MONITORING REPORT
v08 – 07/07/2016

"Utsil Naj – Casa saludable para todos" – VPA4
GS 2441

1st MP 27/12/2011 – 31/12/2014 (first and last days included)

Title of the VPA	"Utsil Naj – Casa saludable para todos – VPA 4"
Reference number of the project activity	GS 2441
Title of the PoA	"Utsil Naj – Casa saludable para todos"
Reference number of the PoA	GS 1377
Version number of the monitoring report	8
Completion date of the monitoring report	07/07/2016
Registration date of the project activity	26/12/2013
Monitoring period number and duration of this monitoring period	1st monitoring period: 27/12/2011 – 31/12/2014 (first and last days included) Duration of the monitoring period: 1,101 days
Project participant(s)	- 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 Apropiada (GIRA) - Fundación Vamos a Dar (VAD) - Vasco de Quiroga: Presencia en el Siglo XXI (VDQ) - Ecocina Stove Mexico (ESM) - Stove Team International (STI) - MICROSOL
Host Party(ies)	Mexico
Sectoral scope(s) and applied methodology(ies)	Sectoral scope: Energy demand Applied methodology: Gold Standard methodology: "Technologies and Practices to Displace Decentralized Thermal Energy Consumption – V.01".

Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	147,304 $tCO2_e$
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	84,579 $tCO2_e$
Actual GHG emission reductions achieved during the first commitment period	25,338 $tCO2_e$
Actual emission reductions achieved during the period from 1 January 2013 onwards	59,241 $tCO2_e$

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SECTION A. Description of the project activity

A.1. Purpose and general description of the project activity

This Voluntary Project Activity (VPA) is part of the PoA "Utsil Naj – Casa saludable para todos" (GS1377).

In Mexico, where still more than 13%[1] of the population in 2003 relied on wood for cooking, inefficient cooking practices are one of the causes of deforestation. Indeed, the annual decrease in forest cover reaches 155,000 hectares[2] principally due to the conversion of forests to more lucrative land uses, such as agriculture and livestock activities. Other important regional drivers include tourism, mining and urban. But the degradation of primary forests is largely due to the high rate of extraction in order to supply households and local industry.

Adequate sensitization, technological transfer and finance for improving these conditions have always been lacking even though the technologies able to limit deforestation and protect the health of the families initially appear quite simple. This VPA intends to be part of the solution. It aims at disseminating, within the defined processes of the PoA, improved cook stoves to Mexican families used to cook with inefficient wood stoves.

This VPA, the fourth of this PoA, includes project activities in eight states of Mexico implemented by nine LPPs (Local Project Participants). The project activities are the dissemination and transfer of 122,682 improved cook stoves in the states of Jalisco, Mexico, San Luis Potosi, Veracruz, Sonora, Michoacán, Oaxaca and Guanajuato in Mexico. Project activities will take place between 2007 and 2019 at least (the actual dissemination and transfer of technology was held between 2007 - 2014 but follow up and maintenance will last until 2019 at least).

Eight out of nine[3] LPPs are requesting issuance of credits for their project activities in this first monitoring period:

- **Fondo Pro Cuenca Valle (FPCV)**: It is a Mexican nonprofit organization implementing ICS and other socio-environmental projects in the State of Mexico during the period 2009-2014.
- **Fondo Para la Paz (FPP)**: It is a Mexican nonprofit organization implementing ICS and other socio-environmental projects in the States of San Luis Potosi, Oaxaca, Veracruz and Campeche during the period 2007-2014.
- **AURA (Asesoría en Arquitectura y Urbanismo Social)**: It is a Mexican nonprofit organization implementing ICS in the States of Sonora and Sinaloa during the period 2009-2014.
- **GIRA (Grupo Interdisciplinario de Tecnología Rural Apropiada)**: It is a Mexican nonprofit organization implementing ICS in the State of Michoacán during the period 2008-2014.
- **Fundación Vamos a Dar (VAD)**: It is a Mexican nonprofit organization implementing ICS and other socio-environmental projects in the State of Mexico during the period 2010-2013.

[1] WHO & UNDP, The Energy Access Situation in Developing countries, 2009.
http://www.who.int/indoorair/publications/energyaccesssituation/en/
[2] FAO, Global Forest Resources Assessment, 2010.
[3] CDT is not requesting issuance for this first monitoring period.

- **Vasco de Quiroga**: Presencia en el Siglo XXI **(VDQ)**: It is a Mexican nonprofit organization implementing ICS in the State of Mexico during the period 2008-2010.
- **Ecocina Stove Mexico (ESM)**: It is a Mexican enterprise supported financially and technically by **Stove Team International (STI)** that disseminates ICS in the State of Guanajuato in 2013.

AURA, GIRA, VAD and VDQ implement the same project activity under a common coordinating structure called "**Red Patsari**". They implement monitoring activities in common except AURA that decided to conduct its own monitoring.

MICROSOL is the Managing entity of the PoA: it 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.

For the analysis of this VPA the following Gold Standard methodology is used: "Technologies and Practices to Displace Decentralized Thermal Energy Consumption"– V.01". As a result of the pre-feasibility assessment, the Gold Standard declared the project eligible for inclusion and retroactive crediting. The inclusion of the VPA was successfully conducted by TUV NORD and the Gold Standard officially included the VPA along with the PoA registration when the 6-week review period ended, that is to say on 26/12/2013.

This monitoring report covers ERs generated during the monitoring period by ICS disseminated by the eight LPPs listed above from the beginning of project activities. 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, as in the following table:

Table A1: ICS volumes and Emission reductions of the 1st monitoring period[4]

LPP:	AURA	ESM	FPCV		FPP		RED PATSARI	TOTAL
Model:	Patsari	Ecocina	Plancha	Tierra comp.	ONIL	Patsari	Patsari	
Number of ICS installed:	9,933	194	762	592	868	1,884	3,107	**17,340**
Emission reductions (tCO2)	45,220	892	6,803	2,933	11,167	6,501	11,063	**84,579**

[4] Whenever a LPP implements two different models of ICS, two project scenarios are defined and therefore all the monitoring results are presented separately.

A.2. Location of the project activity

Mexico is a North American country extended on 1,972,550 km2. It is a federation comprising 31 States and a Federal District, the capital city.

The States' capitals of the regions of implementation of the different LPPs' project activities have the following GPS coordinates:

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

Table A2: Maps

A.3. Parties and project participant(s)

Party involved	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant
Mexico (host country)	- Corazón de la Tierra[5] (private entity) - Fondo Pro Cuenca Valle (private entity) - Fondo Para La Paz (private entity) - Asesoría en Arquitectura y Urbanismo Social (private entity) - Grupo Interdisciplinario de Tecnología Rural Apropiada (private entity) - Fundación Vamos a Dar (private entity) - Vasco de Quiroga : Presencia en el siglo XXI (private entity) - Ecocina Stove Mexico (private entity)	No
USA	STOVE TEAM INTERNATIONAL (Private entity)	No
France	MICROSOL S.A.S. (Private entity)	No

[5] CDT does not present its project for this first verification.

A.4. Reference of applied methodology

The following Gold Standard methodology is applied: "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" v.1, released on 11/04/2011.

It is available on the Gold Standard website:
http://www.cdmgoldstandard.org/wp-content/uploads/2011/10/GS_110411_TPDDTEC_Methodology.pdf

A.5. Crediting period of project activity

The selected crediting period is a 7-year crediting period renewable twice, as stated in section A.9 of the VPA-DD.

The starting date of the crediting period is: 27/12/2011 (DD.MM.YYYY)
Indeed, the first stove of this VPA has been built in 2007. However, as of Gold Standard rules, the crediting period cannot start more than two years prior to the final inclusion date of the VPA. The inclusion of the VPA was officially finished on 26/12/2013, therefore the official starting date of the VPA crediting period is 27/12/2011.

SECTION B. Implementation of the project activity

B.1. Description of implemented registered project activity

➢ ***Technical description***

In total, 5 different models of improved cook stoves are implemented by the LPPs:

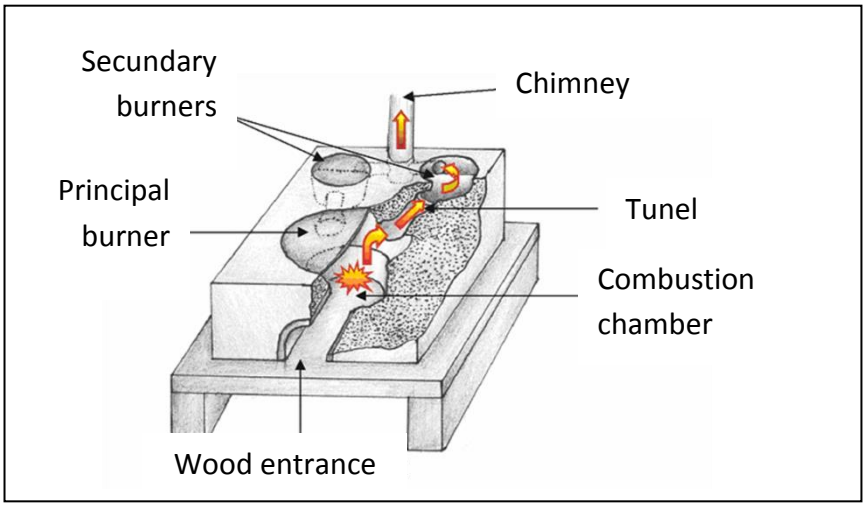
- 5 LPPs (FPP, AURA, GIRA, VAD, VDQ) are implementing the 'Patsari' model;
- 1 LPP (FPCV) is implementing 2 models, the 'Plancha' and the 'Tierra compactada';
- 1 LPP (FPP) is also implementing the 'ONIL' model;
- 1 LPP (ESM) is diffusing the 'Ecocina' model.

All the ICS models are made from available local materials and are adapted to local cooking methods, which means they all have at least one "comal", a hotplate made of metal or clay on which people cook tortillas[6]. All the ICS models enable to reduce wood consumption, carbon emissions and particulate matter.

