

Discussion and opinion:

The monitoring plan is in accordance with the Gold Standard approved methodology "Technologies and Practices to Displace Decentralized Thermal Energy Consumption – V.01" and the monitoring plan was followed during this current monitoring period as per GS-PDD and validation report.

3.5 Compliance of monitoring activities with registered monitoring plan

Discussion:

The monitoring parameters described in the monitoring plan and GS monitoring matrix are:

GHG emission parameters monitored are:

1. Cumulative number of project technology.days included in the project database for project scenario p in year y – $N_{p,y}$
2. Usage rate for technologies from project scenario p in year y – $U_{p,y}$
3. Eligibility factor of the technologies implemented in project scenario p – E_p

4. Non-renewability fraction of woody biomass fuel – fNRB
5. Leakage in project scenario p – LEp
6. Removal rate of the baseline technology in project scenario p – Op
7. Average daily fuel consumption of a stove in baseline scenario b – Pb (parameter specific to improved cook stoves)
8. Average daily wood consumption of an ICS in project scenario p – Pp (parameter specific to improved cook stoves)
9. Daily fuel savings of an ICS of project scenario p against a stove from baseline scenario b – Pp,b,y (parameter specific to improved cook stoves)

Sustainability indicators:

1. Air quality: Presence of smoke in the household;
2. Biodiversity: wood savings from the project ICS
3. Quality of employment: level Number of permanent job positions employing local people
4. Livelihood of the poor: Proportion of improved cookstoves in use;
5. Access to affordable and clean energy services: wood savings from the project ICS;
6. Human and institutional capacity: capacity building for beneficiaries;
7. Quantitative employment and income generation: Number of temporary job positions employing local people;
8. Technology transfer and technological self-reliance: Proportion of end users having participated in the construction of the improved cookstove.

Do Not Harm Assessment indicator:

1. Corruption (to be verified from next verification onwards)

This parameter is very crucial from the second periodic verification onwards, as it will give more insight about the maintenance activity of the ICS implemented.

The verification team confirms that the internal procedures for monitoring the installation and performance of the improved cook stoves are appropriate. The PP has developed internal KS and KT templates so as training procedures for the LPPs in order to carry out a traceable and adequate monitoring of the project activity. All measured data is collected continuously during the whole monitoring period.

During the verification all relevant monitoring parameters have been verified with regard to appropriateness of the applied measurement / determination method, the accuracy, the applied QA/QC measures as well as the correctness of the values applied for ER calculation. The results as well as the verification procedures are described parameter-wise in the project specific verification checklist.

During the site visit, CARs and CLs were raised related to monitoring parameters. The PP has performed the required corrections and clarifications, and the findings were successfully closed. It can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

GHG emission parameters:

3.5.1. Data/Parameter, Unit: (N_{p,y})

Cumulative number of projects technology.days included in the project database for project scenario p in year y

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	For emission reduction calculation.

<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	No monitoring Equipment used.
<i>Measuring/Reading/Recording frequency</i>	The data is recorded in electronic database from start date of ICS distribution from 2007 up to the end date of ICS distribution till 2014 for each VPA. Each LPP prepared the end users list to capture the ICS distribution data. This end users list then comes to Microsol for the further calculation of Emission Reduction.
<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	The data is recorded in the Delivery Acts at the time of ICS distribution to the individual household. Number of ICSs distributed is recorded in the end users lists at every location along with the date of distribution of ICSs for each household. After completion of distribution of ICSs the data is transferred in electronic database (excel sheet) at VPA level by each LPP and reported to CME (Microsol).
<i>Verified value</i>	As mentioned in table above in section 3.5 of this report.
<i>Cross checks</i>	The verification team cross checked the reported data in the MR and ER sheet with the electronic database. The verification team cross checked the information of the visited households during the on-site visit against the End users list as well as from back up data of surveyed households during 1 st monitoring survey conducted by VPA implementers.
<i>QA/QC procedures applied</i>	Cumulative number of projects technology. days from electronic database was cross verified from the Delivery Acts on sample basis.

3.5.2. Data/Parameter, Unit: ($U_{p,y}$)

Usage rate for technologies from project scenario p in year y

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	For emission reduction calculation.
<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	No monitoring Equipment used.
<i>Measuring/Reading/Recording frequency</i>	Monitored through subsequent monitoring surveys which take place annually by VPA implementers on dates mentioned in the section 3.2 of this report.
<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	The measurement of the usage rate is based on qualitative information collected during the Usage survey by the LPPs. During this survey LPPs used the questionnaire as per the applied methodology and same was incorporated in the ER sheet transparently. Based on the replies by the end users/ beneficiaries the usage rate has been calculated and applied in the ER calculation to arrive the appropriate result.
<i>Verified value</i>	As mentioned in table above in section 3.8 of this report.
<i>Cross checks</i>	The verification team cross checked the reported data in the MR and ER

	spread sheet with the monitoring survey report. The Usage rate observed during sampling survey as part of on-site visit is found okay.
<i>QA/QC procedures applied</i>	To obtain a reliable estimate of Usage rate, sampling size of the survey is determined by minimum 90% confidence interval and maximum 10% error margin. The PP considered higher number of households for the first monitoring survey compared to the sample size calculated based on the registered GS-PDDs and applied methodology (page no 24). The larger sample size also offered a better representation of the entire sample (as it reduced sampling error). Refer section 3.2 of this verification report.

3.5.3. Data/Parameter, Unit: (P_b)

Average daily wood consumption of a stove in baseline scenario b (Tons/day/stove)

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	For emission reduction calculation.
<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	Portable electronic scale
<i>Measuring/Reading/Recording frequency</i>	Since ICS project activities target non-industrial applications, the baseline is considered by-default fixed in time during the considered crediting period. Therefore the quantity of fuel that is consumed in baseline scenario is fixed for a given crediting period based on the results of the Baseline field tests.
<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	The fuel consumption is measured with a representative sample of end users under each defined baseline scenario. The following procedures are implemented: 1) The mass of the considered woody biomass is measured on a 3-day basis, excluded Sunday when specific occasions may increase the consumption. The proportional extrapolation of results to the whole year will therefore be conservative as it will not consider Sunday's higher consumptions. 2) The measurement is made directly with the considered end users with an electronic balance that has a precision of no less than 100g.
<i>Verified value</i>	As mentioned in table above in section 3.8 of this report.
<i>Cross checks</i>	The verification team cross checked the reported data in the MR and ER spread sheet with the baseline monitoring survey report.
<i>QA/QC procedures applied</i>	1) Sound capacity building was made with surveys responsible including ethic dimensions of the process and adequate techniques for ensuring confidence of results. 2) MICROSOL realized quality control test in digitations of the surveys. 3) A conservative approach was systematically followed.

3.5.4. Data/Parameter, Unit: (P_p)

Average daily wood consumption of a stove in project scenario p (Tons/days/stove)

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	For emission reduction calculation.
<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	Portable electronic scale
<i>Measuring/Reading/Recording frequency</i>	Every two years
<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	The fuel consumption is measured with a representative sample of end users under each defined project scenario. The following procedures are implemented: 1) The mass of the considered woody biomass is measured on a 3-day basis, excluded Sunday when specific occasions may increase the consumption. The proportional extrapolation of results to the whole year will therefore be conservative as it will not consider Sunday's higher consumptions. 2) The measurement is made directly with the considered end users with an electronic balance that has a precision of no less than 100g.
<i>Verified value</i>	As mentioned in table above in section 3.8 of this report.
<i>Cross checks</i>	The verification team cross checked the reported data in the MR and ER spread sheet with the baseline monitoring survey report. The Average daily wood consumption of the project scenario stove observed during sampling survey as part of on-site visit is found comparable as mentioned in the ER sheet. The same was confirmed with the on-site interview feedback by the end users.
<i>QA/QC procedures applied</i>	The LPPs were involved during the kitchen test and results obtained from the kitchen test survey were conveyed to the CME and they made the proper calculation to arrive the ER value. CME has reviewed all the details to discard the double counting in the VPA, however conservative approach was followed in the calculation sheet.

