Gold Standard for the Global Goals

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

RELATED SUPPORT **- TEMPLATE GUIDE Monitoring Report v. 1.1**

This document contains the following Sections

KEY PROJECT INFORMATION

Key Project Information

GS ID (s) of Project (s)	**GS7783**
Title of the project (s) covered by monitoring report	ECOLIFE Conservation Patsari Improved Cookstove Project Monarch Butterfly Biosphere Reserve Mexico
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	5.7
Version number of the monitoring report	2.4
Completion date of the monitoring report	10/11/2021
Date of project design certification	16/04/2021
Date of Last Annual Report	NA
Monitoring period number	1st
Duration of this monitoring period	16/04/2019- 30/06/2021 26 months, 14 days
Project Representative	ECOLIFE Conservation
Host Country	Mexico
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC) v3.1
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products

13 Climate Action	Emission Reductions, mitigated cumulatively during the first monitoring period	20,322	tCO_2e
1 No Poverty	Number of ICS in use	3,189	Number
2 Zero Hunger	Average percentage of people reporting ability to expand cooking options	78	%
3 Good Health and Well Being	Average proportion of beneficiaries confirming less respiratory disease AND average proportion of beneficiaries confirming improvement in hygiene within the kitchen.	92% – Less Respiratory Disease 92% - Improvement in Hygiene	%
7 Affordable and Clean Energy	Number of ICS in use	3,189	Number
8 Decent Work and Economic Growth	Number of job positions created by the project by year of the monitoring period and total payroll costs	**GENERAL PAYROLL FIELD + OFFICE** **YEAR** / **POSITIONS** **2019** 42 **2020** 43 **2021 TILL JUNE** 27 **AVERAGE** 37	Number
11 Sustainable Cities and Communities	Amount of fuelwood saved as per age group.	**Age group (years)** / **t/hh/day** 0-1: 0.010870 1-2: 0.014230 2-3: 0.013550	t/household/ day

Table 2 – Product Vintages

		Amount Achieved		
Start Dates	**End Dates**	**VERs**	**…**	**…**

16/04/2019	31/12/2019	1,447		
01/01/2020	31/12/2020	9,496		
01/01/2021	30/06/2021	9,378		

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

ECOLIFE Conservation builds improved cookstoves in the 15km buffer zone surrounding the Monarch Butterfly Biosphere Reserve in the Estado de Mexico, State of Michoacán, and State of Queretaro, Mexico. The traditional cooking technology is fuel wood open fire cookstoves, which represents an opportunity to improve fuel wood efficiency, human health, and carbon mitigation.

One in every four Mexican households, approximately 27 million people, use biomass for cooking, "where fuelwood represents approximately 80% of energy used by rural households and 50% of total energy use in rural communities."[1] Most commonly, fuelwood is used on three-stone open cooking fires (TSFs) or in U-shaped open fires characterized by low efficiency and large emissions of greenhouse gases and health-damaging pollutants.

Img. Baseline stove examples

"Although the use of firewood or charcoal for cooking still represents a significant proportion in the country, the use of improved cookstoves with a chimney is

1 Berrueta, Victor M., et al. "Promoting Sustainable Local Development of Rural Communities and Mitigating Climate Change: the Case of Mexico's Patsari Improved Cookstove Project." Climatic Change, vol. 140, no. 1, 12 Oct. 2015, pp. 63–77., doi:10.1007/s10584-015-1523-y.

practically non-existent. Which remains worrying given the conditions for cooking with these fuels and damage to health”[2] Fortunately, the use of the Patsari stove has been proven to “significantly reduce symptoms and of lung function decline comparable to smoking cessation.”[3]

Img. Patsari stove examples

ECOLIFE Conservation is a non-profit 501(c)(3) organization headquartered in Escondido, CA with a field office in Morelia, Mexico (Ecolife Conservación Ambiental Mexicana A.C.). Ecolife Conservación Ambiental Mexicana A.C., also referred to as ECOLIFE MX, is the direct subsidiary of ECOLIFE Conservation that operates in Mexico on behalf of ECOLIFE Conservation US. Ecolife Conservación Ambiental Mexicana A.C. develops the Patsari improved cookstove program including implementation, planning, logistics, construction, promotion, and monitoring.

2 (translation)Primera Encuesta Nacional Sobre Consumo De Energéticos En Viviendas Particulares (Nov. 07th 2018) Comunicado De Prensa Núm. 541/18, INEGI (National Institute of Statistic and Geography for its meaning in Spanish) [Document available at(open on 14 Feb. 2020): https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2018/EstSociodemo/ENCEVI2018.pdf

3 Romieu, I., Riojas-Rodríguez, H., Marrón-Mares, A. T., Schilmann, A., Perez-Padilla, R., & Masera, O. (2009). Improved Biomass Stove Intervention in Rural Mexico. American Journal of Respiratory and Critical Care Medicine, 180(7), 649–656. https://doi.org/10.1164/rccm.200810-1556oc

ECOLIFE Conservation implements the Patsari improved cookstove model, constructed in situ the beneficiary home by locally employed construction teams. The stoves are constructed with locally sourced materials including brick, gravel, sand, clay, steel rod, boiler, tiles, mortar, cement, and Patsari metal kits.

A variety of KPT, WBT, and CCT tests have been conducted on the Patsari model. "In the CCT for tortilla making, the main cooking task in Mexican rural households, Patsari stoves showed fuelwood savings ranging from 44% to 65% in relation to traditional open fires (n=6; P<0.05). These savings were similar in magnitude to the average energy savings from KPT before and after Patsari adoption of 67% (n=23; P<0.05) in rural households exclusively using fuelwood" [4]

The theoretical wood savings based on the studies available indicate, "average energy savings from KPT before and after Patsari adoption of 67% in rural households exclusively using fuelwood. Similar energy savings of 66% for fuelwood and 64% for LPG, respectively, were also observed in households using mixed fuels" [5]

The results of the KPT's conducted by the project are in line with the findings of the quoted studies and in accordance to the project's expectation. In the project scenario, the results of the KPT indicate an overall average consumption of 11.23 Kg/hh/day. Under the baseline scenario, the results indicate an average consumption of 24.11 Kg/hh/day. In comparison with the project scenario, this is roughly twice as much daily average consumption, indicating general savings in the range of 50%.[6]
>>

A.2. Location of project

The project activity is located in the country of Mexico, specifically Estado de Mexico, State of Michoacán, and State of Queretaro.

[4] Berrueta, Víctor M., et al. "Energy Performance of Wood-Burning Cookstoves in Michoacan, Mexico." Renewable Energy, vol. 33, no. 5, 2008, pp. 859–870., doi:10.1016/j.renene.2007.04.016.
[5] Ibib
[6] More information provided in section D.4 below and in the Kitchen Performance Test Report.

The project area covers 33 municipalities and 1132 localities in Estado de Mexico, State of Michoacán, and State of Queretaro, Mexico.

The project area is as follows:

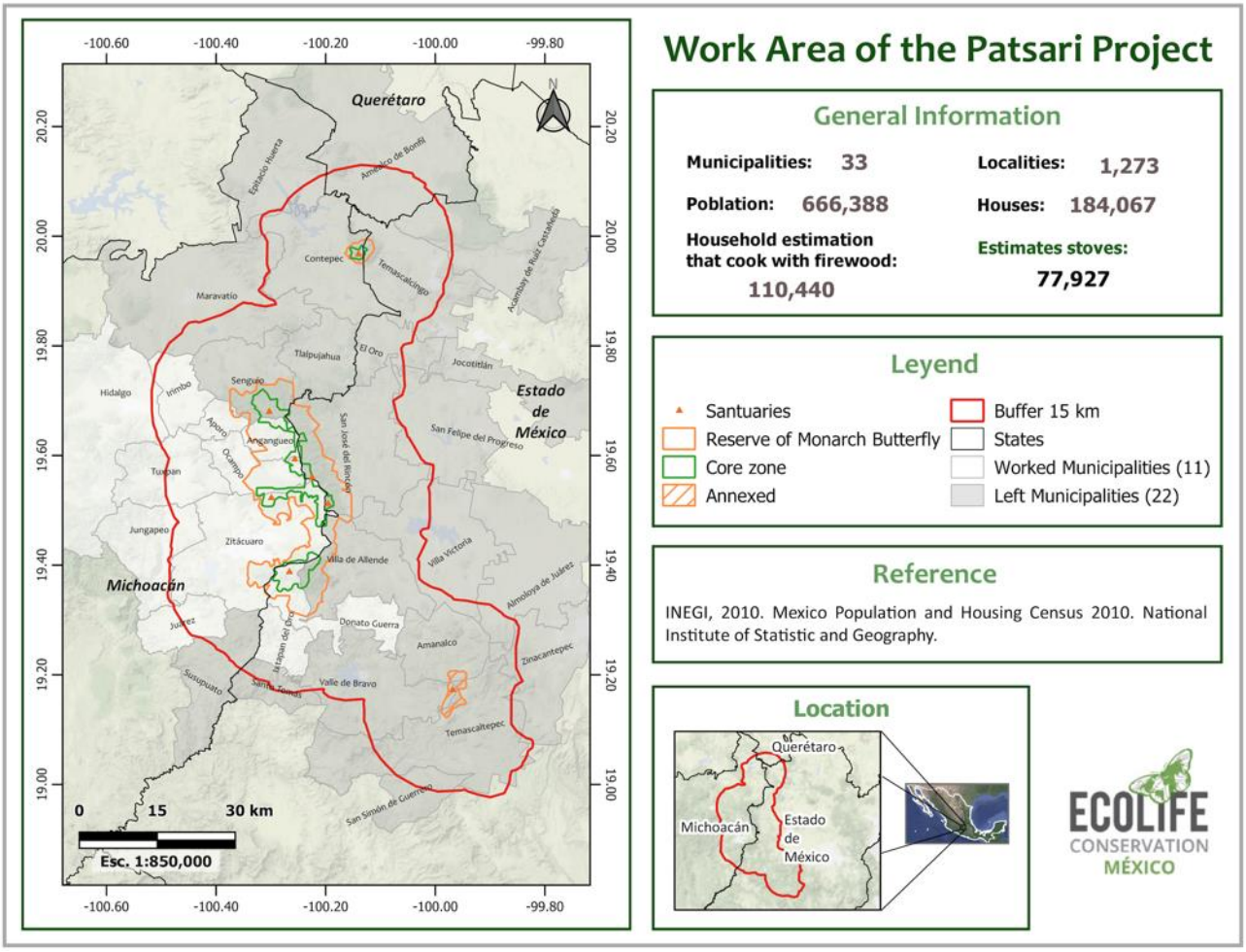
Estado de México: Acambay, Almoloya de Juárez, Amanalco, Donato Guerra, El Oro, Ixtapan del Oro, Jocotitlán, San Felipe del Progreso, San José del Rincón, San Simón de Guerrero, Santo Tomás, Temascalcingo, Temascaltepec, Valle de Bravo, Villa de Allende, Villa Victoria, and Zinacantepec.

Michoacán: Angangueo, Aporo, Contepec, Ciudad Hidalgo, Epitacio Huerta, Irimbo, Juárez, Jungapeo, Maravatío, Ocampo, Senguio, Susupuato, Tlalpujahua, Tuxpan, and Zitácuaro.

Querétaro: Amealco de Bonfil.

The image below shows the project boundary[7]:

[7] Figures provided in "Img. Project Boundary" are estimates and should not be considered final.



Img. Project Boundary

The GPS coordinates and unique Patsari ID of all ICS installed are recorded along with all beneficiary's contact details. (Name, phone, address, etc). Construction records and pictures are captured and stored securely and accurately to ensure ICS's are not double counted.

Furthermore, a plaque is constructed into the front of the stove to identify households as part of the project.

>>

A.3. Reference of applied methodology

Gold Standard Methodology - Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1

Rule update: Requirements and Guidelines for carrying out usage surveys for projects implementing improved cooking devices, dated 23/08/2017

"REQUIREMENTS AND GUIDELINES: USAGE RATE MONITORING v2.0".
>>

A.4. Crediting period of project

The crediting period of the project is 16/04/2019 (16th April 2019) to 15/04/2024 (15th April 2024), 5 years[8].
>>

[8] Duration of the crediting period as 5 years includes the day of the end date of the crediting period, 15/04/2024.

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

The project started on April 16th 2019 and has since received the design certified status. Since the project start date up to the end of the monitoring period, 3,702 Patsari stoves have been constructed as part of the project.

The project works on a geographic basis, focusing on rural households located in the 15km buffer zone of the Monarch Butterfly Biosphere Reserve. The project works in a geographic sequence, implementing the project activity in defined work quadrants progressively. The project has moved through the 15km polygon of the reserve from South to North.

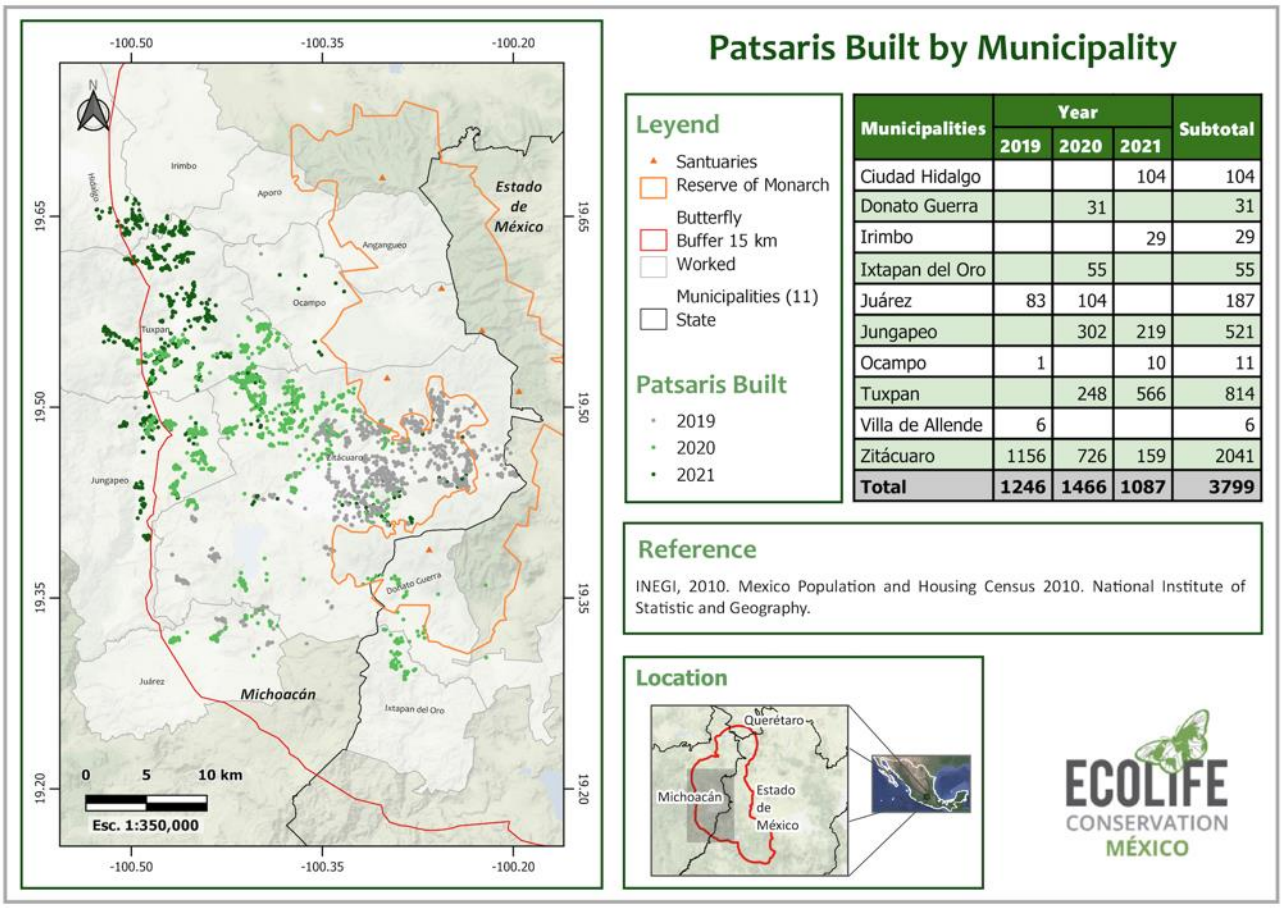
The project implementation works on 6 geographical tiers according to their territorial division. The territorial divisions are as follows:

1. Country
2. State
3. Municipality: A territorial division of a state governed by the city council.
4. Tenencia: A territorial division of a municipality governed by a jefe de tenencia.
5. Manzana: A territorial division of a tenencia governed by a Encargado del Order
6. Localidad: A territorial division of a manzana. In some cases, one manzana is the entire localidad, in other cases a manzana may have two or more localidades.