Below are presented the 5 different ICS models implemented within this VPA:

a) Patsari

The Patsari stove was designed by GIRA. It has a chimney and 3 comales[7] to multiple cooking surfaces. The base of the Patsari model is usually constructed with clay and bricks and the chimney and comales are in metal[8].



[6] The tortillas are the basis of Mexican and Central American food.
[7] Some Patsari stoves have 1 or 2 comales instead of 3 as a result of an adaptation to local preferences.
[8] Exceptionally some comales are made with clay if metal comales are not easily available.

Design of the Patsari stove

b) Plancha

The Plancha stove was designed by FPCV. It has a chimney made of bricks and one large “plancha” (metal stove top) on which it is possible to cook tortillas and to use pots. The stove is made with bricks and a mixture of clay and mortar.

Design of the Plancha stove

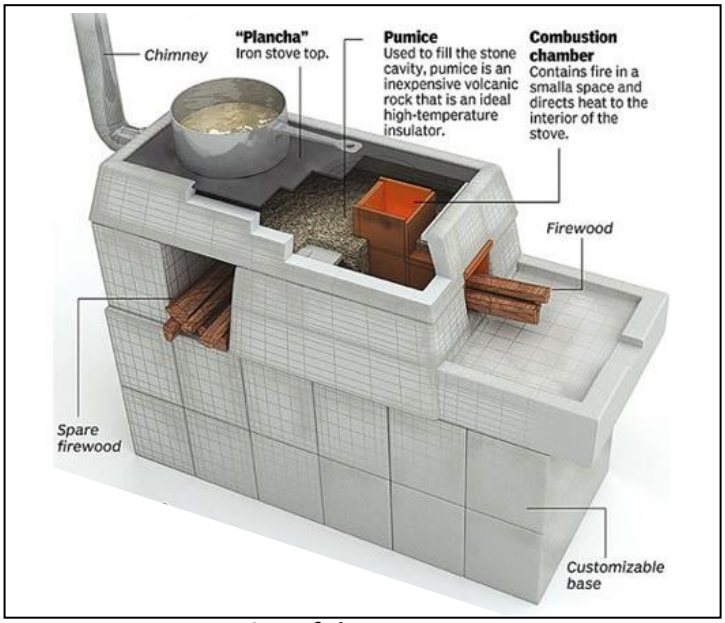
c) Tierra compactada

The Tierra compactada stove was designed by GRUPECSAD (Grupo para Promover la Educación y el Desarrollo). It has a chimney made of bricks and one large circular comal in metal on which it is possible to cook tortillas and to use pots. The stove is made with a mixture of clay, sand, cement and lime.

Design of the Tierra compactada stove

d) ONIL

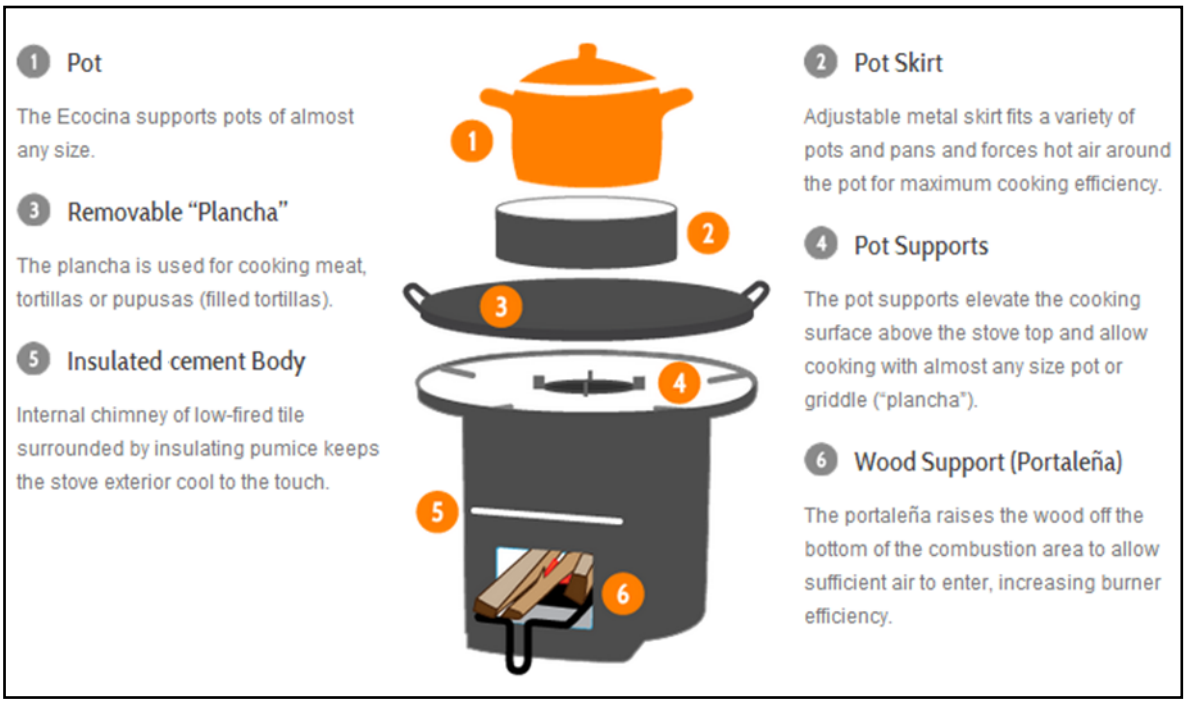
The ONIL stove was designed by the organization HELPS International. It has a steel chimney and one large “plancha” (metal stove top) on which it is possible to cook tortillas and to use pots. The base of the ONIL model is constructed with concrete, the combustion chamber is made with clay and pumice, a volcanic rock, is used as an insulation material.



Design of the ONIL stove

e) Ecocina

The 'Ecocina'[9] is a portable stove designed by Larry Winiarski and Ken Goyer. With an air-intake opening the same size as the exit, oxygen entering through the bottom moves efficiently through the internal chimney, driving heat directly to the cooking pot while burning the gasses and particulate matter. Therefore, even if the model has no chimney it produces almost no smoke.



Design of the Ecocina stove

[9] More information on the Ecocina model is available on: http://www.stoveteam.org/projects/our-stove.

- ***Expected lifetime of the technology***

The ICS implemented by the LPP(s) have the following characteristics:

Table B.1.a: Materials used for ICS construction

FPCV - PLANCHA			FPCV – TIERRA COMPACTADA		
Parts	**Materials**	**Life expectancy (years)**	**Parts**	**Materials**	**Life expectancy (years)**
Chimney	Steel / Aluminum	10	Chimney	Steel	10
Combustion chamber	Fire clay	5	Combustion chamber	Fire clay	5
Platform	Metal / clay	4 to 7	Platform	Metal / clay	4 to 7
Structure block	Adobe / Brick	5 to 10	Structure block	Adobe	5
Estimated stove life expectancy if appropriate usage and maintenance		7	Estimated stove life expectancy if appropriate usage and maintenance		7
FPP ONIL			**FPP PATSARI**		
Parts	**Materials**	**Life expectancy (years)**	**Parts**	**Materials**	**Life expectancy (years)**
Chimney	Steel / Aluminum	5	Chimney	Steel	5
Combustion chamber	Fire clay	5	Combustion chamber	Brick	10
Platform	Metal / clay	4 to 7	Platform	Brick / Cement	10
Structure block	Adobe / brick	5 to 10	Structure block	Partition / Cement	70
Estimated stove life expectancy if appropriate usage and maintenance		7	Estimated stove life expectancy if appropriate usage and maintenance		10
AURA			**GIRA**		
Parts	**Materials**	**Life expectancy (years)**	**Parts**	**Materials**	**Life expectancy (years)**
Chimney	Steel	4	Chimney	Steel	5
Combustion chamber	Brick	5 to 10	Combustion chamber	Brick	5 to 10
Platform	Brick/ Cement	5 to 10	Platform	Brick / Cement	5 to 10
Structure block	Partition / Cement	5 to 10	Structure block	Partition / Cement	5 to 10

Estimated stove life expectancy if appropriate usage and maintenance		10	Estimated stove life expectancy if appropriate usage and maintenance		10
VAD			**VDQ**		
Parts	**Materials**	**Life expectancy (years)**	**Parts**	**Materials**	**Life expectancy (years)**
Chimney	Steel	6	Chimney	Steel	5
Combustion chamber	Brick	6	Combustion chamber	Brick	5 to 10
Platform	Brick / Cement	6	Platform	Brick / Cement	5 to 10
Structure block	Partition / Cement	6	Structure block	Partition / Cement	5 to 10
Estimated stove life expectancy if appropriate usage and maintenance		10	Estimated stove life expectancy if appropriate usage and maintenance		10
ESM					
Parts	**Materials**	**Life expectancy (years)**			
Chimney		-			
Combustion chamber	Refractory bricks	5			
Platform	Iron	5			
Structure block	Cement	5			
Estimated stove life expectancy if appropriate usage and maintenance		7			

Some spare parts of both stove technologies have a shorter life expectancy: some repairing and replacement can be made by the family and others imply new spare parts provision. The LPP is asked to define a maintenance scheme in order to favour sustainability of the technologies during at least the 7 years of the first crediting period. For this purpose, a multiple-step process will be followed:

- First monitoring activities have been implemented by each LPP: the data collected will enable to identify the issues faced by the end users, such as an inadequate use of the technology, an insufficient maintenance of the technology, a spare parts need, etc.
- During the project verification, Microsol analyses the data collected by each LPP in its monitoring surveys and field tests and makes a diagnostic on the technology use, state and maintenance requirements. This diagnostic will be sent to each LPP specifying that future carbon revenues will need to be used in priority for the follow-up and sustainability of the project.
- Each LPP will implement follow-up and maintenance activities once carbon revenues are received.

- For the subsequent verification, each LPP will need to provide Microsol with a report on the use of its carbon revenues. The report will be analysed by Microsol in order to assess the adequacy of the carbon revenues use.

Information concerning the condition of the different parts of the ICS and the necessity to repair/replace them will be collected by each LPP among a representative sample of end users during each monitoring surveys campaign (in the framework of carbon certification monitoring activities).