3.5.5. Data/Parameter, Unit: ($P_{p,b,y}$)

Daily wood savings of an ICS of project scenario p against a stove from baseline scenario b (Tons/day/stove)

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	For emission reduction calculation.
<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	No monitoring Equipment used.
<i>Measuring/Reading/Recording frequency</i>	Every two years
<i>Data collection (from data generation, aggregation, to</i>	The parameter $P_{p,b,y}$ is derived from a statistical analysis which is conducted in combination on baseline and project scenarios wood

<i>recording, calculation and reporting)</i>	consumption data (P_b and P_p) following the guidelines described in the Methodology (Annex 4). Wood consumption results are analysed separately for each season (Dry and Wet). Whenever wood savings data are available for both seasons, seasonally weighted wood savings are calculated taking into consideration the lengths of the seasons and applied in the emission reductions calculation.
<i>Verified value</i>	As mentioned in table above in section 3.8 of this report.
<i>Cross checks</i>	The verification team cross checked the reported data in the MR and ER spread sheet with the baseline monitoring survey report.
<i>QA/QC procedures applied</i>	The wood consumption results are analysed separately for each season whenever data are available for both seasons. In this case seasonally weighted wood savings are calculated taking into consideration the lengths of the seasons and applied in the emission reductions calculation. In the case where the LPP is not able to conduct field tests in both seasons he must carry out the field tests in the “conservative” season, that is to say in the season in which wood consumption is lower according to the end users

3.5.6. Data/Parameter, Unit: (F_{NRB})

Non-renewability fraction of woody biomass fuel (%)

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	For emission reduction calculation.
<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	No monitoring Equipment used.
<i>Measuring/Reading/Recording frequency</i>	The non-renewable biomass fraction is by-default fixed for a given crediting period based on the results of the NRB assessment. Over the course of a project activity the project proponent may at any time choose to re-examine renewability by conducting a new NRB assessment. In case of a renewal of the crediting period, the NRB fraction will be reassessed and updated in line with most recent data available.
<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	The details of measurement methods in Appendix 5 of the PoA-DD. The same value will be applied for both project and baseline scenarios located in the same geographical boundary.
<i>Verified value</i>	86.67% for Mexico, for other countries the value verified as presented in ER sheets.
<i>Cross checks</i>	The verification team cross checked the reported data in the MR and ER spread sheet with the baseline monitoring survey report.
<i>QA/QC procedures applied</i>	No QA/QC required as it is fixed data over a crediting period. During renewal of crediting period it has to be assessed as per applied methodology.

3.5.7. Data/Parameter, Unit: (E_p)

Eligibility factor of the technologies implemented in project scenario p (%)

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	For emission reduction calculation.
<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	No monitoring Equipment used.
<i>Measuring/Reading/Recording frequency</i>	Annually
<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	The eligibility factor was designed by MICROSOL to exclude in a statistical way the part of the end users that are not eligible for emission reductions calculation. Such exclusion is related to the eligibility criteria of the PoA or to baseline and project scenarios definition: - End users not using wood as main fuel for cooking are not eligible to the PoA and are therefore excluded from the emission reductions calculation; - End users who did not use a traditional cook stove in baseline scenario should be monitored in separated clusters. Whenever it would not be possible to perform such a specific monitoring (as it would be complicated and costly), MICROSOL would exclude this population from the emission reductions calculation.
<i>Verified value</i>	As mentioned in table above in section 3.8 of this report.
<i>Cross checks</i>	The verification team cross checked the reported data in the MR and ER spread sheet with the baseline monitoring survey report. During the on-site visit it was observed the criteria of inclusion of the ICS in the VPA and the PoA, the eligibility criteria check forms were also reviewed to ensure the robustness of the calculation.
<i>QA/QC procedures applied</i>	• Sound capacity building was made with surveys responsible including ethic dimensions of the process and adequate techniques for ensuring confidence of results. • MICROSOL realized quality control test in digitations of the surveys. • A conservative approach was systematically followed.

3.5.8. Data/Parameter, Unit: (LE_p)

Leakage in project scenario p (tCO_2,e)

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	Leakage emissions calculation
<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration,</i>	No monitoring Equipment used.

<i>validity)</i>	
<i>Measuring/Reading/Recording frequency</i>	Every two years
<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	The potential source of leakage is monitored in the Project and Monitoring surveys by asking the end users if they use a new heating device since their ICS has been implemented. Whenever the surveys reveal that some end users use a new heating device since their ICS has been implemented, the corresponding proportion of end users is removed from the ER calculations.
<i>Verified value</i>	As mentioned in table above in section 3.8 of this report.
<i>Cross checks</i>	The verification team cross checked the reported data in the MR and ER spread sheet with the baseline monitoring survey report. During the on-site visit it was observed the criteria of exclusion of the ICS in the VPA and the PoA, the eligibility criteria check forms were also reviewed to ensure the robustness of the calculation.
<i>QA/QC procedures applied</i>	• Sound capacity building was made with surveys responsible including ethic dimensions of the process and adequate techniques for ensuring confidence of results. • MICROSQL realized quality control test in digitations of the surveys. • A conservative approach was systematically followed.

3.5.9. Data/Parameter, Unit: (O_p)

Removal rate of the baseline technology in project scenario p (%)

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	Monitored to comply with an applicability criterion of the methodology.
<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	No monitoring Equipment used.
<i>Measuring/Reading/Recording frequency</i>	Annually
<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	The measurement of the removal rate of the baseline technology is based on qualitative information collected in the Project surveys by asking the end user whether it still uses it, has destroyed it and if not, what it did with it. In order to be conservative only end users who respond that they have destroyed their baseline stove are accounted for in the 'Removal rate' parameter (those who respond that they still have it although they do not use it are not accounted for).
<i>Verified value</i>	As mentioned in table above in section 3.8 of this report.
<i>Cross checks</i>	The verification team cross checked the reported data in the MR and ER spread sheet with the baseline monitoring survey report. During the on-site visit it was observed the criteria of exclusion of the ICS in the VPA and the PoA, the eligibility criteria check forms were also reviewed to ensure the robustness of the calculation.

QA/QC procedures applied	- Sound capacity building was made with surveys responsible including ethic dimensions of the process and adequate techniques for ensuring confidence of results. - MICROSQL realized quality control test in digitations of the surveys. A conservative approach was systematically followed.
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Findings:

In this context CL 05, CL 06 was raised and subsequently closed out. Please refer Section 07 of this report for the detailed description.

Opinion:

All the parameters are complying with the requirement mentioned in the registered GS-PDD and applied methodology. The verification team checked the survey data form the PSKS before doing the site visit and acquired the knowledge that the household are still using baseline stove very rare and they know the benefits of using ICS. During site visit, verification team concentrated to gather information on the knowledge level of households regarding the benefits of using ICS and found that almost everybody knows the advantages of using ICS.

During interview with the households and the person who is, cooking regularly confirmed that these stoves have improved their lifestyle with respect to less smoke, savings in wood and better livelihood. It was also observed in most of the houses the old baseline stove still exists, but the use of these stoves are very rare. Out of 100 samples DOE team could see that only 8 are using old stove because of their family size, family get to together and sometimes they are using gas stove for quick coffee or tea or warming milk for the kids/ children.

In the most of the cases, verification team observed the condition of baseline stove and easily got the confidence of their rare use for the aforementioned reason.

Sustainability indicators:

VPA 2:

Sustainable Development Indicator	Data Variable	Data Type	Data value and unit LPP-ICS wise	Source of data	Measured/ Calculated/ Estimated	Recording Frequency	Assessment of verification team
Air quality	Lower presence of smoke in the household	Environmental Impact	Ecocomal: Ecocina: 99.19% Ecoplancha: 98.85%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Bio diversity	Wood savings	Environmental Impact	Ecocomal: Ecocina:	Kitchen Test	M	Biennially	Assessment performed biennially in accordance with the monitoring plan of the

			7,060 Tonnes Ecoplancha: 8,337 Tonnes				registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Quality of employment	Number of people contracted for the project (permanent job positions)	Social Impact	Ecocomal: Ecocina: 2 Ecoplancha: 2 Number	List of workers	M	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Livelihood of the poor	Use of an improved cook stove	Social Impact	Ecocomal: Ecocina: 98.37% Ecoplancha: 94.83%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Access to affordable and clean energy services	Wood savings	Social Impact	Ecocomal: Ecocina: 11,541 Tonnes Ecoplancha: 13,629 Tonnes	Kitchen Test	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Human and institutional capacity	Capacity Building for beneficiaries	Social Impact	Ecocomal: Ecocina: 81.30% Ecoplancha: 97.13%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that

							were presented and results checked during this verification process.
Quantitative employment and income generation	Number of employment contracted for the project (temporary job positions)	Economic Impact	Ecocomal*: Ecocina: 16 Ecoplancha: 16	List of workers	M	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Technology transfer and technological self-reliance	Participation in ICS construction	Economic Impact	Ecocomal: Ecocina: 0.81% Ecoplancha: 12.07%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.

VPA 3:

Sustainable Development Indicator	Data Variable	Data Type	Data value and unit LPP-ICS wise	Source of data	Measured/ Calculated/ Estimated	Recording Frequency	Assessment of verification team
Air quality	Less presence of smoke in the household	Environmental Impact	E'copan: Ecocina: 97.14%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.