Exceptions to the rules:
Tenencia: Some municipalities do not have a tenencia as part of the territorial organization, so localities are sometimes grouped under a common name that allows them to be identified more quickly. In this case, the name of the municipality is used to register the account in the database.

Manzana: In some cases the tenencia does not have this level of territorial division, so the locality level is referenced. The prefix "Loc." plus the name of the town is used to identify register the account in the database.

The following map shows the geographic working area and spatial division of project implementation, according to the established work periods[9]. Progress will be made according to the coverage and response of the communities, planning by zones will be modified as necessary. The defined working quadrants provide an internal procedure to estimate and organize implementation plans, they are constantly refined to the actual scenarios and should not be considered final.



Municipalities	Year			Subtotal
	2019	2020	2021	
Ciudad Hidalgo			104	104
Donato Guerra		31		31
Irimbo			29	29
Ixtapan del Oro		55		55
Juárez	83	104		187
Jungapeo		302	219	521
Ocampo	1		10	11
Tuxpan		248	566	814
Villa de Allende	6			6
Zitácuaro	1156	726	159	2041
Total	**1246**	**1466**	**1087**	**3799**

Img. Project geographic working area

During the first monitoring period (16/4/19-30/6/21), a total of 3,702 Patsari stoves were constructed in the municipalities of Ciudad Hidalgo, Donato Guerra, Irimbo, Ixtapan del Oro, Juárez, Jungapeo, Ocampo, Tuxpan, Villa de Allende, and Zitácuaro. The project reached 319 localities spread across 37 tenencias and 10 municipalities. The following table shows the project implementation by location during the entire monitoring period. The date on which the last stove was installed in a particular

[9] The figures listed in "Img. Project geographic working area" are based on planning, and do not match the total installation of this first monitoring period. This image is used to show the geographic area visually. The actual stoves installed during the monitoring period are provided below.

tenencia is included in the table to include the relevant date of construction closing for the tenencia.

Stoves Installed[10] by Location First Monitoring Period			
Municipality	**Tenencia**	**Stoves Built**	**Last Stove Installed (M/DD/YY)**
Ciudad Hidalgo	Las Grutas Cd. H	104	6/27/21
Subtotal	1	104	
Donato Guerra	El Barrio de Arriba de SJX	8	2/29/20
	El Capulín	6	2/24/20
	Galeras	5	2/25/2020
	La Fundición	2	2/29/2020
	La Nopalera	2	2/18/2020
	Macheros	8	2/29/2020
Subtotal	6	31	
Irimbo	Ampliación Las Joyas	20	6/28/2021
	El Azafrán	3	6/28/2021
	Hacienda Jaripeo	6	6/28/2021
Subtotal	3	29	
Ixtapan del Oro	Ixtapan del Oro	55	2/29/2020
Subtotal	1	55	
Juárez	Benito Juárez	187	7/9/20
Subtotal	1	187	
Jungapeo	Jungapeo	521	2/23/21
Subtotal	1	521	
Ocampo	Laguna Verde OCA	1	8/12/21
	Ocampo Poniente	6	8/17/21
	San Cristóbal OCA	4	8/17/21
Subtotal	3	11	
Tuxpan	Tuxpan	628	6/28/21
	Tuxpan. La Soledad	186	6/16/21
Subtotal	2	814	
Villa de Allende	Cuesta del Carmen	4	6/27/19

[10] The figures listed in this table refer to the number of stoves installed during the first monitoring period, not the number of stoves in use. The values listed under "number of stoves as per age group" in the ER calculations spreadsheet is calculated considering a three day drying period.

Subtotal	1	4	
Zitácuaro	Aputzio de Juárez	8	2/14/20
	Carpinteros de CU	27	6/10/20
	Coatepec de Morelos	64	2/24/21
	Crescencio Morales	334	4/28/21
	Curungueo	219	12/12/20
	Donaciano Ojeda	93	4/28/21
	El Aguacate SJZ	18	10/11/19
	Encargatura Ocurio	28	2/5/21
	Francisco Serrato	138	4/27/21
	Ignacio López Rayón	72	9/13/19
	Manzanillos SJZ	18	12/27/19
	Nicolás Romero	213	4/28/21
	Rincón de Ahorcados	7	2/29/20
	San Felipe de los Alzati	236	5/9/21
	San Juan Zitácuaro	139	11/22/19
	San Miguel Chichimequillas	17	12/29/19
	Timbineo de los Contreras	54	2/22/21
	Ziráhuato de los Bernal	261	5/31/21
Subtotal	18	1946	
Total	37	3702	

During the 2019 Vintage Year (16/04/2019 - 31/12/2019) a total of 1,151 Patsari stoves were constructed in the municipalities of Juárez, Ocampo, Villa de Allende, and Zitácuaro. The project reached 76 localities spread across 17 tenencias and 4 municipalities.

During the 2020 Vintage Year (01/01/2020 - 31/12/2020) a total of 1,445 Patsari stoves were constructed in the municipalities of Donato Guerra, Ixtapan del Oro, Juárez, Jungapeo, Tuxpan, and Zitácuaro. The project reached 135 localities spread across 24 tenencias and 6 municipalities.

During the 2021 Vintage Year (01/01/2021-30/6/21) a total of 1,106 Patsari stoves were constructed in the municipalities of Ciudad Hidalgo, Irimbo, Jungapeo, Ocampo, Tuxpan, and Zitácuaro. The project reached 168 localities spread across 18 tenencias and 6 municipalities.

The following images shows the project implementation for each vintage year by location:

Stoves Installed by Location 2019 Vintage Year		
Municipality	Tenencia	Stoves Built
Juárez	Benito Juárez	83
Subtotal	1	83
Ocampo	Laguna Verde OCA	1
Subtotal	1	1
Villa de Allende	Cuesta del Carmen	4
Subtotal	1	4
Zitácuaro	Aputzio de Juárez	4
	Carpinteros de CU	15
	Coatepec de Morelos	16
	Crescencio Morales	299
	Curungueo	126
	Donaciano Ojeda	75
	El Aguacate SJZ	18
	Francisco Serrato	124
	Ignacio López Rayón	72
	Manzanillos SJZ	18
	Nicolás Romero	131
	San Juan Zitácuaro	138
	San Miguel Chichimequillas	17
	Timbineo de los Contreras	10
Subtotal	14	1063
Total	17	1151

Stoves Installed by Location 2020 Vintage Year		
Municipality	Tenencia	Stoves Built
Donato Guerra	El Barrio de Arriba de SJX	8
	El Capulín	6
	Galeras	5
	La Fundición	2
	La Nopalera	2
	Macheros	8
Subtotal	6	31
Ixtapan del Oro	Ixtapan del Oro	55
Subtotal	1	55
Juárez	Benito Juárez	104
Subtotal	1	104
Jungapeo	Jungapeo	302
Subtotal	1	302
Tuxpan	Tuxpan	178
	Tuxpan. La Soledad	50
Subtotal	2	228
Zitácuaro	Aputzio de Juárez	4
	Carpinteros de CU	12
	Coatepec de Morelos	39
	Curungueo	93
	Donaciano Ojeda	17
	Encargatura Ocurio	26
	Francisco Serrato	6
	Nicolás Romero	40
	Rincón de Ahorcados	7
	San Felipe de los Alzati	229
	San Juan Zitácuaro	1
	Timbineo de los Contreras	32
	Ziráhuato de los Bernal	219
Subtotal	13	725
Total	24	1445

Stoves Installed by Location 2021 Vintage Year		
Municipality	Tenencia	Stoves Built
Ciudad Hidalgo	Las Grutas Cd. H	104
Subtotal	1	104
Irimbo	Ampliación Las Joyas	20
	El Azafrán	3
	Hacienda Jaripeo	6
Subtotal	3	29
Jungapeo	Jungapeo	219
Subtotal	1	219
Ocampo	Ocampo Poniente	6
	San Cristóbal OCA	4
Subtotal	2	10
Tuxpan	Tuxpan	450
	Tuxpan. La Soledad	136
Subtotal	2	586
Zitácuaro	Coatepec de Morelos	9
	Crescencio Morales	35
	Donaciano Ojeda	1
	Encargatura Ocurio	2
	Francisco Serrato	8
	Nicolás Romero	42
	San Felipe de los Alzati	7
	Timbineo de los Contreras	12
	Ziráhuato de los Bernal	42
Subtotal	9	158
Total	18	1106

The project usage monitoring survey was carried out continuously between March 9th 2021 and May 5th 2021. In total, 167 project usage monitoring surveys were carried out across 24 localities, 15 communities, 7 tenencias, and 3 municipalities.

The PD also carried out KPTs to measure the fuelwood consumption at both the baseline and project scenario. The table below summarizes the details of the KPTs completed.

Scenario	Dates	Number of Samples
Baseline	28/09/2020 - 01/10/2020	40
Baseline	07/02/2021 – 12/02/2021	40
Project (Age 0-1)	19/04/2021 – 23/04/2021	35
Project (Age 1-2)	03/05/2021 – 07/05/2021	33
Project (Age 2-3)	17/05/2021 – 21/05/2021	36

>>

B.1.1 Forward Action Requests

"Likely CAR #5 raised during the Preliminary Review: This has been discussed in the Validation report, however the VVB shall also include discussions as how it was concluded that seasonal variations were considered while conducting the surveys/KPT inline with the applied methodology."

At the time of validation, the KPT in wet season was concluded but the one in dry season was not finished yet, so that proper comparison was not possible. The results of the KPTs carried out in each season was made available for the VVB at verification.

"Likely CAR #6 raised during the Preliminary Review: It is mentioned that "The Patsari model has a lifespan of 5 years or more with regular maintenance. With the replacement of some components (e.g., ceramic elbow, chimney and iron plate) the useful lifespan can be extended for at least another 3-4 years with similar efficiency. The operational lifetime of the project will match with lifespan of the technology being used". Based on the above discussions, it seems that lifetime can be expanded up to 8-9 years, however the PD shall clarify how the project life will then continue till 15 years."

The issue was discussed in section B.7.3 of PDD: Because the project has not yet installed stoves that have reached the 5–6-year stove age group, options to extend the lifespan are still being assessed. The project will either determine the efficiency of a Patsari with replacement components using a KPT or a new stove will be installed after the five-year period. Through the KPT's to be carried out for the different stove age groups the performance of the stove will be tracked. The project will consider installing a brand-new stove to replace old or retrofitted stoves to ensure the lifespan continues 15 years and beyond.

FAR 01 Final Validation Report: "To be verified by the verifying VVB:
1. In line with the applied methodology the Kitchen Performance Field Tests have to be done prior first verification and every other year afterwards, in line with the applied methodology. This has been included in the monitoring plan.
2. The seasonal variations have to be considered when the fuel savings are determined."

1. The full results of the field performance tests were made available to the VVB at verification. The test was carried out prior to first verification and in line with the applied methodology.
2. Seasonal variations in fuelwood consumption have been considered in both the project and baseline KPT's. The results of the tests allow the project to identify and quantify the impact that seasonality may have on fuel consumption. The project carried out baseline KPT's in both seasons, dry and wet, and the results indicate that seasonal variations in fuelwood consumption are not statistically significant. The results indicate that there is a slight difference in consumption between seasons, but this difference is negligible.

The result of the KPT carried out in the dry season, February 2021, indicate an average consumption of 23.58 Kg/hh/day. The result of the KPT carried out in the wet season September 2020, indicate an average consumption of 24.64 Kg/hh/day. The value for quantity of fuelwood used in the baseline scenario ($P_{b,y}$) is applied as the average between the two consumption results because no statistical difference was found between seasons. The full results are available in the Kitchen Performance Test Results and Analysis spreadsheet.

FAR 02 Final Validation Report: "The progressive annual degradation of the stoves have to be determined at verification stage as per annex 8 (Aging test approach for project fuel updates) of the applied methodology GS-TPDDTEC v3.1"

The progressive annual degradation of the project technology is determined through the biennial project KPTs carried out as per age group. Comparing the project KPT results across the three age groups quantifies the degradation in efficiency of the Patsari stove over time. The tests and surveys were carried out following the requirements of the applied methodology, GS-TPDDTEC v3.1 and "Requirements And Guidelines: Usage Rate Monitoring V2.0".
>>

B.2. Post-Design Certification changes

>>
B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

The temporary deviation request submitted to Gold Standard and SustainCert was approved on 03/11/2021, reference "GS7783 Temporary Deviation Form - First Monitoring Period 3 NOV 21 GS_Final.pdf". This temporary deviation is exclusively applicable to the usage survey in first monitoring period, applied to the stoves under age group 2-3. The usage surveys carried out for age group 0-1 and age group 1-2 are in line with the requirements of (TPDDTEC) v3.1. However due to the progressive installation of the project, it was not possible to find stoves older than 2.5 years for age group 2-3 during the first monitoring period. The full explanation, assessment, and conclusion of the temporary deviation can be found in the approved deviation request[11].

>>

B.2.2. Corrections

N/A

>>

B.2.3. Changes to start date of crediting period

As stated in the GS Principles and requirements, section VERIFICATION & PERFORMANCE REVIEW (PERFORMANCE CERTIFICATION), paragraph 5.1.37, the maximum period for Retroactive Certification is two years prior to the date of Project Design Certification. Based on this requirement, start date of the crediting period and first monitoring period has been set up as 16/04/2019 (April 16th 2019), considering the Design Certification date is 16/04/2021. This revision on the starting date of the crediting period was requested in the Design Certification review round 1, Comment/Request 2, #12, received 9 March 2021.

>>

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

N/A

>>

B.2.5. Changes to project design of approved project

N/A

>>

[11] GS7783 Temporary Deviation Form - First Monitoring Period 3 NOV 21 GS_Final.pdf

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

The project follows the requirements set forth in the Gold Standard methodology, "Technologies and Practices to Displace Decentralized Thermal Energy Consumption v 3.1", "REQUIREMENTS AND GUIDELINES: USAGE RATE MONITORING v2.0", and "Rule update: Requirements and Guidelines for carrying out usage surveys for projects implementing improved cooking devices". The objective of the monitoring system applied is to accurately and transparently monitor the value of each parameter applied in PDD section B.7.1.

A total sales records (project database) is maintained continuously. A monitoring survey, usage survey, leakage assessment, and field tests have been carried for the project scenario during the first monitoring period. Moving forward, a monitoring survey and usage survey is conducted annually while a leakage assessment and field test is conducted every two years to update monitoring parameters over time.

The monitoring system has been ongoing since project implementation and is carried out to ensure monitoring is representative of typical technology and fuel use practices among the target group. The project is constantly refining the monitoring design and practices to optimize efficiency and guarantee successful stove adoption. This is accomplished through managing the integrity of data across the entire organization; including collection, transfer, storage, and analysis. Cross checks of data on multiple levels of the project ensure integrity is maintained. Based on the experience in field, the project institutes measures to refine the accuracy and efficiency of the field tests and surveys. Weekly meetings and review of activities provide the opportunity to improve the project operation as a whole.