- ***Technology volumes***

The LPPs included in this MR started the implementation of their activities as follows:

Table B1.a: Number of ICS installed per year

LPP:	AURA	ESM	FPCV		FPP		RED Patsari
Model:	**Patsari**	**Ecocina**	**Plancha**	**Tierra compactada**	**ONIL**	**Patsari**	**Patsari**
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**

B.2. Post registration changes

B.2.1. Temporary deviations from registered monitoring plan or applied methodology

No temporary deviations from the registered monitoring plan or the methodology have been applied to this monitoring period.

B.2.2. Corrections

No correction occurred in this Monitoring period.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

No changes have occurred on the monitoring plan or the applied methodology.

B.2.4. Changes to project design of registered project activity

No changes have occurred to the project design of the registered project activity but there is a difference between the ICS volumes presented in the VPA-DD section A.3 that were based on expected donations/sales projections and the effective volumes implemented as described in the MR section B.1.

The discrepancy between the VPA-DD and the MR can be explained as follows:

- At the moment of presentation of the project activity for validation, each LPP was able to provide the exact list of end users until the year 2012. There were respectively 6,878 ICS for AURA, 974 ICS for FPCV (both models combined) and 2,361 ICS for FPF (both models combined). These numbers have been reduced in the MR to: 6,875 ICS for AURA, 956 ICS for FPCV (both models combined) and 2,333 ICS for FPF (both models combined) because of two processes: the update of the list of end users and the quality control conducted by Microsol on the latest version of the end users list. In the case of the LPP RED PATSARI the discrepancy is more important concerning past volumes (2007-2012) as they have been reduced from 4,012 to 2,741 ICS. It is due to the update of the list of end users: some old stoves have been removed by the LPP because they were no more used and some stoves have been suppressed from the list by Microsol because no delivery act has been obtained for them (we only present at verification stage stoves for which a delivery act where carbon property is clarified has been signed by the end user).

- The figures presented in the VPA-DD for the years 2013-2014 were projections estimated by the LPPs based on donations expected to be received in the next years (in the case of non-profit organizations) or the factory's capacity (in the case of ESM). The effective donations or sales for those years were lower: the exact and final figures are the ones presented in the MR.

B.2.5. Changes to start date of crediting period

No changes have been applied to the start date of the crediting period.

B.2.6. Types of changes specific to afforestation or reforestation project activity

Not applicable.

SECTION C. Description of monitoring system

The monitoring plan applicable for the VPA is based on the Gold Standard methodology: "Technologies and Practices to Displace Decentralized Thermal Energy Consumption – V.01".

First of all, trainings are performed at various levels to guarantee correct application of PoA rules and efficiency of the projects:

- For each LPP, MICROSOL makes various trainings corresponding to each key step of the carbon process. Usually, when a LPP enters in the PoA, it receives two trainings: one on the eligibility documents to produce and the PoA rules, one on the monitoring process. Depending on the content, the training can last from one to three days. After first verification, MICROSOL reproduces training whenever needs are identified (new rules, new people, etc.)
- Each end user is trained by the LPP's staff during the stove implementation. The capacity building covers the stove construction and reparation, sensitization on the benefits and risks of stove utilization, good practices and tricks for good utilization. These trainings usually take place during the installation of the stove, in the house of the end user.

A final list ('End users list') of the families having received an improved cook stove is compiled by each LPP and centralized by MICROSOL. The LPP is due to frequently update this list and communicate changes to MICROSOL. This list helps in identifying ICS owners for applying monitoring surveys and serves as a basis for total population emission reductions calculation.

Emission reductions are calculated for each issuance based on the last surveys and field tests data collected respectively annually and every two years. Other aspects such as leakage, SD matrix and DNH mitigation parameters are monitored every two years in a general update. Corresponding assessment is presented in the monitoring report produced in this occasion.

Quality control and analysis is performed by MICROSOL in Paris. All data generated is centralized by MICROSOL in general comprehensive databases so as to be easily accessible and for analysis to be more accurate. MICROSOL's leadership of the process, its permanent control of data and its capacity building to LPPs act as a guarantee for data quality. Nevertheless, whenever possible, independent analysis could be considered so as to reinforce confidence in data.
All data and documentation related to the VPAs will be archived at least for a period of 2 years after the end of the crediting period.

So, for the monitoring reports:

- The LPPs perform surveys and field tests according to the Monitoring Plan under supervision of MICROSOL;
- MICROSOL conducts a quality control on all data collected by the LPPs;
- MICROSOL compiles a report for all project scenarios;
- MICROSOL submits the report to the DOE for verification.

All the key documentation related to the PoA is archived electronically on a specific web site called "Dropbox". To avoid unexpected deletion of files, back-up are saved each month by MICROSOL's IT

department. This archiving system prevents from potential loss of documents due to destruction or loss of MICROSOL's staff computers.

To make this monitoring system more efficient and reliable, MICROSOL continuously works on improvements of tools and procedures. The key tools and procedures of MICROSOL are:

- Emission reduction calculation tool;
- Training LPPs on carbon documentation and processes;
- Sampling tool to provide guidelines to the LPPs concerning the place to perform surveys;
- Quality control of the documentation provided by the LPPs.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data / Parameter:	**$EF_{wood,CO2}$**
Unit:	tCO2/TJ
Description:	CO2 emission factor for wood.
Source of data:	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
Value(s) applied):	112
Choice of data or Measurement methods and procedures:	The IPCC value for wood is applied: the IPCC net CO2 emission factor for wood is 112 tCO2/TJ.
Purpose of data:	Calculation of emission reductions.

Data / Parameter:	**$EF_{wood,nonCO2}$**
Unit:	tCO2/TJ
Description:	Non-CO2 emission factor for wood.
Source of data:	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
Value(s) applied):	(0.3 x 25 + 0.004 x 298) = 8.692
Choice of data or Measurement methods and procedures:	The IPCC values for wood are applied: The IPCC net CH4 emission factor for wood is 0.3 tCH4/TJ. The Global Warming Potential (GWP) for CH4 is 25. The IPCC net N2O emission factor for wood is 0.004 tN2O/TJ. The Global Warming Potential (GWP) for N2O is 298.
Purpose of data:	Calculation of emission reductions.

Data / Parameter:	NCV_{wood}
Unit:	TJ/ton wood
Description:	Net calorific value of wood.
Source of data:	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
Value(s) applied):	0.0156
Choice of data or Measurement methods and procedures:	The IPCC Net Calorific Value (NCV) for wood is 0.0156 TJ/t.
Purpose of data:	Calculation of emission reductions.

D.2. Data and parameters monitored

D.2.1. Data and parameters defined in the methodology

Data / Parameter:	$N_{p,y}$
Unit:	Technology.days
Description:	Cumulative number of project technology.days included in the project database for project scenario p in year y.
Measured/ Calculated/ Default:	Calculated.
Source of data:	End users list and delivery records provided by LPP.
Value(s) of monitored parameter:	See section E.4 for detailed values of the parameter.
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	The LPP establishes an "End users list" presenting at least the following information: name, last name, location, date of installation of the technology. Based on this list Microsol calculates the cumulative number of project technology.days included in the project database in year y of the monitoring period. See detailed calculations in tab "Np,y" of the "ER calculations" Excel spreadsheet of each project scenario.

Calculation method (if applicable):	See section D.6.3 of the VPA-DD for detailed calculation formula.
QA/QC procedures:	Data are collected by the LPPs and then verified by MICROSOL (double counting and random cross-check with installation evidences).
Purpose of data:	Calculation of emission reductions.

Data / Parameter:	**$U_{p,y}$**
Unit:	%
Description:	Usage rate for technologies from project scenario p in year y.
Measured/ Calculated/ Default:	Measured.
Source of data:	Annual usage surveys (performed with the Project surveys among the same end users).
Value(s) of monitored parameter:	See section E.4 for detailed values of the parameter.
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	Annually.
Calculation method (if applicable):	The measurement of the usage rate is based on qualitative information collected in the Usage surveys. A question concerning the current use of the technology is asked to each end user of the sample and is validated by the observation of the interviewer in order to determine the usage rate of each technology age category. See section D.6.3 of the VPA-DD for detailed calculation formula.
QA/QC procedures:	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.
Purpose of data:	Calculation of emission reductions.

Data / Parameter:	**P_b**
Unit:	tons/day/stove
Description:	Average daily wood consumption of a stove in baseline scenario b.
Measured/ Calculated/ Default:	Measured.
Source of data:	Baseline FT
Value(s) of monitored parameter:	**$P_{b,FPCV,Trad}$ = 0.01598**[10] **$P_{b,FPCV,Non-Trad}$ = 0.01316** **$P_{b,FPP}$ = 0.01585** **$P_{b,AURA}$ = 0.01414** **$P_{b,REDPATSARI}$ = 0.00995** **$P_{b,ESM}$ = 0.01291**
Monitoring equipment:	Portable electronic scale.
Measuring/ Reading/ Recording frequency:	N/A. 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.
Calculation method (if applicable):	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.
QA/QC procedures:	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. 4) No calibration test was required because all the electronic scales were newly purchased by MICROSOL for this first monitoring campaign.
Purpose of data:	Calculation of emission reductions.

[10] Average of both seasons data.

Data / Parameter:	**P_p**
Unit:	tons/day/stove
Description:	Average daily wood consumption of a stove in project scenario p.
Measured/ Calculated/ Default:	Measured.
Source of data:	Project FT
Value(s) of monitored parameter:	**$P_{p,FPCV,Plancha}$ = 0.00954** **$P_{p,FPCV,Tierra\ compactada}$ = 0.01078** **$P_{p,FPP,Onil}$ = 0.00756** **$P_{p,FPP,Patsari}$ = 0.01306** **$P_{p,AURA}$ = 0.00996** **$P_{p,REDPATSARI}$ = 0.00708** **$P_{p,ESM}$ = 0.00586** See section E.4 for detailed values of the parameter.
Monitoring equipment:	Portable electronic scale.
Measuring/ Reading/ Recording frequency:	Every two years.
Calculation method (if applicable):	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.
QA/QC procedures:	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. 4) No calibration test was required because all the electronic scales were newly purchased by MICROSOL for this first monitoring campaign.
Purpose of data:	Calculation of emission reductions.