* Data on Qualitative and Quantitative employment are common to both project scenarios

Bio diversity	Wood savings	Environmental Impact	E'copan: Eocina: 3,422Tonnes	Kitchen Test	M	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Quality of employment	Number of people contracted for the project (permanent job positions)	Social Impact	E'copan: Eocina: 2 Number	List of workers	M	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Livelihood of the poor	Use of an improved cook stove	Social Impact	E'copan: Eocina: 85.71%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Access to affordable and clean energy services	Wood savings	Social Impact	E'copan: Eocina: 4,941 Tonnes	Kitchen Test	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Human and institutional capacity	Capacity Building for beneficiari	Social Impact	E'copan: Eocina: 92.14%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the

	es						registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Quantitative employment and income generation	Number of employment for the project (temporary job positions)	Economic Impact	E'copan: Eocina: 5 Number	List of workers	M	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Technology transfer and technological self-reliance	Participation in ICS construction	Economic Impact	E'copan: Eocina: 0%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.

VPA 4:

Sustainable Development Indicator	Data Variable	Data Type	Data value and unit LPP-ICS wise	Source of data	Measured/ Calculated/ Estimated	Recording Frequency	Assessment of verification team
Air quality	Less presence of smoke in the household	Environmental Impact	FPCV: Plancha: 100% Tierra compactada: 98.31% FPP: Patsari: 100% ONIL: 100% AURA:	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification

			Patsari: 99.26% Red Patsari: Patsari: 98.26% ESM: Ecocina: 100%				process.
Bio diversity	Wood savings	Environmental Impact	FPCV: Plancha: 3,554 Tonnes Tierra compactada: 1,374 Tonnes FPP: Patsari: 3,156 Tonnes ONIL: 5,866 Tonnes AURA: Patsari: 23,698 Tonnes Red Patsari: Patsari: 5,810Tonnes ESM: Ecocina: 533 Tonnes	Kitchen Test	M	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Quality of employment	Number of people contracted for the project (permanent job position)	Social Impact	FPCV[*]: Plancha: 8 Number Tierra compactada: 8 Number FPP[†]: Patsari: 0 Number ONIL: 0 Number AURA: Patsari: 25 Number Red Patsari: Patsari: 5 Number	List of workers	M	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.

* Data on Qualitative and Quantitative employment are common to both project scenarios

† Idem

			ESM: Ecocina: 5 Number				
Livelihood of the poor	Use of an improved cook stove	Social Impact	FPCV: Plancha: 99.47% Tierra compactada: 100% FPP: Patsari: 97.61% ONIL: 100% AURA: Patsari: 96.30% Red Patsari: Patsari: 87.83% ESM: Ecocina: 88.29%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Access to affordable and clean energy services	Wood savings	Social Impact	FPCV: Plancha: 4,054 Tonnes Tierra compactada: 1,567 Tonnes FPP: Patsari: 3,600 Tonnes ONIL: 6,691 Tonnes AURA: Patsari: 27,032 Tonnes Red Patsari: Patsari: 6,628 Tonnes ESM: Ecocina: 608 Tonnes	Kitchen Test	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Human and institutional capacity	Capacity Building for benefici	Social Impact	FPCV: Plancha: 100% Tierra compactada: 97.46%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD.

	aries		FPP: Patsari: 90.84% ONIL: 96.52% AURA: Patsari: 86.67% Red Patsari: Patsari: 95.22% ESM: Ecocina: 98.20%				The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Quantitative employment and income generation	Number of employment contract ed for the project (temporary job positions)	Economic Impact	FPCV: Plancha: 7 number Tierra compactada: 7 Number FPP: Patsari: 25 Number ONIL: 25 Number AURA: Patsari: 0 Number Red Patsari: Patsari: 6 Number ESM: Ecocina: 2 Number	List of workers	M	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.
Technology transfer and technological self-reliance	Participation in ICS construction	Economic Impact	FPCV: Plancha: 98.41% Tierra compactada: 98.31% FPP: Patsari: 76.49% ONIL: 91.30% AURA: Patsari: 96.30% Red Patsari: Patsari: 72.17% ESM: Ecocina: 93.69%	Kitchen Survey	E	Biennially	Assessment performed biennially in accordance with the monitoring plan of the registered PoA-DD. The results are the compilation of the data collected during the Kitchen Surveys that were presented and results checked during this verification process.

During site visit, the verification team audited the LPP office and reviewed the complaint and feedback register. The process of complaint handling is also checked and found that the LPP assure the best service to resolve the issues. All the households are having the concerned LPP office contact no and in case of urgency, they lodge the complaint over phone. The verification team interviewed the households with respect to their complaint and its resolution process. The DoE team understood that the LPPs are working closely with the households and resolve their problems in case any within one week timeline. However the complaint handling can be made more strong with respect to the chimney cleaning and leakage of chimney more effectively as it is directly related with the household's health.

3.6 Compliance with the calibration frequency requirements for measuring instruments

The portable weighing scale were used in the project activity and the same were purchased new, hence no calibration was required.

3.7 Data not monitored (ex ante or external parameters)

3.7.1. Data/Parameter, Unit: EF_{wood,CO_2} ; (tCO₂/TJ)

CO₂ emission factor for wood:

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	Emission reduction calculation
<i>Verified value</i>	112
<i>Source of value</i>	IPCC default value, 2006 Guidelines for National greenhouse Gas Inventories, Vol. 2, Ch. 2, Table 2.5 http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
<i>Justification</i>	The IPCC value for wood is applied: the IPCC net CO ₂ emission factor for wood is 112 tCO ₂ /TJ.

3.7.2. Data/Parameter, Unit: $EF_{wood,nonCO_2}$; (tCO₂/TJ)

Non-CO₂ emission factor for wood:

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	Emission reduction calculation
<i>Verified value</i>	8.692 tCO ₂ /TJ
<i>Source of value</i>	For default emission factors: 2006 Guidelines for National greenhouse Gas Inventories, Vol. 2, Ch. 2, Table 2.5 : http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf For global warming potentials: IPCC Fourth Assessment Report: Climate Change 2007, Table 2.14: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html#table-2-14
<i>Justification</i>	The IPCC values for wood are applied: The IPCC net CH ₄ emission factor for wood is 0.3 tCH ₄ /TJ. The Global Warming Potential (GWP) for CH ₄ is 25. The IPCC net N ₂ O emission factor for wood is 0.004 tN ₂ O/TJ. The Global Warming Potential (GWP) for N ₂ O is 298.

	$(0.3 \times 25 + 0.004 \times 298) = 8.692$
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3.7.3. Data/Parameter, Unit: NCV_{wood} ; (TJ/ton wood)

Net calorific value of wood:

	<i>Discussion and verification assessment</i>
<i>Purpose of data</i>	Emission reduction calculation
<i>Verified value</i>	0.0156 TJ/ton wood
<i>Source of value</i>	IPCC default value, 2006 Guidelines for National greenhouse Gas Inventories, Vol. 1, Introduction, Table 1.2 http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf
<i>Justification</i>	The IPCC Net Calorific Value (NCV) for wood is 0.0156 TJ/t.

Discussion:

The values of EF_{wood,CO_2} , $EF_{wood,nonCO_2}$ and NCV_{wood} have been fixed *ex-ante* during registration of the PoA and respective VPAs. Accordingly, the values were checked and confirmed with the registered CPA DDS^(B04).

Findings:

No Finding was raised in this context.

Opinion:

The values of ex ante fixed parameters have been verified from the registered GS-PDDs .Same has been crosschecked with the source mentioned in the VPA-DDs and found to be consistent. The verification team confirms that the values used/applied are correct and justified. Also, the ex-ante values has been correctly applied in the calculation of emission reductions.

3.8 Assessment of Data & calculation of GHG Emission Reductions

Discussion:

The baseline fuel and the project fuel are the same and the baseline emission factor and project emission are considered the same, the equation to calculate the emission reductions realized by an improved cook stoves project activity in year y is the following:

$$ER_y = \sum (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_b * (f_{NRB,b,y} * EF_{fuel,CO_2} + EF_{fuel,nonCO_2}) * E_p) - \sum LE_{p,y}$$

Where:

- $N_{p,y}$: Cumulative number of ICS-days included in the project database for project scenario p in year y
- $U_{p,y}$: Wood savings for an individual ICS of project scenario p against an individual stove of baseline scenario b in year y
- $P_{p,b,y}$: Cumulative usage rate for ICS in project scenario p in year y, based on cumulative adoption rate and drop-off rate revealed by usage surveys
- NCV_b : Net calorific value of wood
- $f_{NRB,b,y}$: Fraction of biomass that can be established as non-renewable

- EF_{fuel,CO_2} : CO2 emission factor of wood
- $EF_{fuel,nonCO_2}$: Non-CO2 emission factor of wood
- E_p : Eligibility factor of the ICS implemented in project scenario p
- $LE_{p,y}$: Leakage for project scenario p

In order to arrive the final emission reduction value per LPP the following parameters were also evaluated like Cumulative number of ICS days, usage rate, wood savings and wood savings per age category per LPP, Eligibility factor and leakage to arrive at the final emission reduction value per LPP.