The project design includes operational and management structure for monitoring, provisions for data archiving, database management (unique identification), and responsibilities and arrangements for data collection and archiving.

The project's monitoring system also includes extensive training of stove beneficiaries at various stages in the stove construction process, including Community Meetings before construction; a home visit by promoters to verify requirements; direct training at the time of construction; and quality control follow-up visits after construction.

Live demonstrations and training at the point of sale are provided at community opening meetings. Information about the stove, including proper use and maintenance, is provided during opening meetings. In-person training is also provided at the point of sale by the stove builder. The project also implements quality control follow up visits to ensure correct and sustained use of the project stove after the stove has been used by the beneficiary.

Monitoring Studies

In line with the Gold Standard Methodology "Technologies and Practices to Displace Decentralized Thermal Energy Consumption v 3.1" a project survey is conducted annually from a representative sample of project stoves in order to consider the variation of the monitored parameters listed in PDD section B.7.1. A survey for the baseline scenario is also conducted.

The requirements of the monitoring and usage survey as described in TPDDTEC have been fulfilled through the project survey campaign conducted by the PD. The monitoring and usage surveys are covered by and included in the design of project survey campaign. The project survey monitors changes in the project scenario over time and provides critical information on end user characteristics. The project survey also provides a single usage parameter that is weighted based on drop off rates that are representative of the age distribution for project technologies in the total sales record.

Project Survey

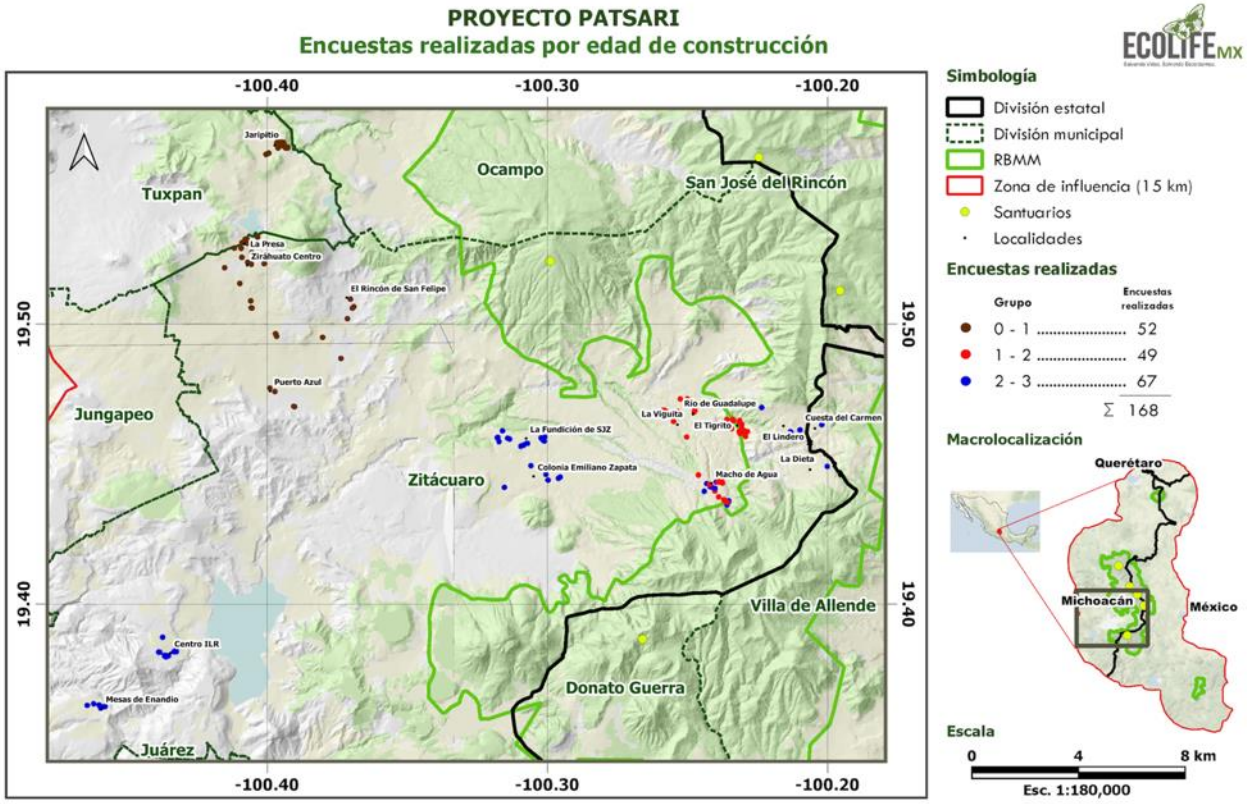
All interviews of the project usage survey are conducted in person and include expert observation by the interviewer within the kitchen in question. The Project survey was carried out continuously from 09/03/2021 to 05/05/2021.

The specific survey dates for each age group are listed below:

- Age Group 0-1 March 9th 2021 – March 29th 2021
- Age Group 1-2 March 18th 2021 – April 14th 2021
- Age Group 2-3 April 13th 2021 – May 5th 2021

In total, 167 project usage monitoring surveys were carried out across 24 localities, 15 communities, 7 tenencias, and 3 municipalities. For each age group, the number of

surveys completed were almost the double the minimum required of 30 samples per age group: 50 surveys were carried out for age group 0-1, 60 for age group 1-2, and 57 for age group 2-3. A summary of the main findings from the project survey is summarized below, for complete and detailed information please reference the Project Survey Report. The number of surveys conducted by location as well as geographic distribution[12] is provided below:



Img. Project Survey Geographic Distribution

Baseline Survey

The baseline survey provides critical information on target population characteristics, baseline technology use, fuel consumption, leakage, and sustainable development indicators. The baseline survey included 416 samples, higher than the minimum required by the methodology.

Data is collected in the field using a combination of approaches including conventional hand-written paper surveys, and digital based method (data capture with smartphones) including QuickSurvey and Mogli.

[12] "Img. Project survey geographic distribution" reflects the preplanning geographic distribution of the samples as does not reflect the final sample size.

The surveys were carried out between February and September 2020. It is worth to mention that baseline surveys are applied on a continuous campaign that aims to cover all the communities where the project installs the stoves using a sampling approach. The potential beneficiaries that attended the opening meeting (apertura), requested a stove, and fulfilled the requirements, are included in the construction schedule. The samples are taken from the construction schedule.

The original and raw data is available upon request. For all the records the data collected included GPS coordinates (including pictures and georeferenced location under avenza maps), name and last name, age, and community. For surveys completed on paper format, the local staff carried out a QA procedure at the time of data capturing.

The questionnaire is designed by the ECOLIFE Staff in the local office. The baseline survey includes the elements required by the methodology: 1. User follow up, 2. End user characteristics, and 3. Baseline technology and fuels . The survey includes a supervisory process to ensure the surveys are only applied to those households that ECOLIFE has checked fulfill the requirements and before the project stove is built.

Field Tests

As per the provisions of the TPDDTEC, Section 7, Performance Field Tests and Calculation of Emission Reductions, the baseline and project performance field tests (BFT and PFT) measure real, observed technology performance in the field. Consumption is measured with a representative sample of end users under the defined baseline scenario (in the absence of project technology) and project scenario using the Kitchen Performance Test (KPT).

The approach used for the BFT and PFT is the Kitchen Performance Test (KPT) where the fuelwood consumed during three consecutive weekdays is measured to determine the daily consumption (kg/HH/day). In case the baseline technology still operates as backups or complementary units in parallel with project technologies, the fuel consumption implications are accounted for in the calculation of leakage as per the registered PDD. For both baseline and project KPTs, seasonal variation has been considered.

Simple random sampling is employed; testing is transparent, easily replicable and conservative; and the impact of day-to-day variation in cooking practices is accounted for as the project calculates emission reductions on absolute fuelwood savings as observed in the KPT over a complete three-day cycle.

File "Kitchen Performance Test Report" details the actual results of the measurements and statistical analysis. Document "Kitchen Performance Test Report" articulates the process that was observed.

Baseline KPT

The Baseline Field Test (BFT), known as baseline KPT, is designed to ensure monitoring is representative of typical technology and fuel use practices. The target population under the baseline scenario is rural households that use non-renewable firewood to cook on inefficient and traditional cookstoves. The participants of the baseline KPT met the following conditions:

- The project technology has not yet been disseminated.
- Baseline technology is still in use in the project area.
- Under the same socio-economic circumstances as the households of the project scenario.

Two baseline KPT's were carried out, one was conducted September 28th - October 2nd 2020 and the other was conducted February 8th - February 12th 2021. In total, 80 baseline KPT's were carried out across 14 localities.

The project carried out baseline KPT's in both seasons, dry and wet, and the results indicate that seasonal variations in fuelwood consumption are not statistically significant. The results indicate that there is a slight difference in consumption between seasons, but this difference is negligible.

The result of the KPT carried out in the dry season, February 2021, indicate an average consumption of 23.58 Kg/hh/day. The result of the KPT carried out in the wet season September 2020, indicate an average consumption of 24.64 Kg/hh/day. The value for quantity of fuelwood used in the baseline scenario ($P_{b,y}$) is applied as the average between the two consumption results because no statistical difference was found between seasons.

Project KPT

The Project Field Test (PFT) is designed to ensure monitoring is representative of project technology and fuel use practices. The PFT includes households that received a Patsari stove from the project. Whenever the baseline technology still operates as backups or complementary units in parallel with project technologies, the fuel consumption implications are accounted for the calculation of leakage as per the registered PDD.

For the project scenario, the target population is those who have received an ICS from the project. For sampling the project population, the sampling frame is the project database.

The project KPT was conducted in person with the project technology end users representative of the project scenario, currently using the project technology, that meet the following conditions:

- Received a Patsari stove from the project.
- Participated in the project usage survey.
- Agreed to participate in the project KPT campaign.

35 KPT's were carried out for age group 0-1, 33 for age group 1-2, and 36 for age group 2-3. The project KPT was carried out between April 19th 2021 and May 21st 2021 for three consecutive measurement days on a 2-week interval. In total, 104 project kitchen performance tests were carried out across 24 localities, 15 communities, 7 tenencias, and 3 municipalities. The specific tests dates for each age group are listed below:

- Age Group 0-1 April 19th 2021 – April 23rd 2021
- Age Group 1-2 May 3rd 2021 – May 7th 2021
- Age Group 2-3 May 17th 2021 – May 21st 2021

Equipment Specifications & Calibration

The specifications for all equipment used by the project for purposes of measurements related to emission reduction calculations are as follows:

Digital Hanging Scale: Scale used during the baseline KPT to measure the initial and final fuelwood weight. The digital scale is calibrated using the certified weight and by checking that the scale is reset to zero prior to each measurement.[13]

Digital Floor Scale: Scale used during the project KPT to measure the initial and final fuelwood weight. The digital scale is calibrated using the certified weight and by checking that the scale is reset to zero prior to each measurement.[14]

Certified Calibration Control Weight: Certified calibration weight used to verify the accuracy of the readings obtained from the KPT scales.[15] Besides the brand-new equipment calibrated by the manufacturer, the PD has implemented an internal calibration procedure to ensure the adequate functioning of the scales before proceeding with the fuelwood measurements.

Item	Equipment	Manufacturer/Supplier	Model	Capacity
1	Digital Hanging Scale	Noval	Nbc-s50	0.02kg - 50kg
2	Digital Hanging Scale	Noval	Nbc-s50	0.02kg - 50kg
3	Digital Hanging Scale	Noval	Nbc-s50	0.02kg - 50kg
4	Digital Floor Scale	Rhino Maquinaria S.A. de C.V.	BAPCA-100	100kg/ 10 g
5	Cast Iron Grip (Standard Mass weight)	Provimex, clase M1, calibration certificated authorized by Mexican Accreditation Entity.	M1-25 KG	25 Kg
6	Cast Iron Grip (Standard Mass weight)	Provimex, clase M1, calibration certificated authorized by Mexican Accreditation Entity.	M1-10 KG	10 Kg

[13] Evidence "Scale Instructive.pdf" available upon request.
[14] Evidence "FICHA_TECNICA_BAPCAS.pdf" available upon request.
[15] Evidence "Certificado Peso.pdf" available upon request.

Operational and management structure for monitoring

The project involves different levels of staff in order to ensure the monitoring activities are performed adequately. The diagram below summarizes how the responsibilities and tasks are allocated across the organization structure.

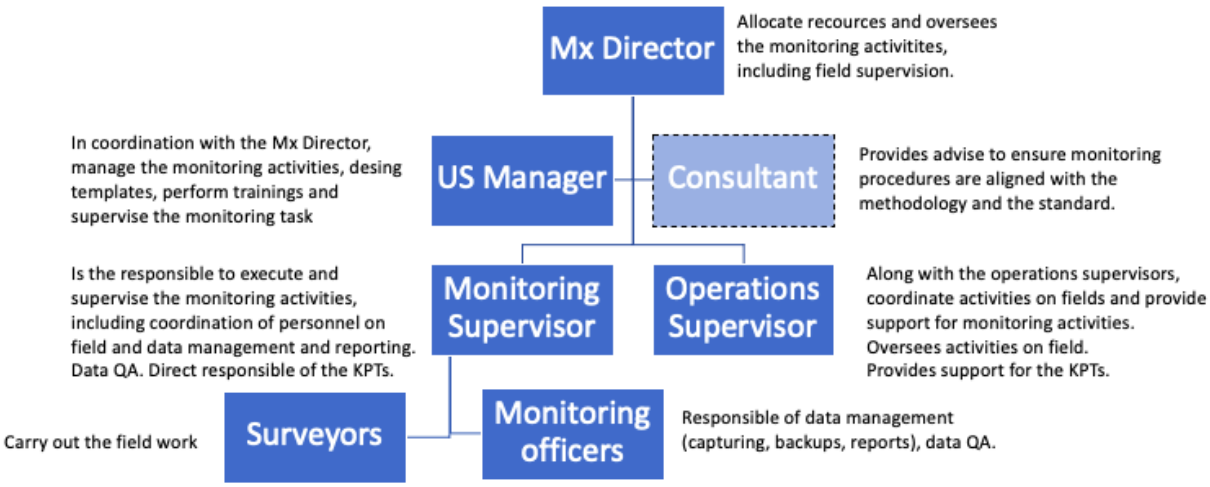


Figure: Monitoring and operational structure.

The project field staff responsible for carrying out the KPT consists of the General Coordinator, Monitoring Coordinator, Construction Coordinator, Monitoring Assistant, Surveyor, and Survey Assistants. The project field staff operates under the supervision and support of the Executive Director, Mexico Program Director, Project Manager, and Project Technical Consultant.

Test design, coordination, scheduling, training, and logistics are carried out by the Project Manager with the support of the General Coordinator, Monitoring Coordinator, Construction Coordinator and Project Technical Consultant.

The Project Technical Consultant is responsible for developing lists of representative samples based on the sampling frame. The Monitoring Coordinator is responsible for developing the geographic logistics of how to reach the list of samples.
The Monitoring Assistant, Surveyor, and Survey Assistants carry out the field activities of the test including the fuelwood delivery, measurements, and recording under direct supervision of the project coordinators.

The project field staff received training prior to the test to ensure they had the skills and knowledge to carry out the test reliably. Project Manager and Project Technical Consultant were responsible for developing and hosting the training.

Data collected in the field is continuously cross-checked by the Project Manager, Monitoring Coordinator, and Project Technical Consultant to verify the results are accurate and the test is being carried out correctly.

The Project Technical Consultant is responsible for carrying out the statistical analysis of KPT and survey results.

An important aspect of the project's Monitoring Plan is the use of an electronic monitoring database. ECOLIFE Conservation has invested in a sophisticated, customized monitoring system built on the Salesforce.com platform to monitor all aspects of project operations. The system can capture offline data in the field and reliably organize it into a custom designed CRM software.