Data / Parameter:	$\mathbf{P_{p,b,y}}$
Unit:	tons/day/stove
Description:	Daily wood savings of an ICS of project scenario p against a stove from baseline scenario b.
Measured/ Calculated/ Default:	Calculated.
Source of data:	Baseline and Project FT
Value(s) of monitored parameter:	See section E.4 for detailed values of the parameter.
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	Every two years.
Calculation method (if applicable):	The parameter $\mathbf{P_{p,b,y}}$ is derived from a statistical analysis which is conducted in combination on baseline and project scenarios wood consumption data ($\mathbf{P_b}$ and $\mathbf{P_p}$) following the guidelines described in the Methodology (Annex 4). See section D.6.3 of the VPA-DD for detailed calculation formula. Wood consumption results are analysed separately for each season[11]. 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.
QA/QC procedures:	The data are analysed in the monitoring report and raw data are available on request of the DOE.
Purpose of data:	Calculation of emission reductions.

[11] All LPPs except FPCV present wood savings data for only one season, always the season defined as "conservative" in their baseline surveys. See the Annexes of the MR in which specific data is detailed for each LPP.

Data / Parameter:	**f_{NRB}**
Unit:	%
Description:	Non-renewability fraction of woody biomass fuel.
Measured/ Calculated/ Default:	Calculated.
Source of data:	See Appendix 5 of the PoA-DD.
Value(s) of monitored parameter:	f_{NRB} = **86.67%**
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	N/A. 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.
Calculation method (if applicable):	See 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.
QA/QC procedures:	N/A
Purpose of data:	Calculation of emission reductions.

Data / Parameter:	**E_p**
Unit:	%
Description:	Eligibility factor of the technologies implemented in project scenario p.
Measured/ Calculated/ Default:	Measured.
Source of data:	Project surveys.
Value(s) of monitored parameter:	**$E_{p,FPCV,Plancha}$ = 100.00%** **$E_{p,FPCV,Tierra\ compactada}$ = 100.00%** **$E_{p,FPP,Onil}$ = 97.39%** **$E_{p,FPP,Patsari}$ = 98.80%** **$E_{p,AURA}$ = 97.04%** **$E_{p,REDPATSARI}$ = 92.61%** **$E_{p,ESM}$ = 87.39%**
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	Annually.
Calculation method (if applicable):	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. See section E.4.a for detailed calculation formula.
QA/QC procedures:	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.
Purpose of data:	Calculation of emission reductions.

Data / Parameter:	**LE_p**
Unit:	t_CO2e
Description:	Leakage in project scenario p.
Measured/ Calculated/ Default:	Measured.
Source of data:	See Section II.B.6.1. of the PoA-DD for Leakages L1, L2, L3 and L5. Project surveys for L4.
Value(s) of monitored parameter:	L1, L2, L3 and L5 have been defined as null at PoA level. For L4, the results are as follows: **$L4_{FPCV,Plancha}$ = 73** **$L4_{FPCV,Tierra\ compactada}$ = 0** **$L4_{FPP,Onil}$ = 0** **$L4_{FPP,Patsari}$ = 0** **$L4_{AURA}$ = 0** **$L4_{REDPATSARI}$ = 0** **$L4_{ESM}$ = 8**
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	Every two years.
Calculation method (if applicable):	Concerning L4 ('The project population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating '): this 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.
QA/QC procedures:	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.
Purpose of data:	Calculation of emission reductions.

Data / Parameter:	**O_p**
Unit:	%
Description:	Removal rate of the baseline technology in project scenario p.
Measured/ Calculated/ Default:	Measured.
Source of data:	Project surveys.
Value(s) of monitored parameter:	**$O_{p,PCV,Plancha}$ = 66.14%** **$O_{p,FPCV,Tierra\ compactada}$ = 65.25%** **$O_{P,FPP,Onil}$ = 37.39%** **$O_{P,FPP,Patsari}$ = 68.13%** **$O_{P,AURA}$ = 68.15%** **$O_{P,REDPATSARI}$ = 76.96%** **$O_{P,ESM}$ = 37.84%**
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	Annually.

Calculation method (if applicable):	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). See the parameter calculation in the ER calculations Excel, sheet "Other indicators", cell 'C12´ for the calculation details.
QA/QC procedures:	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.
Purpose of data:	Compliance with an applicability condition of the Methodology.
Others:	Before the stoves implementation, sensitization activities are conducted with the end users on the benefits of the technology in terms of health and environment, and the aspects related to adequate use and maintenance of the stove. During these sensitization activities it is explained to the end users how the use of the ICS enables to reduce indoor air pollution and the amount of wood consumed. This is done by comparing the functioning of ICS with a traditional stove. The end users are encouraged to abandon definitively their traditional stoves in order to benefit fully from the ICS advantages.

D.2.2. Sustainability indicators defined in GS Passport[12]

No	1
Indicator	**Air quality**
Mitigation measure	N/A
Chosen parameter	% of households declaring having less indoor smoke after project implementation
Current situation of parameter	**$Ind_{1,FPCV,Plancha}$ = 100.00%** **$Ind_{1,FPCV,Tierra\ compactada}$ = 98.31%** **$Ind_{1,FPP,Onil}$ = 100.00%** **$Ind_{1,FPP,Patsari}$ = 100.00%** **$Ind_{1,AURA}$ = 99.26%** **$Ind_{1,REDPATSARI}$ = 98.26%** **$Ind_{1,ESM}$ = 100.00%**
Estimation of baseline situation of	High smoke and indoor air pollution in households due to the

[12] See sheet "Other indicators" in each ER calculations excel document for detailed calculations.

parameter		utilization of traditional wood stove.
Future target for parameter		Significant reduction of the presence of smoke in the majority of households covered by the project activity.
Way of monitoring	How	Asking for the perception of change in presence of smoke.
	When	Annually in Monitoring surveys.
	By who	LPPs pollsters.

No		2
Indicator		**Biodiversity**
Mitigation measure		N/A
Chosen parameter		Average nonrenewable wood saving in the project activity during the monitoring period
Current situation of parameter		**$Ind_{2,FPCV,Plancha}$ = 3,554 tons** **$Ind_{2,FPCV,Tierra\ compactada}$ = 1,374 tons** **$Ind_{2,FPP,Onil}$ = 5,866 tons** **$Ind_{2,FPP,Patsari}$ = 3,156 tons** **$Ind_{2,AURA}$ = 23,698 tons** **$Ind_{2,REDPATSARI}$ = 5,810 tons** **$Ind_{2,ESM}$ = 533 tons**
Estimation of baseline situation of parameter		High wood fuel consumption causes high deforestation which damages natural habitats.
Future target for parameter		Decreased deforestation thanks to the reduction of nonrenewable fuel wood consumption will improve biodiversity.
Way of monitoring	How	Measuring through the Kitchen Field tests the reduction of wood fuel consumption enabled by the implementation of improved cook stoves.
	When	Every 2 years.
	By who	LPPs pollsters.

No	3
Indicator	**Quality of employment**
Mitigation measure	N/A
Chosen parameter	Number of permanent job positions employing local people created thanks to the implementation of the project.
Current situation of parameter	**$Ind_{3,FPCV}$ = 8**[13] **$Ind_{3,FPP}$ = 0**[14] **$Ind_{3,AURA}$ = 25** **$Ind_{3,REDPATSARI}$ = 5** **$Ind_{3,ESM}$ = 5**

[13] The value is common for both Project scenarios.

[14] The value is common for both Project scenarios. The null value is due to the fact that we account as "permanent jobs" only when at least 50% of the employee's time is dedicated to the ICS project. In the case of FPP, the employees work simultaneously on various project activities thus they have been accounted as "temporal jobs".

Estimation of baseline situation of parameter		These jobs did not exist before the implementation of the project.
Future target for parameter		Creation of wage based permanent job positions employing local people to ensure the promotion, manufacturing, distribution, training, monitoring activities associated with the dissemination of improved cook stoves.
Way of monitoring	How	Checking the List of workers produced by the LPP's supervisor
	When	Annually.
	By who	LPP/ MICROSOL

No		4
Indicator		**Livelihood of the poor**
Mitigation measure		N/A
Chosen parameter		Number of improved cook stove in use within the project activity.
Current situation of parameter		**$Ind_{4,FPCV,Plancha}$ = 99.47%** **$Ind_{4,FPCV,Tierra\ compactada}$ = 100.00%** **$Ind_{4,FPP,Onil}$ = 100.00%** **$Ind_{4,FPP,Patsari}$ = 97.61%** **$Ind_{4,AURA}$ = 96.30%** **$Ind_{4,REDPATSARI}$ = 87.83%** **$Ind_{4,ESM}$ = 88.29%**
Estimation of baseline situation of parameter		In baseline situation no improved cook stove was used by the beneficiaries.
Future target for parameter		Reduction of the amount of smoke in the household and of the wood fuel consumption which both enable to improve the quality of life of the end users.
Way of monitoring	How	Asking for the presence and use of the improved cook stove.
	When	Annually in Monitoring surveys.
	By who	LPPs pollsters.

No		5
Indicator		**Access to affordable and clean energy services**
Mitigation measure		N/A
Chosen parameter		Average wood saving in the project activity during the monitoring period
Current situation of parameter		**$Ind_{5,FPCV,Plancha}$ = 4,054 tons** **$Ind_{5,FPCV,Tierra\ compactada}$ = 1,567 tons** **$Ind_{5,FPP,Onil}$ = 6,691 tons** **$Ind_{5,FPP,Patsari}$ = 3,600 tons** **$Ind_{5,AURA}$ = 27,032 tons** **$Ind_{5,REDPATSARI}$ = 6,628 tons** **$Ind_{5,ESM}$ = 608 tons**
Estimation of baseline situation of		In baseline situation no improved stoves are used so no

parameter		particular wood saving is expected. Baseline average consumption will be quantified at first monitoring report.
Future target for parameter		The improved cook stove reduces the amount of wood fuel consumed and the amount of smoke in the household which enables an access to a cleaner energy.
Way of monitoring	How	Measuring through the Kitchen Field tests the reduction of wood fuel consumption enabled by the implementation of improved cook stoves.
	When	Every 2 years.
	By who	LPPs pollsters.