Summary of the verified values for 03 implemented VPAs are provided below -

VPA 2:

ICS.days per LPP

		ICS-days	ICS-days	ICS-days
		2012	2013	2014
ECC	Ecocina	8,943	245,402	452,691
ECC	Ecoplancha	77,076	249,538	538,193

Usage rate per LPP

LPP:	ECOCOMAL	
Model:	Ecocina	Ecoplancha
Year 2012	96.92%	92.31%
Year 2013	97.04%	93.89%
Year 2014	98.59%	94.64%

Wood savings per age category per LPP

	ECOCOMAL	
	Ecocina	Ecoplancha
Age cat. 1	0.016569	0.017551
Age cat. 2	0.016798	0.017813
Age cat. 3	0.016798	0.015329

Eligibility factor of each LPP's project activity

LPP:	ECOCOMAL	
Model:	Ecocina	Ecoplancha
Eligibility factor (E_y)	100.00%	95.98%

Leakage of each LPP's project activity

LPP:	ECOCOMAL	
Model:	Ecocina	Ecoplancha
L1 = L2 = L3 = L5	0	0
L4	0	0

Summary of total emission reductions for the VPA

LPP:	ECOCOMAL		TOTAL
Model:	Ecocina	Ecoplancha	
2012 stove number	664	456	1,120

2013 stove number	689	690	1,379
2014 stove number	-	751	751
TOTAL ICS VOLUME	1,353	1,897	3,250
ER 2012 (t/year)	172	1,443	1,615
ER 2013 (t/year)	4,754	4,775	9,529
ER 2014 (t/year)	8,973	10,196	19,169
TOTAL CUMULATED ER	13,899	16,414	30,313

Summary of calculation of emission reductions per LPP

LPP:	Model:	Baseline emissions or baseline net GHG removals by sinks	Project emissions or actual net GHG removals by sinks	Leakage	ERs or net anthropogenic GHG removals by sinks
		(t CO ₂ e)	P(t CO ₂ e)	(t CO ₂ e)	(t CO ₂ e)
ECOCOMAL	Ecocina	20,131	6,231	-	13,899
ECOCOMAL	Ecoplancha	22,714	6,299	-	16,414
Total		42,964	12,497	-	30,313

VPA 3:

ICS.days per LPP

LPP: ECP	ICS-days	ICS-days	ICS-days	ICS-days
Model: Ecocina	2011	2012	2013	2014
TOTAL:	123	174,531	424,556	490,499

Usage rate per LPP

LPP:	ECP
Model:	Ecocina
Year 2011	84.85%
Year 2012	84.83%
Year 2013	83.52%
Year 2014	84.39%

Wood savings per age category per LPP

LPP: ECP	Wood savings
Model: Ecocina	(tons/ICS/day)
Age cat. 1	0.006692
Age cat. 2	0.005162
Age cat. 3	0.006321
Age cat. 4	0.006699

Eligibility factor of each LPP's project activity

LPP:	ECP
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Model:	Ecocina
Eligibility factor (Ey)	89.29%

Leakage of each LPP's project activity

LPP:	ECP
Model:	Ecocina
L1 = L2 = L3 = L5	0
L4	0

Summary of total emission reductions for the VPA

LPP:	ECP
Model:	Ecocina
2011 stove number	36
2012 stove number	841
2013 stove number	589
TOTAL ICS VOLUME	1,466
ER 2011 (t/year)	
ER 2012 (t/year)	1,189
ER 2013 (t/year)	2,584
ER 2014 (t/year)	2,875
TOTAL CUMULATED ER	6,648

Summary of calculation of emission reductions per LPP

LPP:	Model:	Baseline emissions or baseline net GHG removals by sinks	Project emissions or actual net GHG removals by sinks	Leakage	ERs or net anthropogenic GHG removals by sinks
		(t CO2e)	P(t CO2e)	(t CO2e)	(t CO2e)
ECP	Ecocina	14,547	7,897	-	6,648

VPA 4:

ICS.days per LPP

		ICS-days 2011	ICS-days 2012	ICS-days 2013	ICS-days 2014
AURA	Patsari	14,384	1,772,501	2,381,078	2,837,753
ESM	Ecocina	0	0	36,683	64,909
FPCV	Plancha	2,865	240,140	247,926	246,588
FPCV	Tierra compactada	128	25,733	87,296	165,345
FPP	ONIL	3,782	260,306	285,673	280,320
FPP	Patsari	5,490	408,465	489,374	562,982
RED PATSARI	Patsari	11,799	838,010	991,279	1,035,262

Usage rate per LPP

LPP:	AURA	ESM	FPCV		FPP		RED PATSARI
Model:	Patsari	Ecocina	Plancha	Tierra compactada	ONIL	Patsari	Patsari
Year 2011	94.16%	0.00%	100.00%	100.00%	100.00%	97.61%	86.52%
Year 2012	94.54%	0.00%	99.84%	100.00%	100.00%	97.58%	85.58%
Year 2013	95.22%	82.35%	99.34%	100.00%	100.00%	97.37%	87.36%
Year 2014	96.49%	88.56%	99.58%	100.00%	100.00%	95.93%	87.84%

Wood savings per age category per LPP

	AURA	ESM	FPP		RED PATSARI
	Patsari	Ecocina	ONIL	Patsari	Patsari
Age cat. 1	0.005275	0.007203	0.008434	0.002187	0.005615
Age cat. 2	0.005275	0.006781	0.008434	0.002752	0.004559
Age cat. 3	0.002857		0.008167	0.000000	0.004928
Age cat. 4	0.000947		0.008167	0.002606	0.000373
Age cat. 5	0.000947			0.008065	0.000268
Age cat. 6				0.003578	0.001277
Age cat. 7				0.000002	0.001277
	FPCV				
	Plancha - Trad. BL	Plancha - Non-Trad. BL	Tierra compactada - Trad. BL	Tierra compactada - Trad. BL	
Age cat. 1	0.007223	0.005085	0.006218	0.005073	
Age cat. 2	0.007223	0.005085	0.007636	0.004951	
Age cat. 3	0.006341	0.005162	0.006096	0.004951	
Age cat. 4	0.004355	0.003233	0.006096	0.004951	
Age cat. 5	0.004124	0.004723			
Age cat. 6	0.004124	0.004723			

Eligibility factor of each LPP's project activity

LPP:	AURA	ESM	FPCV		FPP		RED PATSARI
Model:	Patsari	Ecocina	Plancha	Tierra compactada	ONIL	Patsari	Patsari
Eligibility factor (Ey)	97.04%	87.39%	100.00%	100.00%	97.39%	98.80%	92.61%

Summary of total emission reductions for the VPA

LPP:	AURA	ESM	FPCV		FPP		RED PATSARI	TOTAL
Model:	Patsari	Ecocina	Plancha	Tierra compactada	ONIL	Patsari	Patsari	
2007 stove number	-	-	-	-	-	204	-	204
2008 stove number	-	-	-	-	-	39	570	609
2009 stove number	39	-	251	-	-	274	338	902
2010 stove number	1,217	-	163	-	-	415	917	2,712
2011 stove number	2,120	-	283	26	771	187	588	3,975
2012 stove number	3,499	-	65	168	97	346	328	4,503
2013 stove number	1,175	194	-	234	-	125	307	2,035
2014 stove number	1,883	-	-	164	-	294	59	2,400
TOTAL ICS VOLUME	9,933	194	762	592	868	1,884	3,107	17,340
ER 2011 (t/year)	114		30	1	51	27	62	285
ER 2012 (t/year)	13,465	-	2,456	258	3,564	1,502	3,808	25,053
ER 2013 (t/year)	16,382	314	2,285	915	3,823	1,873	4,247	29,839
ER 2014 (t/year)	15,259	578	2,032	1,759	3,729	3,099	2,946	29,402
TOTAL CUMULATED ER	45,220	892	6,803	2,933	11,167	6,501	11,063	84,579

Summary of calculation of emission reductions per LPP

LPP:	Model:	Baseline emissions or baseline net GHG removals by sinks	Project emissions or actual net GHG removals by sinks	Leakage	Emission reductions or net anthropogenic GHG removals by sinks
		(t CO2e)	P(t CO2e)	(t CO2e)	(t CO2e)
AURA	Patsari	152,837	107,730	-	45,220
ESM	Ecocina	1,650	750	8	892
FPCV	Plancha	18,489	11,641	73	6,803
FPCV	Tierra compactada	6,725	3,793	-	2,933
FPP	ONIL	21,263	10,145	-	11,167
FPP	Patsari	36,944	30,468	-	6,501
RED PATSARI	Patsari	38,279	27,276	-	11,063
Total		276,187	191,804	81	84,579

Findings:

In this context CL 06 and CAR 07 was raised and subsequently closed out. Please refer Section 07 of this report for the detailed description.