This allows the project to accurately collect, store, and manage all project and beneficiary information in a single system. Household information, GPS data, photos, survey data, follow up visits, unique identification, usage characteristics, and monitoring data can all be traced with high visibility.

Data integrity is checked and maintained by the supervisory staff on an ongoing basis. Throughout the process by which data is gathered and verified in the field, the office team, under the supervision of the Monitoring Coordinator, cross checks and reviews the data, checking it for quality, making sure that the required data is being captured on all records. The electronic database is automatically backed up. If data is modified or changed, a record history is tracked.

Sales Record/Installation Record/Stove Database

The project developer manages the project sales record using the monitoring database described above. A stove account record is created for each beneficiary to track the progress of installation and monitoring. Basic data for each account includes the following:

- Stove ID

- Beneficiary First Name
- Beneficiary Last Name
- Beneficiary Mobile Phone
- Location (Tenencia, Localidad, and GPS coordinates)
- Construction Date
- Photo of the Stove

When a promoter first visits an interested household to explain the project and requirements, they use an offline form to capture beneficiary household information (GPS, contact info, etc.). The completed form automatically creates a new stove record which provides the basis for all further interaction with the client. When the promoter returns to verify the requirements, another offline form is used to collect all beneficiary information (baseline survey), previous stove photo, carbon waiver, and beneficiary signature. Upon completion of the form, the system will update the stove record with a unique Patsari Opportunity (Patsari ID) related to the contact and community account, with GPS points attached for start of driveway, materials placement, and install location. Upon construction completion the builder uses an offline form to update the Patsari opportunity with construction completion date, stove status, Patsari photo, and beneficiary confirmation.

When any type of survey or follow up visit is conducted in a given household the data is created from within the stove record itself, automatically associating the data with the correct household and stove. Field data is collected on a handheld mobile device by using offline Taroworks jobs. Data is stored in the offline form until the mobile device is connected to the internet, then the data automatically syncs into the stove database.

Every time a surveyor performs a follow-up visit to a household post-installation, the Supervisor enters basic data related to stove condition and maintenance and verifies user information.

Technology Lifespan

The Patsari model has a lifespan of 5 years or more with regular maintenance. With the replacement of some components (e.g., ceramic elbow, chimney and iron plate) the useful lifespan can be extended for at least another 3-4 years with similar efficiency. The operational lifetime of the project will match with the lifespan of the

technology being used. The project will either determine the efficiency of a Patsari with replacement components, or a new stove will be installed after the five-year period. The performance of the stove (under different age groups) is determined by the KPT's carried out by the project.
>>

SECTION D. DATA AND PARAMETERS

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

SDG13

Data/parameter	**$EF_{b,co2}$**
Unit	tco_2/TJ
Description	Co_2 emission factor arising from use of fuels in baseline scenario (wood fuel is considered as the baseline fuel.)
Source of data	IPCC default values IPCC default value IPCC 2006 Guidelines for National Greenhouse gas Inventories Chapter 2: Stationary Combustion (https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/ 2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf) Page 2.23/ Table 2.5
Value(s) applied	112
Choice of data or Measurement methods and procedures	Deemed valid by GS VER Methodology
Purpose of data	Determination of CO2 emission factor in baseline
Additional comment	

Data/parameter	**$EF_{b,non\ co2}$**

Unit	tco_2/TJ
Description	Non-co_2 emission factor arising from use of fuels in baseline scenario
Source of data	GWP: IPCC AR4, https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf GWP: IPCC AR5, https://www.ipcc.ch/assessment-report/ar5/ CH_4 and N_2O Emission Factors: Emission Factor value provided in Table 2.5 of Chapter 2: Stationary Emissions (2006 IPCC Guidelines for National Greenhouse Gas Inventories). https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
Value(s) applied	8.69 (value applied from 16/04/2019 to 31/12/2020) 9.46 (value applied from 01/01/2021 onwards)
Choice of data or Measurement methods and procedures	(CH4=0.3*GWP 25) + (N2O=0.004*GWP 295) = 8.69 (CH4=0.3*GWP 28) + (N2O=0.004*GWP 265) = 9.46 Deemed valid by GS VER Methodology Determined as per IPCC default figures
Purpose of data	Determination of non-CO_2 emission factor in baseline
Additional comment	

Data/parameter	**$EF_{p,co2}$**
Unit	tco_2/TJ
Description	co_2 emission factor arising from use of fuels in project scenario
Source of data	IPCC default values

	IPCC 2006 Guidelines for National Greenhouse gas Inventories Chapter 2: Stationary Combustion (https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf) Page 2.23/ Table 2.5
Value(s) applied	112
Choice of data or Measurement methods and procedures	Deemed valid by Methodology Determined as per IPCC default figures
Purpose of data	Determination of CO2 emission factor in project
Additional comment	

Data/parameter	**$EF_{p,non\ co2}$**
Unit	tco_2/TJ
Description	Non-co_2 emission factor arising from use of fuels in project scenario
Source of data	GWP: IPCC AR5, https://www.ipcc.ch/assessment-report/ar5/ CH_4 and N_2O Emission Factors: Emission Factor value provided in Table 2.5 of Chapter 2: Stationary Emissions (2006 IPCC Guidelines for National Greenhouse Gas Inventories). https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf
Value(s) applied	9.46
Choice of data or Measurement methods and procedures	(CH4=0.3*GWP 28) + (N_2O=0.004*GWP 265) Deemed valid by GS VER Methodology Determined as per IPCC default figures
Purpose of data	Determination of non-CO_2 emission factor in project

Additional comment	

Data/parameter	**NCV_b**
Unit	TJ/ton
Description	Net calorific value of the fuels used in the baseline
Source of data	IPCC default value IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2, Energy, Chapter 1, Introduction, Table 1.2, p 1.19
Value(s) applied	0.0156
Choice of data or Measurement methods and procedures	Deemed valid by Methodology Determined as per IPCC default figures
Purpose of data	Determination of fuel's NCV in baseline
Additional comment	

Data/parameter	**NCV_p**
Unit	TJ/ton
Description	Net calorific value of the fuels used in the project
Source of data	IPCC default value IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2, Energy, Chapter 1, Introduction, Table 1.2, p 1.19
Value(s) applied	0.0156
Choice of data or Measurement methods and procedures	Deemed valid by Methodology Determined as per IPCC default figures

Purpose of data	Determination of fuels NCV in project
Additional comment	

Data/parameter	$f_{NRB,i,y}$
Unit	Fractional non-renewability
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Source of data	fNRB Calculation
Value(s) applied	0.8628
Choice of data or Measurement methods and procedures	Value calculated using methodological approach justified with relevant and updated data.
Purpose of data	Determination of the emission reductions of the project activity as per equation 1 above.
Additional comment	The calculations are aligned to the CDM Methodological tool Calculation of the fraction of non-renewable biomass Version 03.0.

SDG11 & SDG 3

Data/parameter	$P_{b,y}$
Unit	Tons firewood per household per day
Description	Quantity of firewood consumed in baseline scenario b during year y, expressed in tons/day
Source of data	Baseline KPT
Value(s) applied	0.02411 tons/household/day 8.80015 tons/household/year

Choice of data or Measurement methods and procedures	Baseline KPT Field Test
Purpose of data	Estimation of CO_2e emission reductions
Additional comment	Value is applied as tons/hh/day on the ER calculations spreadsheet. The values are expressed both in terms of tons/HH/day and tons/HH/year as the "units" in the registered PDD are in tons/hh/year. The units (tons/HH/year) written in the registered PDD do not match the values (tons/HH/day) in the 'Values Applied' section. This value is applied in days as required by the calculations and as expressed in the registered PDD.

>>

D.2 Data and parameters monitored

SDG 13, SDG 7, and SDG 1

Data / Parameter	$U_{p,y}$
Unit	Percentage
Description	Usage rate in project scenario p during year y
Source of data	Annual usage survey/Monitoring survey (Completed 09/03/2021 to 05/05/2021)
Value(s) applied	<table><tr><th>Age Group</th><th>Usage Rate (%)</th></tr><tr><td>0-1</td><td>90% (88%)</td></tr><tr><td>1-2</td><td>90% (85%)</td></tr><tr><td>2-3</td><td>90% (88%)</td></tr><tr><td>Weighted Average Usage Rate</td><td>90% (87%)</td></tr></table>
Measurement methods and procedures	The usage survey is carried out annually as described in section B.7 of the PDD.
Monitoring frequency	Annual

QA/QC procedures	Continuous supervision on monitoring campaigns and crosscheck of results and consolidation of databases and results. QA/QC to take place at operational and administrative levels including checks by external (e.g. project consultant).
Purpose of data	Estimation of CO_2e emission reductions
Additional comment	The measured values are expressed in brackets and the capped values are provided for transparency. The measured values (88%), (85%) and (88%) are used to calculate emission reductions as they are below the capped value. A usage parameter is derived for each age group of project cookstove being credited. The project follows the Rule update: Requirements and Guidelines for carrying out usage surveys for projects implementing improved cooking devices, dated 23/08/2017, and adheres to "Requirements And Guidelines: Usage Rate Monitoring V2.0".

Data / Parameter	$\mathbf{N_{p,y}}$
Unit	Number of project technologies-days credited
Description	Cumulative number of project technology-days included in the project database for project scenario p against baseline scenario b in year y
Source of data	Total sales and distribution record
Value(s) applied	

Age	Stove-days per Age group up to date
0-1	944,075
1-2	389,836
2-3	12,888
3-4	No stoves of this age in this monitoring period

	4-5 | No stoves of this age in this monitoring period
Measurement methods and procedures	Continuous monitoring. The number of project cookstoves is recorded in the stoves selling database.
Monitoring frequency	Continuous
QA/QC procedures	Continuous supervision on monitoring campaigns and crosscheck of results and consolidation of databases and results. QA/AC to take place at operational and administrative levels including checks by external (e.g. project consultant).
Purpose of data	Estimation of CO_2e emission reductions
Additional comment	

SDG 11 and SDG 13

Data / Parameter	$\mathbf{P_{p,y}}$
Unit	tons/household/day
Description	Quantity of fuel that is consumed in project scenario p during year y, expressed in tons/day
Source of data	Kitchen Performance Test (Completed 19/04/2021 to 21/05/2021) and associated KPT data analysis and any applicable adjustment factors
Value(s) applied	
Measurement methods and procedures	Monitor project scenario fuelwood consumption through 3-day Kitchen Performance Tests (KPTs) for each age group of stoves included

Age	Fuel consumption by project stove as per project stove efficiency t/hh/day
0-1	0.01324
1-2	0.00988
2-3	0.01056
3-4	No stoves of this age in this monitoring period
4-5	No stoves of this age in this monitoring period

Monitoring frequency	Updated every two years, or more frequently
QA/QC procedures	Continuous supervision on monitoring campaigns and crosscheck of results and consolidation of databases and results. QA/AC to take place at operational and administrative levels including checks by external (e.g. project consultant).
Purpose of data	Estimation of CO_2e emission reductions
Additional comment	A fuel-consumption parameter is derived for each age group of project cookstove being credited. Ex-ante values were estimated using the project technology efficiency of 45% at year one and a progressive annual degradation of the stove of 5%. Actual values have been updated. Value is applied as tons/hh/day on the ER calculations spreadsheet.

SDG 13

Data/parameter	$f_{NRB,i,y}$
Unit	Fractional non-renewability
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Source of data	fNRB Calculation
Value(s) applied	0.8628
Choice of data or Measurement methods and procedures	Value calculated using methodological approach justified with relevant and updated data.
Purpose of data	Determination of the emission reductions of the project activity as per equation 1 above.
Additional comment	The calculations are aligned to the CDM Methodological tool Calculation of the fraction of non-renewable biomass Version 03.0. According methodology TPDDTEC v3, the non-renewable biomass fraction is fixed based on the results of the NRB

	assessment. It will be re-assessed only at the renewal of the crediting period.

Data / Parameter	**$LE_{p,y}$**
Unit	t_CO_2e per year
Description	Leakage in project scenario p during year y
Source of data	Baseline (Completed February to September 2020) and monitoring survey (Completed 09/03/2021 to 05/05/2021)
Value(s) applied	Baseline Technology Use: 1,508 tCO_2 Transportation Leakage: 54 tCO_2
Measurement methods and procedures	Field monitoring survey Transportation Records
Monitoring frequency	Every two years
QA/QC procedures	Continuous supervision on monitoring campaigns and crosscheck of results and consolidation of databases and results. QA/QC to take place at operational and administrative levels including checks by external (e.g. project consultant).
Purpose of data	Estimation of CO_2e emission reductions
Additional comment	The potential sources of leakages assessed in the section E.3 below. More information on the potential source of leakages can also be found in PDD section B.7.3.

Data / Parameter	**Proportion of project beneficiaries using a traditional fogon, defined by age-group.**
Unit	Percentage (%)
Description	Proportion of project beneficiaries using a traditional fogon in parallel to the project technology stove. The traditional fogon is an inefficient and traditional

<table>
<tr><td></td><td>cookstove used by rural households along with non-renewable firewood as fuel for cooking.
This parameter will be defined per each age group of stoves.</td></tr>
<tr><td>Source of data</td><td>Monitoring surveys (Completed 09/03/2021 to 05/05/2021)</td></tr>
<tr><td>Value(s) applied</td><td><table><tr><th>Age group</th><th>Proportion using a traditional fogon</th></tr><tr><td>0-1</td><td>60%</td></tr><tr><td>1-2</td><td>55%</td></tr><tr><td>2-3</td><td>53%</td></tr></table></td></tr>
<tr><td>Measurement methods and procedures</td><td>Monitoring survey</td></tr>
<tr><td>Monitoring frequency</td><td>Annual</td></tr>
<tr><td>QA/QC procedures</td><td>Continuous supervision on monitoring campaigns and crosscheck of results and consolidation of databases and results. QA/AC to take place at operational and administrative levels including checks by external (e.g. project consultant).</td></tr>
<tr><td>Purpose of data</td><td>Measure the effectiveness of the mechanism to discourage the use of the baseline stove.</td></tr>
<tr><td>Additional comment</td><td>Although the parallel use of a traditional fogon seems to be high for the different age groups, the use of the traditional fogon is occasional and is demonstrated due to the frequency (on average 4 days/week), the time used (2 hours per day) and kind of meals prepared (Nixtama[16]l and Beans). Therefore, it can be concluded that beneficiaries use the traditional fogon to cook nixtamal and beans, dishes that are associated with high intensity open fire. The Patsari stove is able to cook both nixtamal and bean. In fact, the cooking demonstration made at the aperturas includes preperation of those dishes.</td></tr>
</table>

[16] The Nixtamal is a traditional maize preparation process in which dried kernels are cooked and steeped in an alkaline solution, usually water and food-grade lime (calcium hydroxide). After that, the maize is drained and rinsed to remove the outer kernel cover (pericarp) and milled to produce dough that forms the base of numerous food products, including tortillas and tamales.