No		6
Indicator		**Human and institutional capacity**
Mitigation measure		N/A
Chosen parameter		Participation of the improved cook stoves end users in capacity-building activities.
Current situation of parameter		$\mathbf{Ind_{6,FPCV,Plancha} = 100.00\%}$ $\mathbf{Ind_{6,FPCV,Tierra\ compactada} = 97.46\%}$ $\mathbf{Ind_{6,FPP,Onil} = 96.52\%}$ $\mathbf{Ind_{6,FPP,Patsari} = 90.84\%}$ $\mathbf{Ind_{6,AURA} = 86.67\%}$ $\mathbf{Ind_{6,REDPATSARI} = 95.22\%}$ $\mathbf{Ind_{6,ESM} = 98.20\%}$
Estimation of baseline situation of parameter		No capacity-building of the end users.
Future target for parameter		Participation of the improved cook stoves end-users in capacity-building activities on the benefits and the adequate use of the technology.
Way of monitoring	How	Asking the end user for its participation in a capacity-building on the benefits and the adequate use of the technology.
	When	Annually in Monitoring surveys.
	By who	LPPs pollsters.

No		7
Indicator		**Quantitative employment and income generation**
Mitigation measure		N/A
Chosen parameter		Number of job positions employing local people that were created thanks to the implementation of the project.
Current situation of parameter		$\mathbf{Ind_{7,FPCV} = 7}$[15] $\mathbf{Ind_{7,FPP,Onil} = 25}$[16] $\mathbf{Ind_{7,AURA} = 0}$ $\mathbf{Ind_{7,REDPATSARI} = 6}$

[15] The value is common for both Project scenarios.
[16] Ibidem

		$Ind_{7,ESM}$ = 2
Estimation of baseline situation of parameter		No job before project implementation.
Future target for parameter		Creation of job positions employing local people to ensure the promotion, manufacturing, distribution, training, monitoring activities associated with the dissemination of improved cook stoves.
Way of monitoring	How	Checking the List of workers produced by the LPP's supervisor
	When	Annually.
	By who	LPP/ MICROSOL

No		8
Indicator		**Technology transfer and technological self-reliance**
Mitigation measure		N/A
Chosen parameter		Participation of the improved cook stoves end users in the construction of the technology.
Current situation of parameter		**$Ind_{8,FPCV,Plancha}$ = 98.41%** **$Ind_{8,FPCV,Tierra\ compactada}$ = 98.31%** **$Ind_{8,FPP,Onil}$ = 91.30%** **$Ind_{8,FPP,Patsari}$ = 76.49%** **$Ind_{8,AURA}$ = 96.30%** **$Ind_{8,REDPATSARI}$ = 72.17%** **$Ind_{8,ESM}$ = 93.69%**
Estimation of baseline situation of parameter		No participation in the construction of the technology.
Future target for parameter		Participation of the improved cook stoves end users in the construction of the technology.
Way of monitoring	How	Asking the end user for its participation in the construction of the technology.
	When	Annually in Monitoring surveys.
	By who	LPPs pollsters.

Data / Parameter:	DNH parameter – Corruption
Unit:	%
Description:	Percentage of carbon revenues which are not traceable.
Measured/ Calculated/ Default:	Calculated.
Source of data:	Carbon revenues use report prepared by the LPP.
Value(s) of monitored parameter:	N/A (Annually after first issuance)
Monitoring equipment:	N/A
Measuring/ Reading/ Recording frequency:	Annually after first issuance.
Calculation method (if applicable):	The LPP provides a detailed report on the utilization of carbon revenues with references to evidences available for consultation (when possible).
QA/QC procedures:	MICROSOL revises the LPP's report and its consistency with the evidences as well as the validity of those.
Purpose of data:	Do No Harm assessment.

D.3. Implementation of sampling plan

Utsil Naj PoA-DD sets the general framework and guidelines for sampling methods as follows:

a. Sampling methodology

A multistage random sampling[17] for all monitoring surveys and field tests has been designed by a statistician in order to cover all the geographical areas of the project activities and to ensure a random selection of the subjects. The calculation of sample sizes is done following the rules defined in section D.7.2 of the VPA-DD.

Different stages corresponding to the territorial organization of the host country are taken into consideration while defining the sample. These are the state, the municipality and the community in case of Mexico.

These are the main guidelines to be followed at each stage while defining the sample:

[17] As stated in the methodology 'Annex 4. Kitchen Performance Test: Procedure for fuel consumption measurements for improved cook stove activities': Any sampling methods can be used, provided that the sample is selected randomly.

- State level:

In order to cover all geographical parts of the project activity, all the states of implementation of the project activity are selected and the sample size is split among all of them[18], according to their weights in terms of technology volumes (number of units sold or installed).

- Municipality level:

In order to avoid situations where the LPP needs to visit few households in different remote municipalities, between 1 and 8 municipalities (depending on the sample size of each state) are randomly selected among the municipalities with the largest volumes of the technology in each selected state. The sample size is split among all of them, according to their weights in terms of technology volumes.

- Community level:

Once the sample size corresponding to each municipality is defined, between 1 and 8 communities (depending on the sample size of each municipality) are selected randomly in each selected municipality among communities with more than sixteen end users. Eight surveys will be conducted per community, but in order to anticipate the possible absence of some end users, two sample lists will be randomly[19] defined per community, one as the priority list of end users to be surveyed and the other one as a back-up list[20].

When defining the sample of Project field tests and Field test updates, it is necessary to take into consideration technology age categories, that is why a second step is required in the sampling procedure to verify that they are all appropriately represented, and if not the sample is adequately adapted.

b. Sample sizes

The calculation of sample sizes is done following the rules defined in section D.7.2 of the VPA-DD.

[18] If the sample obtained in one department is smaller than eight, this department is removed from the sample and the sample size is reweighted again among the remaining departments.

[19] Microsol has developed a computer algorithm to generate a list of random numbers to select the end users in each community.

[20] If the complete list of end users is not available at the moment of the Baseline surveys sample definition (in any case, the volumes of technologies per community will be available), the multi-stage random sampling rules described above will be followed except the last step when defining the list of end users to be visited. In this case, MICROSOL will provide the LPP with a list of communities to be monitored and the LPP, once in the field, will be in charge of selecting randomly the end users to be surveyed.

Monitoring activities	Minimum sample size
Baseline studies	
Baseline survey	- Group size <300: n = 30 - Group size 300 to 1000: n = 10% of the group size - Group size > 1000: n = 100
Baseline FT	n = 100[21]
Project studies	
Project survey	n = 100, with at least 30 samples for project technologies of each age being credited
Usage survey	
Project FT	n = 100[50] with at least 30 samples for project technologies of each age being credited
Ongoing monitoring tasks	
Monitoring survey[22]	n = 100, with at least 30 samples for project technologies of each age being credited
Usage survey	
FT updates	n = 100[50] with at least 30 samples for project technologies of each age being credited

c. Sampling guidelines

In addition to the sampling method described above, guidelines from the methodology 'Annex 4. Kitchen Performance Test: Procedure for fuel consumption measurements for improved cook stove activities' are followed in order to ensure field tests are implemented correctly:

1) The end users are sampled using a random selection method (see above). Fuel consumption is measured in both phases with independent samplings (separate sets of kitchens having appropriately similar socio-economic and cultural conditions): it is the only option since it was necessary to conduct the baseline and project tests concurrently.

2) An appropriate test period is selected. The KPTs are done during a period of three days excluding Sundays that are often days with unusual consumptions (people are not working and their activities are different). The proportional extrapolation of results to the whole year is therefore conservative as does not consider Sunday's higher consumptions. In addition, when planning the monitoring campaigns it is ensured with the LPPs that it is an appropriate time of year to avoid times like festivals or holidays when more cooking is done than usual.

[21] The sample size was defined in reference to the expected COV of the wood savings following the guidelines of the Annex 4 (p.44) of the Methodology. This number will be applied for the first verification and will be updated, if necessary, taking into account the results obtained during first verification and following the guidelines of the Methodology Annex 4.

[22] The presented minimum sample size only concerns Project scenario monitoring surveys. Whenever an evolving baseline is defined in the VPA-DD, Baseline monitoring surveys should be performed following the sample size rules of the Baseline surveys.

3) The monitoring process is explained to all sampled end users are: it is underlined during those explanations that the family is asked to cook normally during the test. Besides, during the project implementation the end users are sensitized and asked to remove the baseline stove by the ICS but the LPP 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 KPTs are performed on the total fuel consumption of the household.

4) The monitoring process is explained to all sampled end users are: it is underlined during those explanations that the family can only use fuel from the designated stock (wood that has been pre-weighted and located in a specific place to distinguish it from other fuels available in the house).The data are collected on hard copies or whenever possible directly on electronic tablets. Either way data are finally included and analyzed in an Excel spreadsheet. For logistical reasons most of the time it is not possible to visit the subjects everyday but detailed questions are made during the second phase of the test to ensure whether only fuel from the weighed stock has been used. If it turns out that the family lacked fuel and used not pre-weighted fuel it is asked to prepare the equivalent amount of fuel and present it to the pollster who will weigh it and enter the mass in the data sheet.

5) During the test the sampled end users are asked about how many people have eaten and how many meals have been prepared.

6) The sampled end users are informed of the monitoring process before its start and are asked to gather for the date of first phase of the test enough fuel for a period of five days (in order to make sure they will not lack fuel during the test period of three days).
7) Once the data are collected Microsol runs a statistical analysis on the test results, to estimate the mean fuel savings. Before beginning the analysis, the presence of “outliers” is assessed. The statistical analysis is conducted in combination on baseline and project scenarios wood consumption data to determine the 90% confidence interval of the wood savings of each ICS age category.