Opinion:

All data has been available and all the parameters have been monitored in accordance with the registered monitoring plan. During the site-visits and the verification the DOE came to the conclusion that the aging factor has been properly calculated and that the monitored emission reductions are reasonable.

The reported data have been cross-checked against other sources available as explained above.

The assessment team confirms that the methods and formulae used to obtain the baseline, project and leakage emissions are appropriate. The same has been done in accordance with the methods and formulae described in the registered monitoring plan and GS methodology.

The verifier confirms that the monitoring report includes all parameters and the monitored data at the intervals required by the GS methodology and GS PoA-DD as well as VPA-DD of VPA 2, 3 and 4.

The verifier confirms that all the assumptions, emission factors and default values (ex-ante values from GS POA-DD and VPA-DD of VPA1) have been correctly justified. All the emission factors and default values are explicitly mentioned in the monitoring reports.

3.9 Assessment of GHG Emission Reductions in first and second commitment period

Since, end date of the 1st monitoring period of the PoA is 31/12/2014. Hence, the total value of emission reduction achieved during the 1st monitoring period is falling in the both first and second commitment period. The same has been reported in the following table VPA wise:

VPA 2:

Item	Actual values achieved up to 31 December 2012 (first commitment period)	Actual values achieved from 1 January 2013 onwards (second commitment period)
Emission reductions or GHG removals by sinks (t CO ₂ e)	1,615	28,698

VPA 3:

Item	Actual values achieved up to 31 December 2012 (first commitment period)	Actual values achieved from 1 January 2013 onwards (second commitment period)
Emission reductions or GHG removals by sinks (t CO ₂ e)	1,189	5,459

VPA 4:

Item	Actual values achieved up to 31 December 2012 (first commitment period)	Actual values achieved from 1 January 2013 onwards (second commitment period)
Emission reductions or GHG removals by sinks (t CO ₂ e)	25,338	59,241

3.10 Quality of Evidence to Determine Emission Reductions

The emission reduction of this project activity was determined based on the ex-ante fixed emission factor and Net Calorific Value of the wood used during the current monitoring period. As the project activity is using the same fuel in baseline as well as project scenario the following parameters were also evaluated like Cumulative number of ICS days, usage rate, wood savings and wood savings per age category per LPP, Eligibility factor and leakage to arrive at the final emission reduction value per LPP. The monitoring and reporting of data is in accordance with well-established operational procedures.

In this verification, the CME is verifying 9 project scenarios (1 in Guatemala, 1 in Honduras, 7 in Mexico): in 8 out of 9 project scenarios people all respond they consume more wood in rainy season (thus their conservative season is dry). This is mainly due to the fact that during rainy season the wood is wet it does not burn well so they need more wood to cook. Each project activity/LPP has its own conservative season as it depends on the localization and context of the project (climate, altitude, wood scarcity). As the KT's are required to be done every two years, thus it is an extra cost for the LPP to do KT's more often to collect data from both seasons. This is why there is the concept of "conservative" season in which people declare consuming less wood. If a LPP is not able to conduct KT's in both season, then KT's in the conservative season has been considered and by extrapolating these data to the whole year becomes conservative and acceptable.

Evidences (Documents/interview/site visit) referred for verification of individual monitoring parameter and fixed parameters are defined in section 3.5 and section 3.7 respectively. It is confirmed by the assessment team that the reported emission reductions have been conservatively calculated. A list of referred documents for verification is also included in section 6 of this report.

3.11 Management System and Quality Assurance

Discussion:

In order to ensure a successful operation of the PoA and individual VPAs and the credibility and verifiability of the ERs achieved, the CME (Microsol) has established a well-defined management and operational system. The project management procedures cover management responsibilities, data monitoring procedures, training procedures, management reviews and corrective actions in case of any deviations. The organizational structure, responsibilities, competencies, non-conformance handling and management review for the project was found to be adequate. The assessment team confirms that management and operational system, the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan of the registered GS-PoADD, GS passport and VPA-DDs.

Quality Management procedures for measurements, collection and compilation of data, data storage and archiving, and training of personnel in the framework of this GS project activity have been defined. The procedures defined can be assessed as appropriate for the purpose. No significant deviations thereof have been observed during the verification. The management system and control, internal audit procedures of the VPA implementers were reviewed during the site visit, which establishes the operational and management structure implemented.

Finding:

Conclusion:

The verification team hereby confirms that the responsibilities and authorities for monitoring and reporting of the PoA are in accordance with the monitoring plan as mentioned in the registered GS-PoADD, GS passport and VPA-DDs. The verification team also confirmed the formats for data management (electronic database) are verified on sample basis at the time of on site visit for all the implemented VPAs.

3.12 Application of Materiality

Discussion:

In accordance with EB 69, Annex 06, paragraph 7(a), the “GUIDELINE ON THE APPLICATION OF MATERIALITY IN VERIFICATIONS” (Version 01.0)^{B11/} is not applicable for the verification of PoA.

4. RECOMMEDATIONS / FORWARD ACTION REQUEST

There is no recommendation/ FAR raised during current verification for the Project activity.

5. VERIFICATION & CERTIFICATION STATEMENT

KBS Certification Services Pvt. Ltd. has been contracted by MICROSOL S.A.S to undertake independent verification and certification for the greenhouse gas (GHG) emission reductions reported from the Utsil Naj – Casa saludable para todos, GS Ref. No.1377 (VPA 2, VPA 3 & VPA 4) for the monitoring period 27/12/2011 up to 31/12/2014 in the Monitoring Report Version 01 (first version) dated 07/12/2015.

The verification is based on the registered/accepted revised PDD and the monitoring report for this project. Our 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.

The management of the MICROSOL S.A.S is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Final Monitoring Report Version 08 dated 07/07/2016. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the MICROSOL S.A.S. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 08 dated 07/07/2016.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the monitoring period 27/12/2011 up to 31/12/2014 based on the reported emission reductions in the Final Monitoring Report Version 08 dated 07/07/2016 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

KBS confirms the following;

Reporting period: From 27/12/2011 up to 31/12/2014

Verified and certified emission in the above reporting period:

VPA 2:

	Amount	Unit
Baseline emissions (BE)	42,845	tCO ₂ e
Project emissions (PE)	12,530	tCO ₂ e
Leakage emissions (LE)	-	tCO ₂ e
Verified emission reductions (CERs)	30,313	tCO ₂ e

VPA 3:

	Amount	Unit
Baseline emissions (BE)	14,547	tCO ₂ e
Project emissions (PE)	7,897	tCO ₂ e
Leakage emissions (LE)	-	tCO ₂ e
Verified emission reductions (CERs)	6,648	tCO ₂ e

VPA 4:

Amount	Unit
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Baseline emissions (BE)	276,187	tCO ₂ e
Project emissions (PE)	191,804	tCO ₂ e
Leakage emissions (LE)	81	tCO ₂ e
Verified emission reductions (CERs)	84,579	tCO ₂ e

Location:

Date: 21/07/2016

Kaushal Goyal

Managing Director

KBS Certification Services Pvt. Ltd.