SDG 11

<table>
<tr><td>Data / Parameter</td><td>Amount of fuelwood saved. Access to a cleaner and more efficient combustion method ($P_{p,b,y}$)</td></tr>
<tr><td>Unit</td><td>tones/household/day</td></tr>
<tr><td>Description</td><td>Specific fuel savings for an individual technology of project p against an individual technology of baseline b in year y, in tons/day, as derived from the statistical analysis of the data collected from the field tests</td></tr>
<tr><td>Source of data</td><td>Project KPT (Completed 19/04/2021 to 21/05/2021) and Baseline KPTs (Completed 28/09/2020 to 02/10/2020 and 08/03/2021 to 12/03/2021)
Monitor baseline and project scenario fuelwood consumption through 3-day Kitchen Performance Tests (KPTs) for each age group of stoves included.</td></tr>
<tr><td>Value(s) applied</td><td>
<table>
<tr><th>Age</th><th>Fuel Saving t/household/day</th></tr>
<tr><td>0-1</td><td>0.010870</td></tr>
<tr><td>1-2</td><td>0.014230</td></tr>
<tr><td>2-3</td><td>0.013550</td></tr>
<tr><td>3-4</td><td>No stoves of this age in this monitoring period</td></tr>
<tr><td>4-5</td><td>No stoves of this age in this monitoring period</td></tr>
</table>
</td></tr>
<tr><td>Measurement methods and procedures</td><td>Every two years.
KPT Procedure adheres to the requirements laid out in TPDDTEC V3.1 Annex 4</td></tr>
<tr><td>Monitoring frequency</td><td>Every two years (reported annually)</td></tr>
<tr><td>QA/QC procedures</td><td>Transparent data analysis and reporting</td></tr>
<tr><td>Purpose of data</td><td>Quantification of impact relating SDG11</td></tr>
<tr><td>Additional comment</td><td>A fuel-consumption parameter at project scenario is derived for each age group of project cookstove being credited and compared with baseline fuel-consumption to define the fuel saving.</td></tr>
</table>

SDG 2

<table>
<tr><td>Data / Parameter</td><td>people reporting ability to expand cooking options</td></tr>
<tr><td>Unit</td><td>Percentage (%)</td></tr>
<tr><td>Description</td><td>Project beneficiaries confirming the project has contributed expanding cooking options</td></tr>
<tr><td>Source of data</td><td>Monitoring survey(Completed 09/03/2021 to 05/05/2021)</td></tr>
<tr><td>Value(s) applied</td><td>
<table>
<tr><th>Age Group</th><th>Users expanding cooking options</th></tr>
<tr><td>0-1</td><td>69%</td></tr>
<tr><td>1-2</td><td>85%</td></tr>
<tr><td>2-3</td><td>79%</td></tr>
<tr><td>3-4</td><td>No stoves of this age in this monitoring period</td></tr>
<tr><td>4-5</td><td>No stoves of this age in this monitoring period</td></tr>
</table>
</td></tr>
<tr><td>Measurement methods and procedures</td><td>Field monitoring survey</td></tr>
<tr><td>Monitoring frequency</td><td>Annual</td></tr>
<tr><td>QA/QC procedures</td><td>Continuous supervision on monitoring campaigns and crosscheck of results and consolidation of databases and results. QA/QC to take place at operational and administrative levels including checks by external (e.g. project consultant).</td></tr>
<tr><td>Purpose of data</td><td>Quantification of impact relating SDG2</td></tr>
<tr><td>Additional comment</td><td>In many cases, people are not able to cook more than one dish at the same time with the traditional fogon, also in many cases there are time and fuelwood constrains that prevent the ability to cook more than one dish at a time. Therefore, many people opt for cooking only one main dish, limiting the cooking option. Since the Patsari model has three steel comales, it possible to cook more than one dish at the same time (e.g. a main dish and rice; stew and beans) with the same fuel wood. Having the chance to cook simultaneously more than one dish with the same fuelwood helps expand the cooking options.</td></tr>
</table>

SDG 3

<table>
<tr><td>Data / Parameter</td><td>Proportion of beneficiaries confirming less respiratory disease</td></tr>
<tr><td>Unit</td><td>Percentage (%)</td></tr>
<tr><td>Description</td><td>Project beneficiaries confirming the project has contributed to decreasing respiratory disease</td></tr>
<tr><td>Source of data</td><td>Monitoring survey (Completed 09/03/2021 to 05/05/2021)</td></tr>
<tr><td>Value(s) applied</td><td>
<table>
<tr><th>Age Group</th><th>Proportion of beneficiaries confirming less respiratory disease</th></tr>
<tr><td>0-1</td><td>84%</td></tr>
<tr><td>1-2</td><td>98%</td></tr>
<tr><td>2-3</td><td>94%</td></tr>
<tr><td>3-4</td><td>No stoves of this age in this monitoring period</td></tr>
<tr><td>4-5</td><td>No stoves of this age in this monitoring period</td></tr>
</table>
</td></tr>
<tr><td>Measurement methods and procedures</td><td>Field monitoring survey</td></tr>
<tr><td>Monitoring frequency</td><td>Annual</td></tr>
<tr><td>QA/QC procedures</td><td>Continuous supervision on monitoring campaigns and crosscheck of results and consolidation of databases and results. QA/QC to take place at operational and administrative levels including checks by external (e.g. project consultant).</td></tr>
<tr><td>Purpose of data</td><td>Quantification of impact relating SDG3</td></tr>
<tr><td>Additional comment</td><td>Ex-ante estimation is based on preliminary perception found among the stove users.</td></tr>
</table>

<table>
<tr><td>Data / Parameter</td><td>proportion of beneficiaries confirming improvement in hygiene within the kitchen thanks to the project.</td></tr>
<tr><td>Unit</td><td>Percentage (%)</td></tr>
<tr><td>Description</td><td>Project beneficiaries that perceive hygiene within the kitchen has been improved thanks to the project.</td></tr>
<tr><td>Source of data</td><td>Monitoring survey (Completed 09/03/2021 to 05/05/2021)</td></tr>
<tr><td>Value(s) applied</td><td>
<table>
<tr><th>Age Group</th><th>Proportion of beneficiaries confirming improvement in hygiene within the kitchen thanks to the project.</th></tr>
<tr><td>0-1</td><td>82%</td></tr>
<tr><td>1-2</td><td>98%</td></tr>
<tr><td>2-3</td><td>94%</td></tr>
<tr><td>3-4</td><td>No stoves of this age in this monitoring period</td></tr>
<tr><td>4-5</td><td>No stoves of this age in this monitoring period</td></tr>
</table>
</td></tr>
<tr><td>Measurement methods and procedures</td><td>Field monitoring survey</td></tr>
<tr><td>Monitoring frequency</td><td>Annual</td></tr>
<tr><td>QA/QC procedures</td><td>Continuous supervision on monitoring campaigns and crosscheck of results and consolidation of databases and results. QA/AC to take place at operational and administrative levels including checks by external (e.g. project consultant).</td></tr>
<tr><td>Purpose of data</td><td>Quantification of impact relating SDG3</td></tr>
<tr><td>Additional comment</td><td>Ex-ante estimation is based on preliminary perception found among the stove users.</td></tr>
</table>

SDG 8

Data / Parameter	**Number of job positions created by the project and the total payroll costs.**
Unit	Number of jobs and payroll costs (MXN$)
Description	Average number of jobs created as result of the project activity over the monitoring period.
Source of data	Contracts, employment records, and payment records.
Value(s) applied	number of jobs created by the project by year of the monitoring period.
Measurement methods and procedures	Reported annually
Monitoring frequency	Annual
QA/QC procedures	Human resources and Directors continuous checks.
Purpose of data	Quantification of impact relating SDG8
Additional comment	"Jobs created by the project" has been defined as all positions directly funded by the project and essential to its continued operation. This includes full time employees and contract positions. Human resources records to be available at the verification.

GENERAL PAYROLL FIELD + OFFICE	
YEAR	**POSITIONS**
2019	42
2020	43
2021 TILL JUNE	27
AVERAGE	37

>>

D.3. Comparison of monitored parameters with last monitoring period

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
$U_{p,y}$		

Usage rate in project scenario p during year y

Age Group	Usage Rate (%)
0-1	88%
1-2	85%
2-3	88%

Age Group	Usage Rate (%)
0-1	90
1-2	85
2-3	80

$N_{p,y}$
Number of project technologies-days credited

Age	Stove-days per Age group
0-1	944,075
1-2	389,836
2-3	12,888

Age	Stove-days per Age group
0-1	4,892,486
1-2	2,838,729
2-3	1,538,321

$P_{p,y}$
Quantity of fuel that is consumed in project scenario p during year y

Age	Fuel Consumption t/hh/day
0-1	0.01324
1-2	0.00988
2-3	0.01056

Age	Fuel Consumption t/hh/day
0-1	0.01307
1-2	0.01426
2-3	0.01545

$f_{NRB,i,y}$
Non-renewability status of woody biomass fuel in scenario i during year y

0.8628

0.8628

$LE_{p,y}$
Leakage in project scenario p during year y

Baseline Technology Use: 1,508 tCO_2
Transportation Leakage: 54 tCO_2

0

Proportion of project beneficiaries using a traditional fogon, defined by age-group.

Age	Proportion using a traditional fogon
0-1	60%
1-2	55%
2-3	53%

Age	Proportion using a traditional fogon
0-1	10%
1-2	10%
2-3	10%

$P_{p,b,y}$
Amount of fuelwood saved. Access to a cleaner and more efficient combustion method

Age	Fuel Savings t/hh/day

Age	Fuel Savings t/hh/day
0-1	0.010693

	0-1	0.010870	1-2	0.009505
	1-2	0.014230	2-3	0.008317
	2-3	0.013550		

People reporting ability to expand cooking options	Age	Users expanding cooking options	Age	Users expanding cooking options
	0-1	69%	0-1	90%
	1-2	85%	1-2	90%
	2-3	79%	2-3	90%

Proportion of beneficiaries confirming less respiratory disease	Age	Users confirming less respiratory disease	Age	Users confirming less respiratory disease
	0-1	84%	0-1	90%
	1-2	98%	1-2	90%
	2-3	94%	2-3	90%

proportion of beneficiaries confirming improvement in hygiene within the kitchen thanks to the project.	Age	Users confirming improvement in hygiene	Age	Users confirming improvement in hygiene
	0-1	82%	0-1	90%
	1-2	98%	1-2	90%
	2-3	94%	2-3	90%

23

Number of job positions created by the project and the total payroll costs	**YEAR**	**POSITIONS**
	2019	42
	2020	43
	2021 TILL JUNE	27
	AVERAGE	37

As this is the first monitoring period, the values under heading "values obtained last monitoring period" have been filled with the parameter values in the registered PDD.

The values in the approved PDD are expressed in terms of estimated annual averages during the crediting period, as required by the template. It is important to note that the "value obtained in this monitoring period" took place during a 26-month 14-day

time frame, where the PDD values would have occurred over the entire 5-year crediting period. The extended time frame included in the calculation of the PDD values explains the difference in the values for "number of project technologies-days credited".

The actual "*amount of fuelwood saved* (t/hh/day)" is slightly higher than estimated ex-ante. This can be explained by the different values used to calculate ex-ante and actual fuelwood saved. Applying the values obtained from the monitoring activities explain why the amount of fuelwood saved is slightly higher than estimated ex-ante. The full results obtained from the field tests for baseline fuel consumption are higher than those used in the ex-ante estimations. The usage rate of the Patsari stove was higher than estimated and there were more stoves installed during the monitoring period than estimated ex-ante. The observed difference between the actual and estimated amount of fuelwood saved is explained by using the monitored values representative of the project activity in field.

There is a difference between the actual "Number of job positions created by the project" and the number of jobs estimated ex-ante. This can be explained by the time period in which they were created. The ex-ante value was calculated based on the total positions created by the project in the most recent calendar year available at the time of creating the PDD. The obtained value is calculated based on the number of job positions created by year of the monitoring period, not just the most recent year. Reporting job positions by monitoring year was determined to be more representative the of the SDG impact over the entire first monitoring period.

D.4. Implementation of sampling plan

In order to avoid risk bias and ensure representative data from both baseline and project scenarios, the project applies simple random sampling procedures. For the project scenario, end users are selected using representative sampling techniques to ensure an adequate representation of users with technologies of different ages.

Robust sampling has been employed; testing is transparent, easily replicable and conservative; and the impact of day-to-day variation in cooking practices is accounted for in the calculation of emission reductions on absolute fuelwood savings as observed in the KPT over a complete three-day cycle.

Sampling Approach and Justification:

The sampling method to be used is simple random independent sampling. The households sampled for the Project KPT are different from the Baseline KPT. Project survey samples are different than those included in the baseline survey. The samples for the project survey were randomly chosen. The samples for the project KPT were taken from the random sample group of the project survey, who agreed to participate in the KPT.

Typically, in this context COVs are in the range 0.5-1.0. The project will apply a simple random sampling. Because a single and homogeneous scenario is expected (no stratification identified) this method is adequate. The random selection method of the project survey and KPT includes a statistical function to assign a random value to the entire population. A preliminary list with an over sampling (e.g. 100 samples per age group) is identified.

Geographic dispersion will be observed to ensure representatives.[17] Finally, the sampling is defined based on the availability and willingness of the project beneficiary to participate in the test.

In terms of the field performance tests; the statistical analysis is conducted with respect to fuel consumption/savings per unit since the baseline fuel and project fuel are the same. The sample sizes are large enough to satisfy the "90/30 rule," i.e. the endpoints of the 90% confidence interval lie within +/- 30% of the estimated mean, overall emission reductions are calculated on the basis of the estimated MEAN annual emission reduction per unit or MEAN fuel annual savings per unit.

When the sample sizes are such that the "90/30 rule" is not complied with, the emission or fuel saving result is not the mean (or average) test result, but a lower value, i.e. the LOWER BOUND of the one sided 90% confidence interval.

[17] If the sample obtained in one locality is smaller than eight, this locality is removed from the sample and the sample size is reweighted again among the remaining localities. Reaching some locations implicate hours of road trip, which makes difficult to expend half day for reaching few households. Since the project includes a single and homogeneous scenario and only one stove model, the representativeness is not compromised as long it is demonstrated that the HHs selected as replacements of isolated ones fit to the project profile.

Population

Target population is the total population served by the project, defined as household users of inefficient biomass stoves.

The target population under the baseline scenario is rural households that use non-renewable firewood to cook on inefficient and traditional cookstoves. For sampling baseline households, the sampling frame is the project's collection of interested communities and individuals that wish to participate in the project, received from promotion activities.

The target population for the project scenario is those who have received an ICS from the project. For sampling the project scenario population, the sampling frame is the project database.

The project survey and KPT is only conducted with end-users representative of the project scenario and currently using the project technology. The survey was conducted in person to randomly selected project technology end users that agreed to participate in the campaign.

Sample Size

The project developer calculated the sample size considering a simple random sample calculated from a homogeneous population with respect to the use of the project technology device as per age group. The samples were calculated following the CDM guidelines[18] in order to demonstrate that the sample size defined by the project was adequate. The sample size calculated following these guidelines was lower than the sample size defined by the project. As shown below, for all the cases, the actual sample size used is larger than the calculated ones, which corroborates the number of samples applied.

[18] Guideline Sampling and surveys for CDM project activities and programmes of activities Version 04.0, Appendix 1. Best-practice examples for sample size calculations, section 2.1.1. Example 1 – Simple random sampling

n =	**Sample size fro group 0-1**	**29**
N =	Total number of HHs (1332 stoves installed)	
p =	Expected proportion (90%)	
1.645	Represents the 90% confidence required	
0.1 =	Represents the 10% relative precision (0.1 0.5 x 0.05 = 5% points either side of p)	

n =	**Sample size fro group 1-2**	**30**
N =	Total number of HHs (1545 stoves installed)	
p =	Expected proportion (90%)	
1.645	Represents the 90% confidence required	
0.1 =	Represents the 10% relative precision (0.1 0.5 x 0.05 = 5% points either side of p)	

n =	**Sample size fro group 2-3**	**24**
N =	Total number of HHs (124 stoves installed)	
p =	Expected proportion (90%)	
1.645	Represents the 90% confidence required	
0.1 =	Represents the 10% relative precision (0.1 0.5 x 0.05 = 5% points either side of p)	

$$n \geq \frac{1.645^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p(1-p)}$$

The minimum total sample size for the project survey is 100, with at least 30 samples for project technologies of each age being credited. In every case the minimum sample of size of 30 houses per age group was exceeded and the total sample size exceeds 100. This minimum requirement was used as the basis for the sample sizes.