8) Depending on the diffusion methodology of the LPP, the test subjects are rewarded or not with an ICS once the tests are finished. Once the monitoring data have been analyzed and depending on the results of the statistical analysis, it is possible to conclude whether to extend the sample size further or re-run tests that for some reason were invalid.

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

As defined in the PoA-DD, the applied Gold Standard methodology states that when the baseline fuel and the project fuel are the same and the baseline emission factor and project emission are considered the same, the overall GHG reductions achieved by the project activity in year y are calculated as follows[23]:

$$ER_y = \sum_{b,p}\{N_{p,y}*P_{p,b,y}*U_{p,y}*NCV_{fuel}*(f_{NRB}*EF_{fuel,CO2} + EF_{fuel,nonCO2})\} - \sum LE_p$$

Where:

$P_{p,b,y}$ Wood savings for an individual ICS of project scenario p against an individual stove of baseline scenario b in year y

Therefore the methodology requires us to calculate directly the emission reductions based on the wood savings which implies that baseline emissions are not calculated separately.

E.2. Calculation of project emissions or actual net GHG removals by sinks

As defined in the PoA-DD, the applied Gold Standard methodology states that when the baseline fuel and the project fuel are the same and the baseline emission factor and project emission are considered the same, the overall GHG reductions achieved by the project activity in year y are calculated as follows[24]:

$$ER_y = \sum_{b,p}\{N_{p,y}*P_{p,b,y}*U_{p,y}*NCV_{fuel}*(f_{NRB}*EF_{fuel,CO2} + EF_{fuel,nonCO2})\} - \sum LE_p$$

Where:

$P_{p,b,y}$ Wood savings for an individual ICS of project scenario p against an individual stove of baseline scenario b in year y

Therefore the methodology requires us to calculate directly the emission reductions based on the wood savings which implies that project emissions are not calculated separately.

[23] See equation n°1 of the methodology, presented page 14.
[24] Idem

E.3. Calculation of leakage

As specified in the Methodology, the following potential sources of leakage should be investigated:

a. **The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project.**

   The traditional unimproved stoves are fixed and thus cannot usually be moved from a house to another. As a consequence, reuse is very unlikely.

   ⇨ $L1_{ICS} = 0$

b. **The non-renewable biomass or fossil fuels saved under the project activity are used by non-project users who previously used lower emitting energy sources.**

   The only case in which non-renewable biomass saved under the project activity would be used by non-project users who previously used lower emitting energy sources would correspond to people cooking with gas that decide to cook with wood. A fuel switch is usually motivated by a significant variation of the other fuel price. A fall in wood fuel prices is very unlikely as the end users most of the time collect the wood fuel instead of buying it. In any case, it has been demonstrated that LPG stoves represent an important investment and therefore few end users can afford them. When they can cook with gas they choose to do it in order to gain comfort. Therefore, even if a fall in wood prices would occur, it seems very unlikely that some end users substitute their LPG stoves by improved cook stoves as switching back from gas to wood can be considered as very uncomfortable. This source of leakage is therefore considered as null.

   ⇨ $L2_{ICS} = 0$

c. **The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario.**

   Based on the experience of the Qori Q'oncha PoA[25], a biomass improved cook stove enables to save approximately 1,09[26] ton of wood per year. This figure is by far insignificant when compared to the total domestic wood fuel demand of a country. Even in the case of 100,000 improved cook stoves being implemented within the PoA in each host country, the wood savings involved by the project activities will be completely negligible in comparison to the total annual biomass removals, having no impact or an insignificant impact on the NRB fraction (the variation in the NRB fraction does not exceed 0,42%)[27]. This source of leakage is therefore considered as null.

   ⇨ $L3_{ICS} = 0$

[25] Gold Standard PoA of biomass improved cook stoves (GS1005) that MICROSOL developed in Peru.
[26] See "Appendix 10 – Leakage supporting information " sheet n°1.
[27] See "Appendix 10 – Leakage supporting information" sheet n°2.

d. The project population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology[28].

If the project population retains some use of inefficient technology to compensate for a potential loss of the space heating, the corresponding wood fuel consumption will be accounted for as part of the project emissions since Field tests are performed on the total wood fuel consumption of the household.

Besides, no single sample tests and efficiency ratio multiplier will be used.

If the project population compensates for a potential loss of the space heating by adopting some other form of heating using other fuel than wood, a leakage would possibly appear. That is why this potential source of leakage will be monitored in the Monitoring surveys by asking the end users if they use a new heating device since their improved cook stove or SWSD has been implemented. If it turns out that some end users use a new heating device, the corresponding proportion of end users will be suppressed from the ER calculations as a conservative measure.

⇨ $L4_{ICS}$: See section D.2 for each LPP's result.

e. By virtue of promotion and marketing of a new technology with high efficiency, the project stimulates substitution within households who commonly used a technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline.

Only end users that in the baseline scenario were using wood as their main combustible are eligible to the PoA, therefore those using LPG stoves are not eligible so this source of leakage is not applicable.

⇨ $L5_{ICS} = 0$

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

➢ **Cumulative number of ICS.days**

First of all, here are the volumes of ICS implemented annually by each LPP:

Table E4.1: Volume of ICS implemented per LPP

LPP:	AURA	ESM	FPCV		FPP		RED Patsari
Model:	**Patsari**	**Ecocina**	**Plancha**	**Tierra compactada**	**ONIL**	**Patsari**	**Patsari**
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

[28] Baseline and project performance field tests would subsume this potential for leakage, but the later would not be addressed in case of a single sample performance test and efficiency ratio multiplier.

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 Cumulative number of ICS-days crediting in year y for each LPP are as follows:

Table E4.2: 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**

The Usage rate in year y for each LPP is as follows:

Table E4.3: Usage rate per LPP

LPP:	**AURA**	**ESM**	**FPCV**		**FPP**		**RED PATSARI**
Model:	**Patsari**	**Ecocina**	**Plancha**	**Tierra compactada**	**ONIL**	**Patsari**	**Patsari**
Year 2011	94.16%		100.00%	100.00%	100.00%	97.61%	86.52%
Year 2012	94.54%		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**

Here are presented the results of the statistical analysis conducted per LPP to calculate the daily, seasonally weighted (whenever data are available for both seasons[29]), wood savings per age category (tons/stove/day).

[29] AURA has implemented monitoring activities in wet season, RED PATSARI and FPP in dry season, whereas FPCV in both seasons. ESM has also implemented monitoring activities in wet season but due to a discrepancy in the identification of the conservative season between BLKS and PSKS data, it has been decided to adjust ESM's wood savings values (see explanation in Annex 5).

Table E4.4: 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**

The Eligibility factor for each LPP is as follows:

Table E.4.5: Eligibility factor of each LPP's project activity

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

- **Leakage**

The potential sources of leakage L1, L2, L3 and L5 have been defined as null at PoA level; only the potential source of leakage L4 is monitored. Whenever Project or Monitoring surveys reveal that some end users use a new heating device since their ICS has been implemented, the corresponding proportion of end users will be removed from the ER calculations. The estimated leakage for each LPP is as follows:

Table E.4.6: Leakage of each LPP's project activity

LPP:	AURA	ESM	FPCV		FPP		RED PATSARI
Model:	Patsari	Ecocina	Plancha	Tierra comp.	ONIL	Patsari	Patsari
L1 = L2 = L3 = L5	0	0	0	0	0	0	0
L4	0	8	73	0	0	0	0

- **Emission reductions**

Once all these parameters have been calculated, it is possible to obtain the annual emission reductions realized by the LPPs' project activities and requested in this monitoring period, that are 84,579 $tCO_{2e.}$

Table E.4.7. Summary of total emission reductions for the VPA

LPP:	AURA	ESM	FPCV		FPP		RED PATSARI	TOTAL
Model:	Patsari	Ecocina	Plancha	Tierra comp.	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**

Table E.4.8: 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**

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered VPA-DD

Item	Values estimated in ex-ante calculation of registered VPA-DD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO_2e)	**147,304**	**84,579**

Details of the estimated ERs in the VPA-DD for the current MP (27/12/2011 - 31/12/2014)[30]:

	FPCV	FPP	AURA	RED PATSARI	ESM	Total
ER 2011 (from 27/11/2011)	13	67	93	98	-	**271**
ER 2012	1,242	4,536	11,725	6,937	-	**24,440**
ER 2013	2,165	7,935	19,267	15,316	824	**45,507**
ER 2014 (until 31/12/2014)	3,526	13,023	27,172	30,392	2,973	**77,086**
TOTAL ERs:	**6,946**	**25,561**	**58,257**	**52,743**	**3,797**	**147,304**

E.6. Remarks on difference from estimated value in registered VPA-DD

The gap between VPA-DD estimation and ERs calculated for that monitoring period can be mainly explained by the number of ICS effectively installed by the LPPs in the period 2007-2014. All LPPs have implemented much less ICS that was initially planned in the VPA-DD what implied reduced emission reductions[31]:

	FPCV	FPP	AURA	RED PATSARI	ESM
Estimated ICS volume	2,974	6,961	15,878	18,012	7,000
Actual ICS volume	1,354	2,752	9,933	3,107	194
Difference	**-120%**	**-153%**	**-37%**	**-83%**	**-97%**

[30] For more explanations see the tab "Estimated vs Actual ERs" in the ER calculation spreadsheets.
[31] Idem

E.7. Actual emission reductions during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO_2e)	25,338	59,241

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ANNEXES

ANNEX 1. LPP FPCV

1. Training and implementation of monitoring activities

Before first verification, a training has been performed by MICROSOL to prepare the LPP for the verification monitoring activities and the verification documents to produce. The training consisted in a three-day capacity-building including a practical training in the field for a better understanding of the monitoring requirements.