6. REFERENCES

/1/	MR Version 01 dated 07/12/2015
/2/	ER Spreadsheet Version 01 dated 07/12/2015
/3/	MR Version 08 dated 07/07/2016
/4/	ER Spreadsheet Version 03 dated 05/02/2016
/5/	Verification contract between CME(Microsol) and DOE (KBS Certification Services Private Limited) dated 02/12/2015
/6/	- Validation Opinion dated 11/03/2015 corresponding to Gold Standard Registered PDD - Gold Standard Registration Review report
/7/	Applied methodology: Gold Standard methodology: "Technologies and Practices to Displace Decentralized Thermal Energy Consumption – V.01"
/8/	Project view page of GS1377 Utsil Naj – casa saludable para todos Master Project(ID: 103000000000039)
/9/	a) Gold Standard Passport, b) Gold Standard Local Stakeholder Consultation Report, c) Gold Standard Programme Design Document d) Gold Standard Project Design Description
/10/	Company Incorporation Certificates of LPPs
/11/	List of End Users for VPA2, VPA3 & VPA4
/12/	Sample Delivery Acts for all the LPPs Ref: Ecocina - Delivery acts - Community El Sitan (VPA 2); Ecoplancha - Delivery acts - Community San Jose de las minas (VPA 2); Ecocina - Communities El Porvenir & La Ceiba (VPA 3) Ecocina - Community Comayagua (VPA 3) Patsari - Community Agua Caliente (VPA 4- AURA) Patsari - Community Agua Caliente (VPA 4- AURA) Plancha - Community Agua Bendita (VPA 4- FPCV) Tierra compactada - Community Agua Bendita (VPA 4-FPCV) ONIL - Community San Antonino Monteverde (VPA 4- FPP) Patsari - Community Guadalupe Monteverde (VPA 4- FPP) Red Patsari - Community Charapan (VPA 4- GIRA)
/13/	List of Workers of all LPPs
/14/	Project scenario Kitchen Survey Report and Kitchen Test Reports
/15/	- Cooperation agreement between Microsol, Stove Team International and Inversiones Falcon - Cooperation agreement between Microsol, Stove Team International and Ecocomal - Cooperation agreement between Microsol, Stove Team International and E'copan - Cooperation agreement between Microsol and Fondo para la Paz - Cooperation agreement between Microsol and Fondo Pro Cuenca Valle de Bravo - Cooperation agreement between Microsol and Corazón de la Tierra - Cooperation agreement between Microsol and GIRA

	- Cooperation agreement between Microsol and Stove Team International - Cooperation agreement between Microsol, GIRA and Vasco de Quiroga Cooperation agreement between Microsol and GIRA (local representation) - Cooperation agreement between Microsol, GIRA and Asesoría en Arquitectura y Urbanismo Social (AURA) - Cooperation agreement between Microsol, GIRA and Fundación Vamos a Dar - Cooperation agreement between Microsol, Stove Team International and Eco Estufa de Mexico (Eco Stove Mexico)
/16/	Baseline Kitchen Survey Reports VPA 2 Ecocomal VPA 3 VPA Validation Report: Utsil Naj – Casa saludable para todos – VPA inclusions (VPA 2, VPA 3 and VPA 4) E'copan VPA 4 Fondo para la Paz Fondo Pro Cuenca Valle de Bravo Fundación Vamos a Dar Corazón de la Tierra AURA GIRA Vasco de Quiroga Eco Estufa de Mexico
/17/	Do Not Harm Declaration signed by each LPP
/18/	a) Evidence of training to all levels b) Training manual c) Trainer's Details and Competency d) Training presentation
/19/	Test Results of Cook Stove Performance published by Aprovecho Research Center Water Boiling Tests – 2010
/20/	Eligibility forms for each LPP
/21/	Technical Specification of the stoves (Ecocina, Ecoplancha, ONIL, Patsari, Plancha, Tierra Compactada)
/22/	a) Details of the weighing scale (capacity and accuracy) b) Purchase receipt of the weighing scale

Key difference between webhosted MR and final MR (indicative not exhaustive)

MR Section	Description of the change
A.2, A.3	Geographical co-ordinates and private entity name
B.1	Technical Description in details, Lifetime of the materials
C	Description of the monitoring system and archiving procedure of the soft copy data
D.2, D.3,	QA/QC procedure of the parameters, Sampling procedure
E.1, E.2, E.4, E.5 & E.6	Calculation procedure of Baseline emission and Project emission revised as per applied methodology and Registered GS-PoA-DD Correction in the statement of the description of parameter



	Proper justification of the actual emission reduction vs. estimated emission reduction calculation
Annex	Proper justification of the seasonality factor

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7. FINDINGS DOCUMENT

Summary of findings	CAR	CL	FAR
	04	04	Nil

Date	Type & Number	Raised by	Reference
16/12/2015	CAR 02	Assessment Team	Desk Review

Date	Type & Number	Raised by	Reference
16/12/2015	CAR 01	Assessment Team	Desk Review

Non conformities raised

Step wise demonstration of Annex 4 of the applied methodology is missing in the monitoring report.
How the Project survey sampling was performed to be illustrated in the section D.3 of the monitoring report.

Project participant response Date: 26/12/2015

The section D.3 of each MR has been completed in order to demonstrate the compliance with Annex 4 of the methodology.

Documentation Provided as Evidence by Project Participant

MR version n°2 (in the file "Corrected documentation").

Information Verified by Lead Assessor Date of review: 05/01/2016

MR version no 02, dated 21/12/2015.

Reasoning for not acceptance or close out

Section D.3 of the revised monitoring has been revised in accordance with the applied methodology. The sampling process deemed correct and same was verified during the site visit by the assessment team. Thus Car 01 was closed.

Date of acceptance or non-acceptance Date: 05/01/2016 Status: Closed

Non conformities raised

How the materials life expectancy is being monitored as per section B.1 of the monitoring period not available in the monitoring report.

Please demonstrate it in line with section A.8.2 of the VPA DD.

Please provide all the supportive evidences as per table B1.b.

Project participant response Date: 26/12/2015

The section B.1 of each MR has been completed with a section concerning the expected lifetime of the technology. Each LPP lists the materials used in the ICS construction and indicates the corresponding lifetime. This is indicative information since no ICS have been assessed during such a long period of time. Thanks to monitoring activities, information is periodically collected on a representative sample of end users concerning the condition of the ICS. Based on this information, the LPPs are asked to implement follow-up and maintenance activities once carbon revenues are received (to be implemented for the first time once the first issuance is realized). This process has been explained in section B.1 of each MR based on the guidelines defined in section A.8.2 of the VPA DD.

Documentation Provided as Evidence by Project Participant

MR version n°2 (in the file "Corrected documentation").

Information Verified by Lead Assessor		Date of review: 05/01/2016											
MR version n°2 (in the file “Corrected documentation”).													
Reasoning for not acceptance or close out													
Please provide the evidence that the information is periodically collected. Please also mention the periodicity/ frequency in the MR.													
Date of acceptance or non-acceptance		Date: 05/01/2016	Status: Open										
Project participant response		Date: 28/01/2016											
As explained in section B.1 of each MR the information will be periodically collected on a representative sample of end users during the monitoring activities. These monitoring activities correspond to the “monitoring surveys” as defined by the methodology and shall be conducted annually. When conducting monitoring surveys in the framework of carbon monitoring activities, specific questions will be asked to the end users concerning the condition of the different parts of the ICS and the necessity to repair/replace them. The process has been clarified in section B.1 of each MR. Concerning the condition of chimneys in VAD’s project, the project surveys conducted in the period of December 2013-2014 measured the following indicators⁴: <table><tr><td>ICS in good condition</td><td>90%</td></tr><tr><td>ICS with chimney</td><td>98%</td></tr><tr><td>End users who clean the chimney</td><td>97%</td></tr><tr><td>ICS which chimney has been repaired/replaced</td><td>1%</td></tr><tr><td>ICS which chimney needs to be replaced</td><td>9%</td></tr></table> The site-visit conducted by the DOE took place in January 2016; it is conceivable that since the project surveys campaign (two years from now) the condition of chimneys has deteriorated in some cases. Once carbon revenues are received, the LPP will be asked to implement follow-up and maintenance activities, including the chimney.				ICS in good condition	90%	ICS with chimney	98%	End users who clean the chimney	97%	ICS which chimney has been repaired/replaced	1%	ICS which chimney needs to be replaced	9%
ICS in good condition	90%												
ICS with chimney	98%												
End users who clean the chimney	97%												
ICS which chimney has been repaired/replaced	1%												
ICS which chimney needs to be replaced	9%												
Documentation Provided as Evidence by Project Participant													
- Database of the project surveys conducted by FPP and VAD - Sample of surveys hard copies (corresponding to the communities that have been visited by the DOE)													
Information Verified by Lead Assessor		Date of review: 01/02/2016											
- Database of the project surveys conducted by FPP and VAD - Sample of surveys hard copies (corresponding to the communities that have been visited by the DOE)													
Reasoning for not acceptance or close out													
The documentation provided by the PP has been reviewed and found that LPPs are visiting the households in a systematic manner as per registered GS-PDD. Hence CAR 02 was closed out.													
Date of acceptance or non-acceptance		Date: 01/02/2016	Status: Closed										

Date	Type & Number	Raised by	Reference
16/12/2015	CL 03	Assessment Team	Desk Review

⁴ See the Excel spreadsheet "RED PATSARI - Patsari - PSKS-KT v2", tab "Chimney indicators" for the detailed calculations.