A summary of the number of project surveys carried out as per age group is provided below:

Sampling Project Survey			
Age group	**0-1**	**1-2**	**2-3**
Number of Surveys	50	60	57
Average age (years)	0.68	1.73	2.04[19]

A summary of the number of project KPT's carried out as per age group is provided below:

Sampling Project KPT			
Age Group	**0-1**	**1-2**	**2-3**
Number of KPT's[20]	35	33	36

[19] For age group 2-3, it was not possible to find stoves older than 2.5 years at the time the usage surveys were carried out. Because the project implementation works progressively, there were not stoves within age group 2-3 that were older than 2.5 years. In order to follow the spirit of the requirement, to obtain conservative results from the oldest ages available, the samples included for age group 2-3 were the oldest ages possible at the time. The average age of stoves included for group age group 2-3 year was 2.04 years old.
[20] The number of KPT's completed per age group in this table is the total sample size and includes outlier records.

Sample Groups

Simple random samples were chosen by the method described below:
Using the electronic monitoring database, a supervisory team manager generates a complete list of the stove database by age group. Each stove installation record is grouped by stove age and given a randomly generated identification number using a statistical function. This list is sorted ascendingly and the first 100 records are taken as the preliminary random list per age group. An oversampling is applied in cases where beneficiaries are not found, refuse to participate in the test, or incomplete/inadequate responses are received. Geographic location is also considered to ensure representativeness. In cases when a single sample from an isolated location is identified, it may be substituted by another from the preliminary random list.

The project survey is conducted with the list of samples randomly generated from the stove database. The project KPT samples are chosen from the project survey samples that agree to participate in the KPT. During the survey, the beneficiary is asked if they are able to participate in the KPT. The final list of KPT participants is generated from the households that indicate they are able to participate in the field test.

For sampling baseline KPT households, the sampling frame is the project's collection of interested communities and individuals that wish to participate in the project, received from promotion activities.

Parameters to be Determined via Sampling:

- Survey
    - $U_{p,y}$ Usage rate in project scenario p during year y
    - $LE_{p,y}$ Leakage in project scenario p during year y
    - Percentage (%) people reporting ability to expand cooking options
    - Percentage (%) proportion of beneficiaries confirming less respiratory disease
    - Percentage (%) proportion of beneficiaries confirming improvement in hygiene within the kitchen thanks to the project.
    - Percentage (%) Proportion of project beneficiaries using a traditional fogon, defined by age-group.

- Field Tests
  - $P_{b,y}$ Quantity of fuel that is consumed in baseline scenario b during year y
  - $P_{p,y}$ Quantity of fuel that is consumed in project scenario p during year y
  - $P_{p,b,y}$ Amount of fuelwood saved. Access to a cleaner and more efficient combustion method

Confidence/Precision Level

The sample size and the mean calculated adhere to the 90/30 rule, which is adequate for the independent sampling. The data collected meets the confidence interval applied. A summary of the statistical analysis results is provided below[21]:

Baseline KPT Sept. 2020					Baseline KPT Feb. 2021				
Outlier Analysis				Reliability calculation	Outlier Analysis				Reliability calculation
MEAN	**23.64**	MINIMUM	13.59	**MEAN** **24.64**	**MEAN**	**22.36**	MINIMUM	5.42	**MEAN** **23.58**
MINIMUM	13.59	Q1	20.2883333	MINIMUM 16.07	MINIMUM	5.42	Q1	15.6125	MINIMUM 10.55
MAXIMUM	31.77	MEDIAN	23.13	MAXIMUM 31.77	MAXIMUM	41.35	MEDIAN	23.9566667	MAXIMUM 41.35
STANDARD DEVIATION	5.25	Q3	28.82	STANDARD DEVIATION 4.53	STANDARD DEVIATION	8.89	Q3	28.16	STANDARD DEVIATION 8.06
COVARIANCE	0.22	MAXIMUM	31.77	COVARIANCE 0.18	COVARIANCE	0.40	MAXIMUM	41.35	COVARIANCE 0.34
Sample Size	40	Q1 - MIN	6.70	Sample Size 36	Sample Size	40	Q1 - MIN	10.20	Sample Size 37
Vn	6.32	Q1	20.2883333	Vn 6.00	Vn	6.32	Q1	15.6125	Vn 6.08
Sey	0.83044221	MEDIAN - Q1	2.84	Sey 0.75542656	Sey	1.40533051	MEDIAN - Q1	8.34416667	Sey 1.32440158
t-value (0.95, n-1)	1.67	Q3 - MEDIAN	5.69	t-value (0.95, n-1) 1.67	t-value (0.95, n-1)	1.67	Q3 - MEDIAN	4.21	t-value (0.95, n-1) 1.67
		MAX-Q3	2.96	90% Confidence 1.24256612	90% Confidence	2.31156299	MAX-Q3	13.18	90% Confidence 2.17844673
		IQR	8.53	Precision attained 5%	Precision attained	10%	IQR	12.55	Precision attained 9%
		IQR * 1.5	12.7925	Meet 90/10 Yes	Meet 90/10	YES	IQR * 1.5	18.825	Meet 90/10 YES
		Q3+IQR*1.5	41.61				Q3+IQR*1.5	46.99	
		Q1-IQR*1.5	16.02				Q1-IQR*1.5	9.34	

Age Group 0-1					Age Group 1-2				Age Group 2-3			
Outlier Analysis				Reliability calculation	Outlier Analysis			Reliability calculation	Outlier Analysis			Reliability calculation
MEAN	**12.63**	MINIMUM	4.16	**MEAN** **13.24**	**MEAN**	**9.88**	MINIMUM	5.11	**MEAN** **9.88**	**MEAN**	**9.84**	MINIMUM 3.27	**MEAN** **10.56**
MINIMUM	4.16	Q1	10.28	MINIMUM 8.07	MINIMUM	5.11	Q1	7.04666667	MINIMUM 5.11	MINIMUM	3.27	Q1 7.575	MINIMUM 6.09
MAXIMUM	20.64	MEDIAN	12.38	MAXIMUM 20.64	MAXIMUM	18.40	MEDIAN	9.41333333	MAXIMUM 18.40	MAXIMUM	18.33	MEDIAN 9.46333333	MAXIMUM 18.33
STANDARD DEVIATION	3.89	Q3	15.33	STANDARD DEVIATION 3.47	STANDARD DEVIATION	3.41	Q3	12.33	STANDARD DEVIATION 3.41	STANDARD DEVIATION	3.55	Q3 11.95	STANDARD DEVIATION 3.05
COVARIANCE	0.31	MAXIMUM	20.64	COVARIANCE 0.26	COVARIANCE	0.35	MAXIMUM	18.40	COVARIANCE 0.35	COVARIANCE	0.36	MAXIMUM 18.33	COVARIANCE 0.29
Sample Size	35	Q1 - MIN	6.12	Sample Size 32	Sample Size	33	Q1 - MIN	1.94	Sample Size 33	Sample Size	36	Q1 - MIN 4.30	Sample Size 32
Vn	5.92	Q1	10.28	Vn 5.66	Vn	5.74	Q1	7.04666667	Vn 5.74	Vn	6.00	Q1 7.575	Vn 5.66
Sey	0.65823472	MEDIAN - Q1	2.10	Sey 0.61313455	Sey	0.59340788	MEDIAN - Q1	2.36666667	Sey 0.59340788	Sey	0.59209914	MEDIAN - Q1 1.88833333	Sey 0.53976027
t-value (0.95, n-1)	1.67	Q3 - MEDIAN	2.95	t-value (0.95, n-1) 1.67	t-value (0.95, n-1)	1.67	Q3 - MEDIAN	2.92	t-value (0.95, n-1) 1.67	t-value (0.95, n-1)	1.67	Q3 - MEDIAN 2.48	t-value (0.95, n-1) 1.67
		MAX-Q3	5.31	90% Confidence 1.00851659	90% Confidence	0.97606911	MAX-Q3	6.06	90% Confidence 0.97606911			MAX-Q3 6.38	90% Confidence 0.88782664
		IQR	5.05	Precision attained 8%	Precision attained	10%	IQR	5.29	Precision attained 10%			IQR 4.37	Precision attained 9%
		IQR * 1.5	7.5725	Meet 90/30 Yes	Meet 90/30	Yes	IQR * 1.5	7.93	Meet 90/30 Yes			IQR * 1.5 6.55875	Meet 90/10 Yes
		Q3+IQR*1.5	22.90				Q3+IQR*1.5	20.26				Q3+IQR*1.5 18.51	
		Q1-IQR*1.5	7.76				Q1-IQR*1.5	4.40				Q1-IQR*1.5 5.39	

Analysis of Collected Data

In the project scenario, the results of the KPT indicate an overall average consumption of 11.23 Kg/hh/day. Under the baseline scenario, the results indicate an average

[21] Details of the statistical analysis and data collected can be found in the KPT Results Analysis Spreadsheet

consumption of 24.11 Kg/hh/day. In comparison with the project scenario, this is roughly twice as much daily average consumption, indicating general savings in the range of 40-50%.

The average daily fuel savings for each age group is as follows:

- Age Group 0-1: 10.87 Kg/hh/day
- Age Group 1-2: 14.23 Kg/hh/day
- Age Group 2-3: 13.55 Kg/hh/day

Project KPTs results, see file 'KPT Results and Analysis V.1.2 June 2021', tab '11.50', Cells C5, C11 and C17	Fuel consumption by baseline stove (t/hh/day)	Age Group	Fuel consumption by project stove (t/hh/day)	Fuel Saving (t/hh/day)	Efficiency
		0-1	0.01324	0.01087	55%
	0.02411	1-2	0.00988	0.01423	41%
		2-3	0.01056	0.01355	44%

A summary of the results and statistical analysis is provided below. Detailed information regarding the KPT data and analysis can be found in the KPT Results Analysis Spreadsheet.

		Avg.	St. Dev.	Min	Max	COVARIANCE	√n	Sey	t-value $_{(0.90,n-1)}$	Confidence 90%	Precision attained	Meet 90/30 rule?	N
Age Group 0-1	Baseline average fuel used per day	24.11	6.30	13.31	36.56	NA	NA	NA	NA	NA	NA	NA	73
	Project average fuel used per day	13.24	3.47	8.07	18.40	NA	NA	NA	NA	NA	NA	NA	32
	Average daily fuel savings	**10.87**	3.47	3.47	16.03	0.32	5.66	0.61	1.67	1.01	9.42%	Yes	32

		Avg.	St. Dev.	Min	Max	COVARIANCE	√n	Sey	t-value $_{(0.90,n-1)}$	Confidence 90%	Precision attained	Meet 90/30 rule?	N
Age Group 1-2	Baseline average fuel used per day	24.11	6.30	13.31	36.56	NA	NA	NA	NA	NA	NA	NA	73
	Project average fuel used per day	9.88	3.41	5.11	18.33	NA	NA	NA	NA	NA	NA	NA	33
	Average daily fuel savings	**14.23**	3.41	5.71	19.00	0.24	5.74	0.59	1.67	0.98	6.96%	Yes	33

		Avg.	St. Dev.	Min	Max	COVARIANCE	√n	Sey	t-value $_{(0.90,n-1)}$	Confidence 90%	Precision attained	Meet 90/30 rule?	N
Age Group 2-3	Baseline average fuel used per day	24.11	6.30	13.31	36.56	NA	NA	NA	NA	NA	NA	NA	73
	Project average fuel used per day	10.56	3.05	6.09	18.33	NA	NA	NA	NA	NA	NA	NA	32
	Average daily fuel savings	**13.55**	3.05			0.23	5.66	0.54	1.67	0.89	6.65%	Yes	32

A summary of the main findings from the project survey is summarized below, for complete and detailed information please reference the Project Survey Report. A summary of the number of project surveys carried out as per age group is provided below:

Sampling Project Survey			
Age group	**0-1**	**1-2**	**2-3**
Number of Surveys	50	60	57
Average age (years)	0.68	1.73	2.04[22]

The result obtained for the usage rates of the Patsari reflect positive findings. The adoption rate is reasonable; the slight decrease in drop-off rate for age group 2-3 reflects the expected adoption over time due to overcoming the learning curve. A summary of the drop off rate as per age group is provided below:

Usage rates Patsari			
Age group	**0-1**	**1-2**	**2-3**
# stoves in use	44	51	50
# stoves ranked bad condition	1	4	3
# Destroyed/not in used	5	5	4
% Dropoff	12%	15%	12%
% In Use	88%	85%	88%

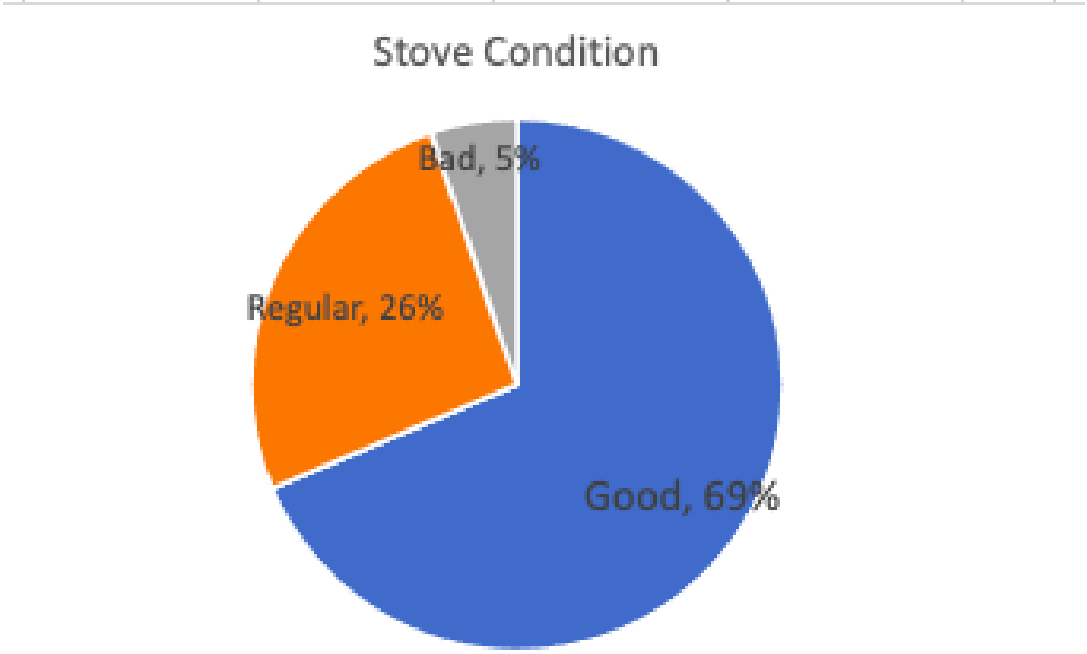
Data collected about the usage characteristics of the Patsari stove show that project technology covers the main cooking needs of the household. On average, the Patsari stove is used 5.8 days of the week for 3.8 hours per day on average. A summary of the Patsari usage characteristics as per age group is provided below:

Usage Rates Patsari				
Age group	**0-1**	**1-2**	**2-3**	**Average**
Average Use Frequency (days/week)	5.5	6.2	5.6	**5.8**
Average Use Times (time/day)	1.9	2.1	1.8	**1.9**
Average Use time (hours/day)	4.0	3.3	4.0	**3.8**

The conditions of the Patsari stoves surveyed were predominately in good shape, reflecting proper adoption, use, and maintenance by end users. In total, 95% of the

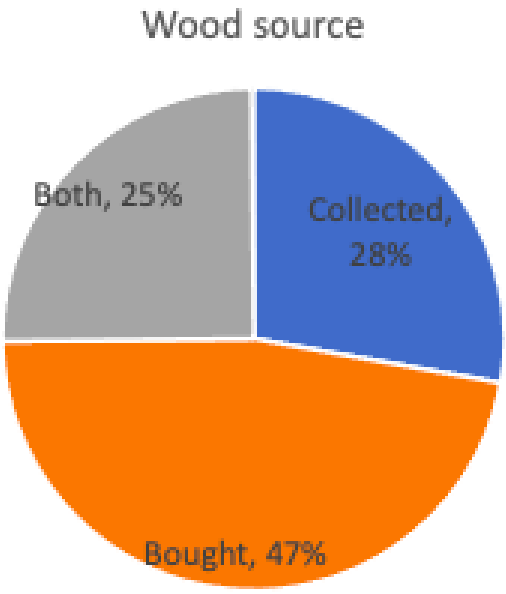
[22] For age group 2-3, it was not possible to find stoves older than 2.5 years at the time the usage surveys were carried out. Because the project implementation works progressively, there were not stoves within age group 2-3 that were older than 2.5 years. In order to follow the spirit of the requirement, to obtain conservative results from the oldest ages available, the samples included for age group 2-3 were the oldest ages possible at the time.