It took place during the second semester of 2013 and the following LPP's staff members and pollsters have been trained in the monitoring activities (directly by Microsol or by the LPP's supervisor after he has been trained by Microsol) and then implemented the surveys and field tests:

N°	Organization	Name
1	FPCV	ANTONIO RIOS
2	FPCV	ARNULFO VELAZQUEZ ITURBE
3	FPCV	ARNULFO VELAZQUEZ QUINTERO
4	FPCV	CYNTHIA TERESA PIÑON RAMIREZ
5	FPCV	ESTELA GARCIA NAVARRETE
6	FPCV	FABIOLA FABILA MERCED
7	FPCV	GUILLERMO AVILA AVILA
8	FPCV	JOSÉ ANTONIO RÍOS CHAVEZ
9	FPCV	PATRICIA FABILA BERMEO

The following monitoring activities have been implemented for this verification by the LPP's staff members and pollsters:

Monitoring activities	Date	Sample size
Baseline studies		
Baseline survey	September 2013 – January 2014	Traditional stove: 214 Non-traditional stove: 114
Baseline FT	September 2013 – January 2014	Traditional stove: 213 Non-traditional stove: 114
Project studies		
Project survey	September– December 2013	Plancha model: 189 Tierra compactada model: 118
Usage survey		
Project FT	September– December 2013	Plancha model: 189 Tierra compactada model: 118

2. Baseline scenario(s) definition

Based on the Baseline surveys results, it has been concluded that there is a need to define two baseline scenarios: end users who were using a traditional stove in baseline scenario VS those who were using a non-traditional stove in baseline scenario. As the population of the scenario "end users who were using a non-traditional stove in baseline scenario" is significant, both baseline scenarios have been monitored by FPCV.
See section D.4 of the VPA-DD for more details.

3. Seasonal variations in wood consumption

Based on the Baseline surveys results, seasonal variations might exist in FPCV end users' wood consumption and the dry season has been identified as the one with lower consumption (it is therefore FPCV's 'conservative' season). It is necessary to take into consideration in the emission reductions calculation that wood consumption is not constant during all the year.
Following the two possible options (see section D.4 of the VPA-DD for more details), FPCV decided for this monitoring period to perform field tests in both seasons.

4. Project scenario(s) definition

For the verification stage, project surveys have been realized by the LPP following the guidelines defined in section II.B.7.2 of the PoA-DD. Since FPCV implements two different models of ICS, the Plancha and Tierra compactada, two project scenarios have been foreseen.

These are the results of the project surveys:

Table 4.1: Description of ICS – Plancha - end users population

PSKS SURVEYS	
Survey dates	September and November 2013
Season of surveys implementation	Wet and Dry
Sample size	189
Family size average - Total - Dry	4.8
Children (<10)	1.4
Adults (>10)	3.4
% of people using wood as first fuel	100.00%
% of people using a traditional cookstove in baseline	70.90%
% of removal of the baseline cookstove	66.14%

Table 4.2: Project scenario definition for the ICS – Plancha - project activity

Cluster differentiation factors	Sub-factor	Information	Criteria	
Type of household	Commercial or institutional use of stove	Number of people that use their stove for commercial or institutional purposes	% of users with commercial or institutional use >= 30% or <=70%	1.59%
CONCLUSION				**1 project scenario**

Based on the project surveys results, there is a need to define two project scenarios: end users who have a personal use of the ICS VS 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.

Table 4.3: Description of ICS – Tierra compactada - end users population

PSKS SURVEYS	
Survey dates	September and November 2013
Season of surveys implementation	Wet and Dry
Sample size	118
Family size average - Total - Dry	4.5
Children (<10)	1.4
Adults (>10)	3.1
% of people using wood as first fuel	100.00%
% of people using a traditional cookstove in baseline	79.66%
% of removal of the baseline cookstove	65.25%

Table 4.4: Project scenario definition for the ICS – Tierra compactada - project activity

Cluster differentiation factors	Sub-factor	Information	Criteria	
Type of household	Commercial or institutional use of stove	Number of people that use their stove for commercial or institutional purposes	% of users with commercial or institutional use >= 30% or <=70%	1.69%
CONCLUSION				**1 project scenario**

Based on the project surveys results, there is a need to define two project scenarios: end users who have a personal use of the ICS VS 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.

ANNEX 2. LPP FPP

1. Training and implementation of monitoring activities

Before first verification, a training has been performed by MICROSOL to prepare the LPP for the verification monitoring activities and the verification documents to produce. The training consisted in a three-day capacity-building including a practical training in the field for a better understanding of the monitoring requirements.

It took place during the second semester of 2013 and the following LPP's staff members and pollsters have been trained in the monitoring activities (directly by Microsol or by the LPP's supervisor after he has been trained by Microsol) and then implemented the surveys and field tests:

N°	Organization	Name
1	FPP	Adriana Escobar Hernandez
2	FPP	Azucena Perez Salazar
3	FPP	Diana Yanet Gomez Martinez
4	FPP	Florencio Gonzales Martinez
5	FPP	Gildardo Calvo Zurita
6	FPP	Humberto Hernandez Feliciano
7	FPP	Ignacia Fernandez Santiago
8	FPP	Jesus Rodriguez Marcelino
9	FPP	Lucio Audberto Cuahua Tezoco
10	FPP	María Rosario Oltehua Jiménez
11	FPP	Mario López López
12	FPP	Miguel Angel Cruz Salinas
13	FPP	Monica Hernandez Santiago
14	FPP	Nemorio Ventura Mendoza Guzman
15	FPP	Oscar Noel Mejia Dominguez
16	FPP	Reynaldo Zepahua Apale
17	FPP	Teresa de Jesus Colohua Morales

The following monitoring activities have been implemented for this verification by the LPP's staff members and pollsters:

Monitoring activities	Date	Sample size
Baseline studies		
Baseline survey	November– December 2013	Traditional stove: 114
Baseline FT	November– December 2013	Traditional stove: 115
Project studies		
Project survey	November 2013 – January 2014	ONIL model: 115 Patsari model: 251
Usage survey		
Project FT	November 2013 – January 2014	ONIL model: 112

		Patsari model: 250

2. Baseline scenario(s) definition

Based on the Baseline surveys results, it has been concluded that there is a need to define only one baseline scenario, i.e. for end users who were using a traditional stove in baseline.
See section D.4 of the VPA-DD for more details.

3. Seasonal variations in wood consumption

Based on the Baseline surveys results, seasonal variations might exist in FPP end users' wood consumption and the dry season has been identified as the one with lower consumption (it is therefore FPP's 'conservative' season). It is necessary to take into consideration in the emission reductions calculation that wood consumption is not constant during all the year.
Following the two possible options (see section D.4 of the VPA-DD for more details), FPP decided for this monitoring period to perform all field tests in the season when the wood consumption is lower (dry season) in order to be conservative when extrapolating the data to the whole year.

4. Project scenario(s) definition

For the verification stage, project surveys have been realized by the LPP following the guidelines defined in section II.B.7.2 of the PoA-DD. Since FPP implements two different models of ICS, the Patsari and ONIL, two project scenarios have been foreseen.

These are the results of the project surveys:

Table 4.1: Description of ICS – Patsari - end users population

PSKS SURVEYS	
Survey dates	November 2013
Season of surveys implementation	Dry
Sample size	251
Family size average - Total - Dry	4.4
Children (<10)	1.3
Adults (>10)	3.1
% of people using wood as first fuel	100.00%
% of people using a traditional cookstove in baseline	98.80%
% of removal of the baseline cookstove	68.13%

Table 4.2: Project scenario definition for the ICS – Patsari - project activity

Cluster differentiation factors	Sub-factor	Information	Criteria	
Type of household	Commercial or institutional use of stove	Number of people that use their stove for commercial or institutional purposes	% of users with commercial or institutional use >= 30% or <=70%	3.59%
CONCLUSION				**1 project scenario**

Based on the project surveys results, there is a need to define two project scenarios: end users who have a personal use of the ICS VS 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.

Table 4.3: Description of ICS – ONIL- end users population

PSKS SURVEYS	
Survey dates	November 2013
Season of surveys implementation	Dry
Sample size	115
Family size average - Total - Dry	4.9
Children (<10)	1.6
Adults (>10)	3.4
% of people using wood as first fuel	97.39%
% of people using a traditional cookstove in baseline	100.00%
% of removal of the baseline cookstove	37.39%

Table 4.4: Project scenario definition for the ICS – ONIL - project activity

Cluster differentiation factors	Sub-factor	Information	Criteria	
Type of household	Commercial or institutional use of stove	Number of people that use their stove for commercial or institutional purposes	% of users with commercial or institutional use >= 30% or <=70%	3.48%
CONCLUSION				1 project scenario

Based on the project surveys results, there is a need to define two project scenarios: end users who have a personal use of the ICS VS 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.

ANNEX 3. LPP AURA

1. Training and implementation of monitoring activities

Before first verification, a training has been performed by MICROSOL to prepare the LPP for the verification monitoring activities and the verification documents to produce. The training consisted in a three-day capacity-building including a practical training in the field for a better understanding of the monitoring requirements.
It took place during the second semester of 2013 and the following LPP's staff members and pollsters have been trained in the monitoring activities (directly by Microsol or by the LPP's supervisor after he has been trained by Microsol) and then implemented the surveys and field tests:

N°	Organization	Name
1	AURA	ARMANDO ESTRELLA SANDOVAL
2	AURA	DEMETRIO GOCOBACHI TUCARI
3	AURA	ELIZABETH NEBUAY ROMERO
4	AURA	FLORA ARENAS FLORES
5	AURA	GUADALUPE BUELNA BAINORI
6	AURA	GUILLERMO PEREZ ULLOA
7	AURA	MANUEL FRANCISCO ALCANTAR QUINTANA
8	AURA	RICARDO PAVEL ENRIQUEZ GALAVIZ

The following monitoring activities have been implemented for this verification by the LPP's staff members and pollsters:

Monitoring activities	Date	Sample size
Baseline studies		
Baseline survey	September 2013	Traditional stove: 133
Baseline FT	September 2013	Traditional stove: 128
Project studies		
Project survey	September 2013	Patsari model: 135
Usage survey		
Project FT	September 2013	Patsari model: 128

2. Baseline scenario(s) definition

Based on the Baseline surveys results, it has been concluded that there is a need to define two baseline scenarios: end users who were using a traditional stove in baseline scenario VS those who

were using a non-traditional stove in baseline scenario. As the population of the scenario "end users who were using a non-traditional stove in baseline scenario" is not significant, AURA decided not to implement a specific monitoring for this other scenario and to exclude it from the emission reductions calculations (through the eligibility factor $\mathbf{E_p}$). This approach was conservative.
See section D.4 of the VPA-DD for more details.