Non conformities raised		
Please clarify how the samples are selected from commercial or institutional stove population. Also please provide the reference of tools/calculations used for the selection of random numbers as well as the determination of the sample sizes in the monitoring report.		
Project participant response	Date: 26/12/2015	
Commercial or institutional stove population		
The type of use of the ICS (personal, commercial, institutional) is assessed in the project surveys. The corresponding results are presented in the Annex of each MR in the table 4.2 'Project scenario definition for the ICS'. Below this table it is concluded whether there is a need to define one or two project scenarios to distinguish end users who have a personal use from those who have an institutional or commercial use of the ICS. Nevertheless it is conservative to consider them as one project scenario since commercial and institutional ICS have more important wood consumption and therefore imply less emission reductions. In all project activities, the proportion of end users who use their ICS for commercial or institutional purpose is marginal. Besides the LPP is not able to provide this type of information for the end users population. Thus when designing the monitoring sampling, the end users are sampled randomly without focus on personal, commercial or institutional stove populations.		
Selection of random numbers		
For the selection of random numbers when designing the sample, Microsol has developed a computer algorithm to generate a list of random numbers based on three parameters: Total size of the population, Sample size required, Factor that determines the calculations. The algorithm generates "Sample size" random numbers from the "Total size" numbers. The "Factor" used determines the uniqueness of the provided list of numbers. You can access to a demo of random numbers generation through this link: http://microsol.dyndns-remote.com:8080/intranet_microsol/software_microsol/randomCalculator A reference has been added in section D.3 of each MR.		
Determination of the sample sizes		
The sample sizes are defined following the guidelines defined at PoA level and presented in section D.7.2 of each VPA-DD. A reference has been added in section D.3 of each MR.		
Documentation Provided as Evidence by Project Participant		
MR version n°2 (in the file "Corrected documentation").		
Information Verified by Lead Assessor	Date of review: 05/01/2016	
MR version n°2 (in the file "Corrected documentation").		
Reasoning for not acceptance or close out		
Please mention the no of samples in the response above. Description provided in the revised MR are acceptable.		
Date of acceptance or non-acceptance	Date: 05/01/2016	Status: Open
Project participant response	Date: 28/01/2016	
The minimum sample sizes defined in section D.7.2 of each VPA-DD have been included in section D.3 of each MR.		
The effective numbers of surveys and field tests carried out by each LPP have been included in section 1 in the Annex corresponding to each LPP of each MR.		
Documentation Provided as Evidence by Project Participant		
MR version n°3		

Information Verified by Lead Assessor	Date of review: 01/02/2016	
MR version n°3		
Reasoning for not acceptance or close out		
The revised MR elaborates about the sample no and detailed about the sampling plan and procedure. Hence CL03 was closed out.		
Date of acceptance or non-acceptance	Date: 01/02/2016	Status: Closed

Date	Type & Number	Raised by	Reference
16/12/2015	CAR 04	Assessment Team	Desk Review
Non conformities raised			
In the section A.2 of the monitoring report the GPS co-ordinates were mentioned for 7 states instead of 8 states. Please provide the GPS coordinate of the Jalisco state.			
Project participant response		Date: 26/12/2016	
The information has been corrected in section A.2 of VPA4 MR.			
Documentation Provided as Evidence by Project Participant			
MR version n°2 (in the file “Corrected documentation”).			
Information Verified by Lead Assessor		Date of review: 05/01/2016	
MR version n°2 (in the file “Corrected documentation”).			
Reasoning for not acceptance or close out			
GPS co-ordinate added. Thus CAR 04 was closed.			
Date of acceptance or non-acceptance		Date: 05/01/2016	Status: Closed

Date	Type & Number	Raised by	Reference
16/12/2015	CL 05	Assessment Team	Desk Review
Non conformities raised			
Although the registered VPA-DD (section D.2) mentions about the removal policy of the baseline cook stoves, However the monitoring report does not demonstrate the procedure of measurement of removal policy adopted during the project survey (what kind of evidence checked and supportive collected during survey). A copy of the same to be submitted to the verification team.			
Project participant response		Date: 26/12/2015	
The section D.2 of each MR has been completed with additional information concerning the monitoring of the baseline stove removal. Nevertheless as defined in the VPA-DD sections D.1, the LPP is asked to replace the baseline stove by the ICS but he cannot make it compulsory. The end users can keep their old stove as an auxiliary or backup unit. In this case, the corresponding fuel consumption is accounted as part of the project emissions since Field tests are performed on the total fuel consumption of the household.			
Documentation Provided as Evidence by Project Participant			

MR version n°2 (in the file “Corrected documentation”).		
Information Verified by Lead Assessor	Date of review: 05/01/2016	
MR version n°2 (in the file “Corrected documentation”).		
Reasoning for not acceptance or close out		
During site visit it was observed that HHs are using baseline stoves for large meals and sometimes within the same kitchen where the project stoves have been implemented. Thus project participant is further requested to provide more information about the project emission monitoring procedure to capture accurate result.		
Date of acceptance or non-acceptance	Date: 05/01/2016	Status: Open
Project participant response	Date: 28/01/2016	
The project field tests (Kitchen Performance Tests implemented during three days) measure the total wood consumption of the families regardless of the cooking devices used in the household. Thus if a family is using its baseline stove in parallel to the ICS, the corresponding fuel consumption is accounted as part of the project fuel consumption and therefore in the project emissions. This will decrease accordingly the emission reductions of the project. The following specifications have been added during 1st round review in section D.3 of each MR: “The end users can keep their old stove as an auxiliary or backup unit. In this case, the corresponding fuel consumption is accounted as part of the project emissions since KPTs are performed on the total fuel consumption of the household.”		
Documentation Provided as Evidence by Project Participant		
MR version n°2		
Information Verified by Lead Assessor	Date of review: 01/02/2016	
MR version n°2		
Reasoning for not acceptance or close out		
Further justification has been reviewed and emission reduction calculation sheets were checked and found okay.		
Date of acceptance or non-acceptance	Date: 01/02/2016	Status: Closed

Date	Type & Number	Raised by	Reference
16/12/2015	CL 06	Assessment Team	Desk Review
Non conformities raised			
As per section E.1 of the monitoring report the “wood consumption results are analysed separately for each season”. Project participant is requested to provide the information in the monitoring report as per above in the Annex 1 to Annex 5 for all LPPs.			
Project participant response		Date: 26/12/2015	
In sections E1, E2, E4 of the MR a specification has been added to specify what kind of data (from dry season, from wet season or from both seasons) are available for each LPP. Besides in the Annex corresponding to each LPP, in section “3. Seasonal variations in wood consumption” it is explained which is the “conservative” season (the one with lower wood consumption) of the project activity and when the monitoring data have been collected. Finally in the Annex in the table “4.1: Description of ICS end users population” it has also been specified in which season the data have been collected.			

Documentation Provided as Evidence by Project Participant		
MR version n°2 (in the file “Corrected documentation”).		
Information Verified by Lead Assessor	Date of review: 05/01/2016	
MR version n°2 (in the file “Corrected documentation”).		
Reasoning for not acceptance or close out		
The information provided in the revised monitoring report found appropriate and hence closed out.		
Date of acceptance or non-acceptance	Date: 05/01/2016	Status: Closed

Date	Type & Number	Raised by	Reference
16/12/2015	CAR 07	Assessment Team	Desk Review
Non conformities raised			
The version 01 of the MR and its supportive ER sheets were reviewed and found the inconsistencies in the reported data in section E.4 of the monitoring report. Therefore assessment team could not verify the data source.			
Project participant is requested to provide the correct calculation sheets.			
Project participant response		Date: 26/12/2015	
The ER calculations Excels have been corrected, see version n°2 of each ER spreadsheet.			
Documentation Provided as Evidence by Project Participant			
ER calculations Excels version n°2 (in the file “Corrected documentation”).			
Information Verified by Lead Assessor		Date of review: 05/01/2016	
ER calculations Excels version n°2 (in the file “Corrected documentation”).			
Reasoning for not acceptance or close out			
During site visit some inconsistency found in terms of HH identity no. Thus PP is requested to correct the same information.			
Date of acceptance or non-acceptance		Date: 20/01/2016	Status: Open
Project participant response		Date: 28/01/2016	
The inconsistency reported during the site-visit concerns the end user “RAQUEL MARTINEZ GONZALEZ” in the community “SAN MIGUEL DEL CENTRO BO LA ROSA “ of the LPP “VAD”.			
The error has been corrected, see versions 3 of RED PATSARI “List of end users” and “ER calculations” Excel spreadsheets.			
Documentation Provided as Evidence by Project Participant			
Versions 3 of RED PATSARI “List of end users” and “ER calculations” Excel spreadsheets.			
Information Verified by Lead Assessor		Date of review: 01/02/2016	
Versions 3 of RED PATSARI “List of end users” and “ER calculations” Excel spreadsheets.			
Reasoning for not acceptance or close out			
The correction has been made and the same were checked and found appropriate.			
Date of acceptance or non-acceptance		Date: 01/02/2016	Status: Closed