Patsari stoves were in proper condition to be included in the project with 26% classified as regular condition and 69% classified as good condition[23]. A summary of the stove conditions identified is provided below:



As can be seen in the project survey results, the majority of end-users sourced their wood by purchasing it and about an average share exclusively collected fuelwood or did both activities. A summary of the how fuelwood is sourced by end-users is provided below:

[23] Stove condition definition and criteria is detailed in the Patsari Use Monitoring Manual.



Beneficiary perceptions of seasonal variations in fuel consumption is collected as part of the project survey to judge the impact seasonality may have. Data collected from beneficiaries show that 36% perceived no difference in fuel consumption in either season and 47% perceived more consumption in the rainy season.

Seasonal variation					
Age group	**0-1**	**1-2**	**2-3**	**Total**	**Average**
More consumption dry season	9	7	6	22	17%
More consumption Rainy season	15	26	20	61	47%
No difference	12	15	20	47	36%

Although the results from this qualitative approach were unconclusive, the quantitative results of the KPT provide further insight as to the impact that seasonality plays on fuelwood consumption. The result of the KPT carried out in the dry season, February 2021, indicate an average consumption of 23.58 Kg/hh/day. The result of the KPT carried out in the wet season September 2020, indicate an average consumption of 24.64 Kg/hh/day.

Surveying end-users about their perceptions of the Patsari stove show that they believe the stove provides clear benefits to their life. 100% of beneficiaries responded to the survey indicating that Patsari stove provides a benefit to their life. 92% of beneficiaries indicated an improvement in the hygiene of their kitchen due to the ICS design. 92% of beneficiaries indicated that the Patsari stove contributed to decreased the occurrence or symptoms of respiratory disease.

Patsari Benefits				
Age group	**0-1**	**1-2**	**2-3**	**Average**
Proportion of beneficiaries confirming Patsari provides benefits	100%	100%	100%	100%
Proportion of beneficiaries confirming less respiratory disease	84%	98%	94%	92%
proportion of beneficiaries confirming improvement in hygiene within the kitchen	82%	98%	94%	92%

Perceptions of the Patsari benefits as it relates to saving fuelwood can also be conclusively determined. 92% of beneficiaries confirmed fuelwood savings, of those 141 responses, 64% perceived the Patsari stove saves a lot of fuelwood. Empirical data of the fuelwood savings per unit is provided in the KPT report and ER calculations.

Firewood Savings					
Age group	**0-1**	**1-2**	**2-3**	**Total**	**Average**
Total Responses	45	55	53	153	
Confirmed Fuelwood Saved	38	55	48	141	92%
Confirmed Saves a Little	13	15	23	51	36%
Confirmed Saves a lot	25	40	25	90	64%

The project monitoring survey includes questions to identify the beneficiary's abilities to cook more than one dish simultaneously. This parameter is reported for each age-group. The Patsari stove design includes three burning surfaces that allows the user to cook more than one dish simultaneously with the same amount of energy, expanding cooking options. On average 78% of beneficiaries report the ability to expand cooking options reflecting the expected outcome that the majority of users would report the ability to cook multiple dishes at once on the Patsari.

Simultaneous Cooking on Patsari				
Are you able to prepare more than one dish at the same time?	**0-1**	**1-2**	**2-3**	**Average**
Yes	31	47	42	40
No	14	8	11	11
Average Yes	69%	85%	79%	78%

>>

SECTION E. CALCULATION OF SDG IMPACTS

E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

SDG#13 Climate Action – Baseline Emissions Produced.
Emissions produced in the baseline scenario in the absence of the project activity.

Baseline field performance tests (KPT's) are used to define the fuelwood consumption at baseline scenario. The baseline KPT targeted typical users of baseline traditional fogon. The tests involve physical measurements of daily fuelwood consumption over three consecutive week days.

During the test different stove-types were identified, but none of those includes design or features that lead a difference or promote the energy efficiency. The mix of fuel (e.g. different kinds of wood species) does not have effect on the fuel consumption.

The amount of fuel consumed at baseline scenario was defined through a monitoring campaign of three-consecutive days was carried out over a total of 73 samples of baseline traditional fogons. Baseline emissions are calculated as follows:

$$BE_{b,y} = B_{b,y} * ((f_{NRB,y} * EF_{b,fuel,CO2}) + EF_{b,fuel,nonCO2}) * NCV_{b,fuel} \quad (3)$$

Where:

$BE_{b,y}$ Emissions for baseline scenario b during the year y in tCO_2e

$B_{b,y}$ Quantity of fuel consumed in baseline scenario b during year y, in tons, as per by-default factors[24] (cases with project performance field test only)

$f_{NRB,,y}$ Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario)

$NCV_{b,fuel}$ Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)

$EF_{b,fuel,CO2}$ CO_2 emission factor of the fuel that is substituted or reduced. 112 tCO_2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel

$EF_{b,fuel,nonCO2}$ Non-CO_2 emission factor of the fuel that is substituted or reduced

Applied value: 44,910 tCO_2e Baseline Emissions Produced. Emissions produced in the baseline scenario in the absence of the project activity

Source of data: Emission Reductions Calculations 1st Verification, Kitchen Performance Test Report, KPT Results Analysis Spreadsheet.

SDG# 1 No Poverty– Number of ICS in use.
As explained in the PDD section B.4, the baseline scenario defined is the use of a traditional fogon and fuel wood as main technology for cooking. The use of an ICS is not expected as part of a common practice, therefore, no ICS are expected to be in use at households included in the project. No energy saving anticipated in the baseline scenario due cooking with the tradition *fogón*, thus, no improvement in basic services or reduced poverty levels. No ICS expected in the baseline scenario.

Applied value: 0

Source of data: Project Stove Database, Project Survey Results Analysis Spreadsheet.

SDG# 2 Zero Hunger - Percentage of people reporting ability to expand cooking options. Beside the high consumption of fuelwood, another disadvantage of a traditional fogon is limitation to cook more than one dish at the same time.

In many cases the cooking pot rest over the open fire directly (e.g. three stone and cinder blocks stoves), it does not provide to opportunity to cook two dishes simultaneously. Although other traditional stoves may have a grate that allows to use two cooking pots, it is not common because the heat required for each dish may be different (e.g. stew and rice). Therefore, it is expected that people first cook the main dish and occasionally a prepare a side dish separately when time and fuelwood allow for it. The limitation of only being able to cook one meal at a time limits the cooking option available.

Applied value: 0

Source of data: Project Survey Results Analysis Spreadsheet.

SDG# 3 Good Health and Well Being – Proportion of beneficiaries confirming less respiratory disease and proportion of beneficiaries confirming an improvement in hygiene of the kitchen.

Respiratory diseases due continuous exposure to harmful smoke and gases while cooking in the traditional *fogón* are expected at the baseline scenario. The soot and ashes from the inefficient combustion of the fuelwood in the traditional *fogón*, in most of the cases with no chimney makes it nearly impossible to keep the kitchen clean and to have hygienic environment.

The baseline technology does not have the design features of an improved cookstove and therefor significantly increases the concentration of particulate matter in the home. No improvement in these conditions is expected under the baseline scenario in the absence of the improved cooking technology.

Applied value: 0

Source of data: Project Survey Results Analysis Spreadsheet.

SDG# 7 Affordable and Clean Energy - Number of ICS in use.
In many cases, access to fuels such as LP gas and natural gas are out of reach of the most vulnerable population. The traditional *fogón*, due its inefficient design, prevents people from having affordable and clean energy for cooking. The use of an ICS is not expected as part of a common practice, therefore, no ICS are expected to be in use at households included in the project

Applied value: 0

Source of data: Project Stove Database, Project Survey Results Analysis Spreadsheet.

SDG# 8 Decent Work and Economic Growth - Number of job positions created by the project and total payroll costs. No jobs are created in absence of the project, workforce development and income generation for local staff would not be possible without the project activity.

Applied value: 0

Source of data: Payroll and Transportation Records.

SDG# 11 Sustainable Cities and Communities - Amount of fuelwood saved as per age group. Using solid fuels for cooking in traditional fogón increases air pollution due the inefficient combustion and ventilation. There are no expected fuelwood savings under the baseline scenario in the absence of the project activity.

However, baseline fuelwood field consumption studies (Baseline performance Test or KPTs) are used to define the fuelwood consumption at baseline scenario to determine fuelwood savings. The value 0.02411 tons/household/day (expected fuel consumption at the baseline scenario) is used to calculate the net benefit.

Applied value: 0

Source of data: Emission Reductions Calculations 1st Verification, Kitchen Performance Test Report, KPT Results Analysis Spreadsheet.

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
13 Climate Action	Baseline Emissions Produced	44,910	tCO_2e
1 No Poverty	Number of ICS in use	0	Number
2 Zero Hunger	Percentage of people reporting ability to expand cooking options	0	%
3 Good Health and Well Being	Proportion of beneficiaries confirming less respiratory disease AND proportion of beneficiaries confirming improvement in hygiene within the kitchen.	0	%
7 Affordable and Clean Energy	Number of ICS in use	0	Number
8 Decent Work and Economic Growth	Number of job positions created by the project and total payroll costs	0	Number

11	Sustainable Cities and Communities	Amount of fuelwood saved as per age group.	0	t/household/day

>>

E.2. Calculation of project value or estimation of project situation of each SDG Impact

SDG# 13 Climate Action – Emission Reductions tons of C02e mitigated cumulatively during the monitoring period.
Fuelwood field consumption studies (performance test or KPTs) are used to define the fuelwood consumption at baseline scenario to be compared against the fuel consumption of the project scenario.

The baseline KPT targeted typical users of baseline traditional fogon. The Project KPTs targeted project beneficiaries that received a Patsari stove. The beneficiaries were clustered in age-groups. The tests involve physical measurements of daily fuelwood consumption over three consecutive week days.

The project uses a stove database (sales records) to track the number of ICS installed. The database is kept and maintained with the Salesforce application. The project defines the usage rates as per age-groups with the data collected from the project surveys.

Leakage emissions are accounted for when calculating project emission reductions as stated in section E.3. The leakage emissions due to transportation (54 tCO_2e) and baseline technology use (1,508 tCO_2e) are used to calculate emission reductions.

The total emissions under the project scenario are 23,027 tCO_2e. Compared to the baseline emissions (44,910 tCO_2e) and accounting for the leakage emissions (1,562 tCO_2e), the project emission reductions are equivalent to 20,322 tCO_2e.

Calculations of applied value are as follows:

$$ER_y = \sum_{b,p} (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_{b,fuel} * (f_{NRB,b,y} * EF_{fuel,CO2} + EF_{fuel,nonCO2})) - \sum LE_{p,y} \quad (1)$$

Where:

$\sum_{b,p}$	Sum over all relevant (baseline b/project p) couples
$N_{p,y}$	Cumulative number of project technology-days included in the project database for project scenario p against baseline scenario b in year y
$U_{p,y}$	Cumulative usage rate for technologies in project scenario p in year y, based on cumulative adoption rate and drop off rate revealed by usage surveys (fraction)
$P_{p,b,y}$	Specific fuel savings for an individual technology of project p against an individual technology of baseline b in year y, in tons/day, as derived from the statistical analysis of the data collected from the field tests
$f_{NRB,b,y}$	Fraction of biomass used in year y for baseline scenario b that can be established as non-renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario)
$NCV_{b,fuel}$	Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)
$EF_{b,fuel,CO2}$	CO_2 emission factor of the fuel that is substituted or reduced. 112 tCO_2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{b,fuel,nonCO2}$	Non-CO_2 emission factor of the fuel that is reduced
$LE_{p,y}$	Leakage for project scenario p in year y (tCO_2e/yr)

1st Monitoring Period	16/04/2019 - 30/06/2021
Baseline Emission tCO_2e	44,910
Project Emission tCO_2e	23,027
Leakage Emission tCO_2e	1,562
Emission Reductions tCO_2e	20,322

Applied value: 20,322 tCO_2e mitigated cumulatively during the first monitoring period.

Source of data: Project Stove Database, Emission Reductions Calculations 1st Verification, Kitchen Performance Test Report, Project Survey Results Analysis Spreadsheet, KPT Results Analysis Spreadsheet.

SDG#1 No Poverty– Number of ICS in use saving energy for cooking, thereby improving the quality of basic domestic services and reducing poverty levels.

The project uses a stove database (sales records) to track the number of ICS installed. The database is kept and maintained with the Salesforce application.

The project defines the usage rates as per age-groups with the data collected from the project surveys. A representative and random sampling is applied to identify the beneficiaries to be approached. The design of the questionaries has been made to avoid potential bias, as well, the project staff have been trained to ensure the correct application of the usage survey, including stove condition ranking, communication approach, data integrity and completeness.

Calculations of applied value provided below:

Age	Stoves installed	Usage Rate %	Operational Stoves
0-1	1,955	88%	1,720
1-2	1,415	85%	1,203
2-3	303	88%	266
Weighted average operational stoves			3,189

Applied value: 3,189 number of ICS in use.

Source of data: Project Stove Database, Emission Reductions Calculations 1st Verification, Project Survey Results Analysis Spreadsheet.

SDG#2 Zero Hunger – Average percentage of people reporting ability to expand cooking options. The Patsari stove design includes three burning surfaces that allows the user to cook more than one dish simultaneously with the same amount of energy, expanding cooking options.

The project monitoring survey includes questions to identify the beneficiary's abilities to cook more than one dish simultaneously. This parameter is reported for each age-group.

Calculations of applied value provided below:

Simultaneous Cooking on Patsari				
Are you able to prepare more than one dish at the same time?	**0-1**	**1-2**	**2-3**	**Average**
Yes	31	47	42	40
No	14	8	11	11
Average Yes	69%	85%	79%	78%

Applied value: 78% average percentage of people reporting ability to expand cooking options.

Source of data: Project Survey Results Analysis Spreadsheet

SDG#3 Good Health and Well Being – Average proportion of beneficiaries confirming less respiratory disease and average proportion of beneficiaries confirming an improvement in hygiene of the kitchen.

Respiratory diseases due continuous exposure to harmful smoke and gases while cooking on the traditional *fogón* are expected at the baseline scenario. The soot and ashes from the inefficient combustion of the fuelwood in the traditional *fogón*, in most of the cases with no chimney makes it nearly impossible to keep the kitchen clean and to have hygienic environment.

The project monitoring survey includes questions to identify beneficiary perceptions of the occurrence of respiratory disease (including eye affections) under the project scenario. In the same way, the project survey also includes questions to identify perceptions about improvement in hygiene (e.g. less soot and smoke, cleaner kitchen, cleaner fret and kitchen utensils. etc.).

Calculations of applied value provided below:

Patsari Benefits				
Age group	**0-1**	**1-2**	**2-3**	**Average**

Proportion of beneficiaries confirming Patsari provides benefits	100%	100%	100%	100%
Proportion of beneficiaries confirming less respiratory disease	84%	98%	94%	92%
proportion of beneficiaries confirming improvement in hygiene within the kitchen	82%	98%	94%	92%

Applied value:
92% – Average proportion of beneficiaries confirming less respiratory disease.
92% - Average proportion of beneficiaries confirming improvement in hygiene of the kitchen.