3. Seasonal variations in wood consumption

Based on the Baseline surveys results, seasonal variations might exist in AURA end users' wood consumption and the rainy season has been identified as the one with lower consumption (it is therefore AURA's 'conservative' season). It is necessary to take into consideration in the emission reductions calculation that wood consumption is not constant during all the year.
Following the two possible options (see section D.4 of the VPA-DD for more details), AURA decided for this monitoring period to perform all field tests in the season when the wood consumption is lower (rainy season) in order to be conservative when extrapolating the data to the whole year.

4. Project scenario(s) definition

For the verification stage, project surveys have been realized by the LPP following the guidelines defined in section II.B.7.2 of the PoA-DD. Since AURA implements a unique model of ICS, the Patsari, one project scenario has been foreseen.

These are the results of the project surveys:

Table 4.1: Description of ICS end users population

PSKS SURVEYS	
Survey dates	September 2013
Season of surveys implementation	Wet
Sample size	135
Family size average - Total - Dry	3.2
Children (<10)	0.9
Adults (>10)	2.4
% of people using wood as first fuel	100.00%
% of people using a traditional cookstove in baseline	97.78%
% of removal of the baseline cookstove	68.15%

Table 4.2: Project scenario definition for the ICS project activity

Cluster differentiation factors	Sub-factor	Information	Criteria	

Type of household	Commercial or institutional use of stove	Number of people that use their stove for commercial or institutional purposes	% of users with commercial or institutional use >= 30% or <=70%	0.74%
CONCLUSION				**1 project scenario**

Based on the project surveys results, there is a need to define two project scenarios: end users who have a personal use of the ICS VS 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.

ANNEX 4. LPP RED PATSARI

1. Training and implementation of monitoring activities

Before first verification, a training has been performed by MICROSOL to prepare the LPP for the verification monitoring activities and the verification documents to produce. The training consisted in a three-day capacity-building including a practical training in the field for a better understanding of the monitoring requirements.

It took place during the second semester of 2013 and the following LPP's staff members and pollsters have been trained in the monitoring activities (directly by Microsol or by the LPP's supervisor after he has been trained by Microsol) and then implemented the surveys and field tests:

N°	Organization	Name
1	GIRA	Evaristo Herrera
2	GIRA	Gabriela Lara
3	GIRA	Gilberto Silva
4	GIRA	Ruben Gabriel
1	VAD	ANDREA RAMIREZ ALEJANDRO
2	VAD	BEATRIZ RAMÍREZ PÉREZ
3	VAD	DANIELA SALGADO MATEO
4	VAD	ISABEL GONZALEZ VELAZQUEZ
5	VAD	LORENA MARCELINO GONZALEZ
6	VAD	MARIA DEL CARMEN CRUZ CRUZ
7	VAD	MARICELA MATEO SANTOS
8	VAD	MONSERRAT BENÍTEZ MEJÍA
9	VAD	YESSICA MEDINA NOVA

The following monitoring activities have been implemented for this verification by the LPP's staff members and pollsters:

Monitoring activities	Date	Sample size
Baseline studies		
Baseline survey	November 2013-January 2014	Traditional stove: 137
Baseline FT	November 2013-January 2014	Traditional stove: 137
Project studies		
Project survey	November 2013-January 2014	Patsari model: 230
Usage survey		

Project FT	November 2013-January 2014	Patsari model: 216

2. Baseline scenario(s) definition

Based on the Baseline surveys results, it has been concluded that there is a need to define only one baseline scenario, i.e. for end users who were using a traditional stove in baseline.
See section D.4 of the VPA-DD for more details.

3. Seasonal variations in wood consumption

Based on the Baseline surveys results, seasonal variations might exist in RED PATSARI end users' wood consumption and the dry season has been identified as the one with lower consumption (it is therefore RED PATSARI's 'conservative' season). It is necessary to take into consideration in the emission reductions calculation that wood consumption is not constant during all the year.
Following the two possible options (see section D.4 of the VPA-DD for more details), RED PATSARI decided for this monitoring period to perform all field tests in the season when the wood consumption is lower (dry season) in order to be conservative when extrapolating the data to the whole year.

4. Project scenario(s) definition

For the verification stage, project surveys have been realized by the LPP following the guidelines defined in section II.B.7.2 of the PoA-DD. Since RED PATSARI implements a unique model of ICS, the Patsari, one project scenario has been foreseen.

These are the results of the project surveys:

Table 4.1: Description of ICS end users population

PSKS SURVEYS	
Survey dates	November 2013
Season of surveys implementation	Dry
Sample size	230
Family size average - Total - Dry	4.4
Children (<10)	1.2
Adults (>10)	3.2
% of people using wood as first fuel	94.35%
% of people using a traditional cookstove in baseline	97.83%
% of removal of the baseline cookstove	76.96%

Table 4.2: Project scenario definition for the ICS project activity

Project scenario definition factors	Sub-factor	Information	Criteria	
Type of household	Commercial or institutional use of stove	Number of people that use their stove for commercial or institutional purposes	% of users with commercial or institutional use >= 30% or <=70%	6.09%
CONCLUSION				**1 project scenario**

Based on the project surveys results, there is a need to define two project scenarios: end users who have a personal use of the ICS VS 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.

ANNEX 5. LPP ESM

1. Training and implementation of monitoring activities

Before first verification, a training has been performed by MICROSOL to prepare the LPP for the verification monitoring activities and the verification documents to produce. The training consisted in a three-day capacity-building including a practical training in the field for a better understanding of the monitoring requirements.

It took place during the second semester of 2013 and the following LPP's staff members and pollsters have been trained in the monitoring activities (directly by Microsol or by the LPP's supervisor after he has been trained by Microsol) and then implemented the surveys and field tests:

N°	Organization	Name
1	ESM	ANTONIO SANCHEZ ORTIZ
2	ESM	DEYANIRA HERNANDEZ OLVERA
3	ESM	ERIC RAMIREZ FERRER
4	ESM	MA.GUADALUPE CERRITOS HERNANDEZ

The following monitoring activities have been implemented for this verification by the LPP's staff members and pollsters:

Monitoring activities	Date	Sample size
Baseline studies		
Baseline survey	September 2013	Traditional stove: 117
Baseline FT	September 2013	Traditional stove: 113
Project studies		
Project survey	September 2013	Ecocina model: 111
Usage survey		
Project FT	September 2013	Ecocina model: 103

2. Baseline scenario(s) definition

Based on the Baseline surveys results, it has been concluded that there is a need to define two baseline scenarios: end users who were using a traditional stove in baseline scenario VS those who were using a non-traditional stove in baseline scenario. As the population of the scenario "end users who were using a non-traditional stove in baseline scenario" is not significant, ESM decided not to

implement a specific monitoring for this other scenario and to exclude it from the emission reductions calculations (through the eligibility factor $\mathbf{E_p}$). This approach was conservative.
See section D.4 of the VPA-DD for more details.

3. Seasonal variations in wood consumption

Based on the Baseline surveys results, seasonal variations might exist in ESM end users' wood consumption and the rainy season has been identified as the one with lower consumption (it was therefore considered as ESM's 'conservative' season). It is necessary to take into consideration in the emission reductions calculation that wood consumption is not constant during all the year.
Following the two possible options (see section D.4 of the VPA-DD for more details), ESM decided for this monitoring period to perform all field tests in the season when the wood consumption seemed lower (rainy season) in order to be conservative when extrapolating the data to the whole year.

However a discrepancy appeared between BLKS and PSKS results concerning the "conservative" season: during PSKS an opposite assessment has been done by the households of the season in which they consume more wood (rainy season). The project activity of ESM is located in the state of Guanajuato[34], climatic data from this state has been revised and it shows a "standard" Mexican hot and rainy season between May and October. We have compared this data to other PoA projects located in neighboring states such as Michoacan[35] (LPP GIRA – RED PATSARI) and San Luis Potosi[36] (LPP FPP – Patsari model) and their BLKS and PSKS results all agree that people consume more wood in rainy season and therefore that the conservative season in this region of Mexico is the dry season. Therefore it is very likely that the same seasonality tendency applies in the state of Guanajuato: dry season should be the conservative one (as defined in ESM's PSKS data) and KTs should have been conducted in this season. Yet ESM conducted KTs in rainy season based on the original BLKS assessment of "conservative" season. In order to adjust conservatively data from the LPP ESM (to avoid any risk of overestimation when extrapolating data to the whole year), a "seasonality factor" has been applied to ESM rainy wood savings values based on data from the only LPP that has conducted KPTs in both seasons in Mexico: FPCV[37].

4. Project scenario(s) definition

For the verification stage, project surveys have been realized by the LPP following the guidelines defined in section II.B.7.2 of the PoA-DD. Since ESM implements a unique model of ICS, the Ecocina, one project scenario has been foreseen.
These are the results of the project surveys:

Table 4.1: Description of ICS end users population

PSKS SURVEYS	

[34] http://es.climate-data.org/location/3371/
[35] http://es.climate-data.org/location/3382/
[36] http://es.climate-data.org/location/3365/
[37] See sheet "Wood savings" of ESM's ER calculation excel version 5.

Survey dates	September 2013
Season of surveys implementation	Wet
Sample size	111
Family size average - Total - Dry	5.2
Children (<10)	1.5
Adults (>10)	3.7
% of people using wood as first fuel	92.79%
% of people using a traditional cookstove in baseline	91.89%
% of removal of the baseline cookstove	37.84%

Table 4.2: Project scenario definition for the ICS project activity

Project scenario definition factors	Sub-factor	Information	Criteria	LPP X
Type of household	Commercial or institutional use of stove	Number of people that use their stove for commercial or institutional purposes	% of users with commercial or institutional use >= 30% or <=70%	3.60%
CONCLUSION				**1 project scenario**

Based on the project surveys results, there is a need to define two project scenarios: end users who have a personal use of the ICS VS 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.