Date	Type & Number	Raised by	Reference
16/12/2015	CL 08	Assessment Team	Desk Review
Non conformities raised			
The description of the installed technology, technical process & equipment including diagrams are not described in section B.1 of the monitoring report. Project participant is requested to provide the manufacturer's test certificate along with the stove life expectancy report for further verification.			
Project participant response		Date: 26/12/2015	
The section B.1 of each MR has been completed with a section concerning the technical description of the technology including diagrams and photos. No manufacturer's test certificates are available nevertheless some of the ICS are listed in the Global Alliance for Clean Cookstoves catalog and some technical specifications are presented: - Patsari: http://catalog.cleancookstoves.org/stoves/180 - Onil: http://catalog.cleancookstoves.org/stoves/44 - Ecocina: http://catalog.cleancookstoves.org/stoves/26			
Documentation Provided as Evidence by Project Participant			
MR version n°2 (in the file "Corrected documentation").			
Information Verified by Lead Assessor		Date of review: 05/01/2016	
Reasoning for not acceptance or close out			
The MR version 02 is demonstrating the complete details of all stoves distributed in the programme. Hence CL 08 is closed out.			
Date of acceptance or non-acceptance		Date: 05/01/2016	Status: Closed

Date	Type & Number	Raised by	Reference
16/12/2016	CAR 09	Gold Standard	FAR raised by Gold Standard during validation
Non conformities raised			
Summary of FARs: Forward Action Request #1: The carbon waivers evidences (from both households and institutional buyers) shall be review by the verifier DOE. Forward Action Request #2: Despite fact that some stoves will be discounted from the ERs calculations, the PP shall take action to maintain operating majority of the ICS deployed. As part of the periodic verifications, the PP shall report the maintenance actions done e.g. spare parts distributed, ICS replacements, maintenance campaigns. The verifier DOE shall check the reported actions as part of the verification. Also the PP shall ensure that usage surveys are in line with the methodology to ensure the usage of each age group. Forward Action Request #3: All the further VPAs to be included shall meet the methodology requirements regarding BLKS, no exception will be allowed. The DOE shall provide on time the validation opinion of all the elements of the assessments. Forward Action Request #4: For HHs identified as consumer of LPG as secondary fuel, the PP shall add			

complementary questions in the monitoring survey to crosscheck the eligibility of those HHs in the defined baseline scenario e.g. gas use for coffee preparation, only re-heat meals. It is important that monitoring surveys are able to identify any change in cooking trends e.g. HHs increase income then can afford LPG as main fuel.

Forward Action Request #5: The verifier DOE shall assess the approach used and shall provide a positive opinion regarding seasonality factor used.

Project participant response

Date: 14/03/2016

Forward Action Request #1:

Carbon waivers are provided to the DOE in the new file of evidences. It includes two types of documents: 1) "Delivery acts" that are documents signed by end users in which they accept to transfer the carbon property to the LPP (the implementer of the ICS)

2) "Funders cards" that are either signed statements by institutions who participated in the funding of the ICS project activity in which they accept that the LPP is the only owner of the carbon rights or notifications addressed by the LPP to the concerned institutions in which they notify them that if they do not react in the next 30 days it means they accept that the LPP is the only owner of the carbon rights.

Forward Action Request #2:

The goal of the carbon certification process is to enable the LPPs to ensure sustainability of their stoves by implementing among others monitoring and maintenance activities. This is the first verification process the LPPs are undergoing thus no carbon credits have been issued yet. It will be possible to implement maintenance activities once carbon revenues are received. Detailed information on how these funds are allocated will be presented in the report on carbon revenues use that each LPP committed to provide as defined in the GS Passport.

The sampling of the usage surveys has been designed to take into account the ageing of the stoves as stated in the methodology. For that purpose a sample of 30 surveys has been defined for each stoves age category.

Forward Action Request #3:

This FAR shall be reviewed by the DOE at the moment of a new VPA inclusion (no new VPAs have been included since the PoA registration), it is not applicable during a verification assessment.

Forward Action Request #4:

The monitoring surveys implemented for first verification included questions concerning the families' type of use of gas (main, secondary, occasional fuel) but did not include detailed questions on the specific cooking needs gas could satisfy. This type of questions will be included in next monitoring surveys.

This FAR concerns the risk that some households could modify their gas cooking trend after the implementation of the ICS thanks to money savings realized since less wood is purchased. In the monitoring surveys the LPPs have collected information concerning the proportion of households who collect and purchase wood. It must be highlighted that in the large majority of cases, households are collecting and not purchasing wood, as presented in the table below (the figures represent the proportion of families who collects wood):

ECC		ECP	AURA	ESM	FPCV		FPP		Red Patsari
Ecocina	Ecoplancha	Ecocina	Patsari	Ecocina	Plancha	Tierra comp.	Onil	Patsari	Patsari
91.87%	72.41%	52.94%	87.31%	88.89%	71.96%	74.36%	90.43%	78.09%	42.79%

Households who collect wood can benefit with the ICS implementation from time savings but not from money savings. They are not more able to buy gas in comparison to their baseline situation thus it is very unlikely that their gas use has changed.

Households who purchase wood can benefit with the ICS implementation from money savings that can imply a greater capacity to buy gas. Nevertheless the households would need to use continuously their wood stove as their primary cooking device in order to benefit from significant and permanent money savings. Thus gas use could increase among certain families but it would remain an occasional or secondary fuel as households need to keep using their wood stove to benefit from the money savings in comparison to their baseline situation. The most likely is that the money saved is used for other purposes than buying fuel. Thus the situation in which

families use the saved money thanks to the ICS implementation to purchase more gas and that this trend is significant enough to affect the estimated wood savings is very unlikely.

Forward Action Request #5:

As explained in the MRs section D.2 concerning the wood savings parameter the rule is that wood consumption results are analysed separately for each season whenever data are available for both seasons. In this case seasonally weighted wood savings are calculated taking into consideration the lengths of the seasons and applied in the emission reductions calculation. In the case where the LPP is not able to conduct field tests in both seasons he must carry out the field tests in the “conservative” season, that is to say in the season in which wood consumption is lower according to the end users. As required by the DOE, a specific section has been added in the Annex of the MRs corresponding to each LPP (see section “Seasonal variations in wood consumption» of each Annex) to explain the seasonality variations of the different project activities.

Documentation Provided as Evidence by Project Participant

Carbon waiver forms

Information Verified by Lead Assessor

Date of review: 17/03/2016

Carbon waiver forms

Reasoning for ~~not acceptance~~ or close out

During on-site survey, it was checked from the delivery act that the carbon waiver clause has been incorporated to each household and it was also clarified by households that they know about the carbon waiver clause and they have no complain on that part.

At the same time HHs informed about the regular involvement of the VPA implementers in the communities for the operational problem of ICS and fixing up those issues through proper maintenance activity.

It was observed that few of HHs are using LPG for morning tea/ coffee just because of quick and easy process. They hardly use it because of its cost, thus it can be considered as secondary fuel.

Dry and wet seasonality factor were taken care during the ER calculation process and same were verified with the ER sheet and interview during site visit.

Date of acceptance or non-acceptance

Date: 17/03/2016

Status: Closed

8. CERTIFICATE OF COMPETENCE

Personnel Name:	Kaushik Pal		
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☐
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy Industries (renewable/non-renewable)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
	TA 1.2 Energy generation from renewable energy sources		
Energy Demand	TA 3.1 Energy Demand		
Approved by (Manager C & T)	Gagandeep Kakkar		
Approval date:	31/12/2014		

Personnel Name:	Sanjay Kandari		
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure		
Approved by (Manager C & T)	Gagandeep Kakkar		
Approval date:	03/11/2015		

History of the document

Version	Date	Nature of revision	Reviewed by	Approved by
5.0	20/02/2015	Revised for VVS V7	Manager CDM Quality 21/02/2015	Managing Director 24/02/2015
4.0	14/12/2013	Guidance included/improved	Manager CDM Quality 23/12/2013	Managing Director 23/12/2013
3.1	29/10/2012	Updated for EB69 Annex6	Manager CDM Quality 29/10/2012	Managing Director 29/10/2012
3.0	31/08/2012	Revised for VVS Track	Manager CDM Quality 08/09/2012	Managing Director 10/09/2012
2.0	21/12/2011	Comprehensively revised	Manager CDM Quality 21/12/2011	Managing Director 21/12/2011