Source of data: Project Survey Results Analysis Spreadsheet

SDG#7 Affordable and Clean Energy - Number of ICS in use saving energy for cooking, thereby providing a means of clean energy.

The project uses a stove database (sales records) to track the number of ICS installed. The database is kept and maintained with the Salesforce application. The project defines the usage rates as per age-groups with the data collected from the project surveys.

The efficient methods/devices of solid fuels are medium transition technologies in the long term. This technology can significantly help to cover a good part of household energy requirements in a reliable and clean way. In many cases, access to fuels such as LP gas and natural gas are out of reach of the most vulnerable population. The traditional *fogón*, due its inefficient design, prevents people from having affordable and clean energy for cooking.

Calculations of applied value provided below:

Age	Stoves installed	Usage Rate %	Operational Stoves
0-1	1,955	88%	1,720
1-2	1,415	85%	1,203
2-3	303	88%	266

Weighted average operational stoves	3,189

Applied value: 3,189 number of ICS in use.

Source of data: Project Stove Database, Emission Reductions Calculations 1st Verification, Project Survey Results Analysis Spreadsheet.

SDG# 8 Decent Work and Economic Growth - Number of job positions created by the project by year of the monitoring period and total payroll costs.

The project generates employment opportunities by virtue of its implementation. Project staff is needed both on the supervisory office level and field level. The project employs local people from the communities in which it works for promotion and construction needs. The jobs created by the project increase access to viable employment, workforce development, and income generation. Position summary document and total payroll costs are submitted as evidences.

"Jobs created by the project" has been defined as all positions directly funded by the project and essential to its continued operation. This includes full time employees and contract positions.

Payroll information is treated as confidential.

Applied value: Number of jobs created by the project by year of the monitoring period and total payroll costs.

Jobs Created	
YEAR	**POSITIONS**
2019	42
2020	43
2021 TILL JUNE	27
AVERAGE	37

Source of data: Payroll and Transportation Records.

SDG#11 Sustainable Cities and Communities - Amount of fuelwood saved as per age group (t/hh/day). Access to a cleaner and more efficient combustion method / device for cooking helps improve air quality.

Fuelwood field consumption studies (performance test or KPTs) are used to define the fuelwood consumption at baseline scenario to be compared against the fuel consumption of the project scenario.

The baseline KPT targeted typical users of baseline traditional fogon. The Project KPTs targeted project beneficiaries that received a patsari stove. The beneficiaries were clustered in age-groups. The tests involve physical measurements of daily fuelwood consumption over three consecutive week days.

Calculations of applied value provided below:

Age	Fuel Saving t/household/day
0-1	0.010870
1-2	0.014230
2-3	0.013550

Applied value: See above table for amount of fuelwood saved as per age group (t/hh/day)

Source of data: Emission Reductions Calculations 1st Verification, Kitchen Performance Test Report, KPT Results Analysis Spreadsheet.

<table>
<tr><th>Sustainable Development Goals Targeted</th><th>SDG Impact</th><th>Amount Achieved</th><th>Units/ Products</th></tr>
<tr><td>13 Climate Action</td><td>Emission Reductions mitigated cumulatively during the first monitoring period</td><td>20,322</td><td>tCO_2e</td></tr>
<tr><td>1 No Poverty</td><td>Number of ICS in use</td><td>3,189</td><td>Number</td></tr>
<tr><td>2 Zero Hunger</td><td>Average percentage of people reporting ability to expand cooking options</td><td>78</td><td>%</td></tr>
<tr><td>3 Good Health and Well Being</td><td>Average Proportion of beneficiaries confirming less respiratory disease AND average proportion of beneficiaries confirming improvement in hygiene within the kitchen thanks to the project.</td><td>92% – Less Respiratory Disease

92% - Improvement in Hygiene</td><td>%</td></tr>
<tr><td>7 Affordable and Clean Energy</td><td>Number of ICS in use</td><td>3,189</td><td>Number</td></tr>
<tr><td>8 Decent Work and Economic Growth</td><td>Number of job positions created by the project by year of the monitoring period and total payroll costs</td><td><table><tr><th colspan="2">GENERAL PAYROLL
FIELD + OFFICE</th></tr><tr><th>YEAR</th><th>POSITIONS</th></tr><tr><td>2019</td><td>42</td></tr><tr><td>2020</td><td>43</td></tr><tr><td>2021 TILL JUNE</td><td>27</td></tr><tr><td>AVERAGE</td><td>37</td></tr></table></td><td>Number</td></tr>
<tr><td>11 Sustainable Cities and Communities</td><td>Amount of fuelwood saved as per age group.</td><td><table><tr><th>Age group (years)</th><th>t/hh/day</th></tr><tr><td>0-1</td><td>0.010870</td></tr><tr><td>1-2</td><td>0.014230</td></tr><tr><td>2-3</td><td>0.013550</td></tr></table></td><td>t/household/day</td></tr>
</table>

>>

E.3. Calculation of leakage

The potential sources of leakage (see PDD, section B.7.3 Other elements of monitoring plan) are discussed in the table below:

<table>
<tr><th>Potential source of leakage</th><th>Assessment</th></tr>
<tr><td>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.</td><td>The baseline stoves are not used outside the project boundary, but in some cases, the stove continue being used by the project beneficiaries. The project will account for leakage due to the continued presence of a baseline stove.

Although the project's beneficiaries are encouraged to destroy the baseline stove, some beneficiaries may refuse to destroy the stove. Even destroyed, the construction of an open fire is extremely easy, (e.g it only requires three cinder block or bricks.), therefore, the presence of a baseline stove will be monitored via the annual monitoring surveys.

This leakage source will be calculated as follows: Leakage due baselines stove = % of homes that have a fogón * net stoves in operation * cooking time the fogón is in use in those HHs * annualized average of ERs/stove

<table>
<tr><th colspan="3">Leakage due use of traditional fogon at project scenario</th></tr>
<tr><td>Net operational stoves</td><td>3,189</td><td></td></tr>
<tr><td>% homes that have a fogon</td><td>56%</td><td></td></tr>
<tr><td>Number of homes that have a fogon</td><td>1,779</td><td></td></tr>
<tr><td>Fogon weekly average (hr/week)</td><td>8.22</td><td></td></tr>
<tr><td>Patsari weekly average (hr/week)</td><td>21.85</td><td></td></tr>
<tr><td>Total cooking time/week</td><td>30.07</td><td></td></tr>
<tr><td>% total cooktime fogon</td><td>27.35%</td><td></td></tr>
<tr><td>Cooking time the fogón is in use in those HHs</td><td>486.55</td><td></td></tr>
<tr><td>Annualized average ERs/stove/day</td><td>3.10</td><td>See ERs Calculation Spreadsheet, tab 'Day-Month Basis', cell I115</td></tr>
<tr><td>Leakage due use of traditional fogon at project scenario</td><td>1,508</td><td></td></tr>
</table>

Leakage calculated[24]: 1,508 tCO_2</td></tr>
</table>

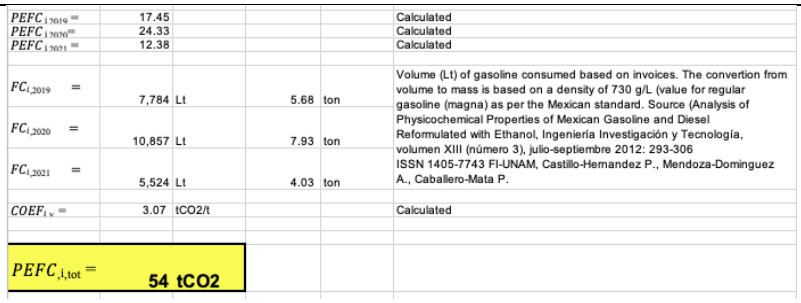
[24] Leakage due to the continued use of the baseline technology is calculated in Project Survey Results and Analysis.

b) Non-project users who previously used lower emitting energy sources use the non-renewable biomass or fossil fuels saved under the project activity.	There is no such distinction between a low emitting energy and non-renewable biomass from the firewood consumed in project area. Areas of fuelwood collection, fuelwood suppliers and fuel type are the same for both, project users and non-project users. This potential source of leakage is not considered relevant for the project.
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.	The project does not expect to create a negative impact on the NRB; if any, the impact would be positive since the project saves fuelwood by reducing the demand. This potential source of leakage is not considered relevant for the project.
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.	"Households that cook with solid biofuels in open fires also obtain from them a myriad of energy services like heating of the living space." "When the new and cleaner fuel–stove combinations that are promoted are technically optimized for cooking or space heating, they necessarily lose some of the versatility of fires and can no longer embody all the functions of traditional hearths. For example, to reduce emissions and fuel consumption, the optimized stove designs restrict the amount or volume of fuel, limit the cooking surface or isolate the fire thermally or visually or require specific fueling rates. As a result clean cookstoves and fuels can seldom be perfect substitutes for all the traditional fuel devices and inevitably, households stack or combine the use of traditional and new devices to fulfill their needs." (Ruiz-Mercado, I., & Masera, O. (2015). Patterns of Stove Use in the Context of Fuel–Device Stacking:

	Rationale and Implications. *EcoHealth*, *12*(1), 42–56. https://doi.org/10.1007/s10393-015-1009-4) According to Masera and Mercado, the features that improve the efficiency of an enhanced cooking device (restricted fuel and isolated fire) are the same features that prevent the ICS from keeping the versatility and fulfilling all of the functions that open fires provide. The enhanced design of the Patsari does not fulfill the space heating needs that an open fire provides. For this reason, the combined use of a fogon and an ICS is common as the enhanced device cannot cover the space heating function of the open fire. Therefore, it can be concluded that the Patsari stove is not used to heat the living space. The leakage due to the use of the Patsari stove for heating the living space is not applicable. The leakage due to the use of the traditional fogon to heat the living space has been accounted for in the leakage source of continued use of the baseline technology.
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.	One of the requirements for the beneficiaries to join the project is to use firewood as main fuel for cooking. High efficacy technology is not commonly used in the project boundary. This potential source of leakage is not considered relevant for the project.

f) Other potential sources of leakage.	Leakage due to Transportation. Transportation records are maintained. Records include all fuel costs used by all vehicle types in use by the project at all levels (large trucks, light trucks and motorcycles). The leakage emissions due transportation are calculated based on the CDM Methodological Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, Version 03.0. The figure is compared against the total emissions being claimed during the verification period in order to determine leakage[25]. $COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y}$ Equation (4) Where: $COEF_{i,y}$ = Is the CO_2 emission coefficient of fuel type *i* in year *y* (tCO_2/mass or volume unit) $NCV_{i,y}$ = Is the weighted average net calorific value of the fuel type *i* in year *y* (GJ/mass or volume unit) $EF_{CO2,i,y}$ = Is the weighted average CO_2 emission factor of fuel type *i* in year *y* (tCO_2/GJ) i = Are the fuel types combusted in process *j* during the year *y* Source $COEF_{i,y}$ = 3.07 tCO2/t Calculated $NCV_{i,y}$ = 44.3 (TJ/Gg) 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume $EF_{CO2,i,y}$ = 0.06930 Gg CO2/TJ 2006 IPCC Guidelines for National Greenhouse Gas Inventories, TABLE 2.2 (kg of greenhouse gas per TJ on a Net Calorific Basis) i = Gasoline $PE_{FC,j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y}$ Equation (1) Where: $PE_{FC,j,y}$ = Are the CO_2 emissions from fossil fuel combustion in process *j* during the year *y* (tCO_2/yr) $FC_{i,j,y}$ = Is the quantity of fuel type *i* combusted in process *j* during the year *y* (mass or volume unit/yr) $COEF_{i,y}$ = Is the CO_2 emission coefficient of fuel type *i* in year *y* (tCO_2/mass or volume unit) i = Are the fuel types combusted in process *j* during the year *y*

[25] Leakage due to transportation is calculated in "Payroll and Transportation Investments 1st Verification.

	 $PEFC_{i,2019}$ = 17.45 Calculated $PEFC_{i,2020}$ = 24.33 Calculated $PEFC_{i,2021}$ = 12.38 Calculated $FC_{i,2019}$ = 7,784 Lt 5.68 ton $FC_{i,2020}$ = 10,857 Lt 7.93 ton $FC_{i,2021}$ = 5,524 Lt 4.03 ton Volume (Lt) of gasoline consumed based on invoices. The convertion from volume to mass is based on a density of 730 g/L (value for regular gasoline (magna) as per the Mexican standard. Source (Analysis of Physicochemical Properties of Mexican Gasoline and Diesel Reformulated with Ethanol, Ingeniería Investigación y Tecnología, volumen XIII (número 3), julio-septiembre 2012: 293-306 ISSN 1405-7743 FI-UNAM, Castillo-Hernandez P., Mendoza-Dominguez A., Caballero-Mata P. $COEF_{i,v}$ = 3.07 tCO2/t Calculated $PEFC_{i,tot}$ = 54 tCO2 54 tCO_2

>>

E.4. Calculation of net benefits or direct calculation for each SDG Impact

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
13	Climate Action – Emission Reductions	44,910 tCO_2e Baseline Emissions Produced	23,027 tCO_2e Project emissions	20,322 tCO_2e mitigated cumulatively during the first monitoring period[26]
1	No Poverty - Number of ICS in use	0 Number of ICS in use.	3,189 Number of ICS in use.	3,189 Number of ICS in use.
2	Zero Hunger - Percentage of people reporting ability to expand cooking options.	0% Percentage of people reporting ability to expand cooking options	78% average percentage of people reporting ability to expand cooking options.	78% average percentage of people reporting ability to expand cooking options.
3	Good Health and Well Being – Proportion of	0% Proportion of beneficiaries confirming less	92% – Average proportion of beneficiaries	92% – Average proportion of beneficiaries confirming less

[26] Leakage emissions are accounted for when calculating emission reductions using the net benefit approach required by this table. Under this approach, Net Benefit = (baseline emissions) – (project emissions) – (leakage emissions). As stated in section E.3, the leakage emissions included are 1,562 tCO_2.

	beneficiaries confirming less respiratory disease and proportion of beneficiaries confirming a reduction in problems regarding the hygiene of the kitchen	respiratory disease and proportion of beneficiaries confirming an improvement in hygiene of the kitchen.	confirming less respiratory disease. 92% - Average proportion of beneficiaries confirming improvement in hygiene of the kitchen.	respiratory disease. 92% - Average proportion of beneficiaries confirming improvement in hygiene of the kitchen.
7	Affordable and Clean Energy - Number of ICS in use	0 Number of ICS in use.	3,189 Number of ICS in use.	3,189 Number of ICS in use
8	Decent Work and Economic Growth - Number of job positions created by the project by year of the monitoring period.	0 Number of job positions created by the project and total payroll costs	Number of job positions created by the project by year of the monitoring period and total payroll costs. **GENERAL PAYROLL FIELD + OFFICE** **YEAR** / **POSITIONS** **2019** 42 **2020** 43 **2021 TILL JUNE** 27 **AVERAGE** 37	Number of job positions created by the project by year of the monitoring period and total payroll costs. **GENERAL PAYROLL FIELD + OFFICE** **YEAR** / **POSITIONS** **2019** 42 **2020** 43 **2021 TILL JUNE** 27 **AVERAGE** 37

11	Sustainable Cities and Communities - Amount of fuelwood saved as per age group.	Quantity of fuel that is consumed in baseline scenario: Age: 0-1 / Fuel Consumption t/hh/day: 0.02411 Age: 1-2 / Fuel Consumption t/hh/day: 0.02411 Age: 2-3 / Fuel Consumption t/hh/day: 0.02411	Quantity of fuel that is consumed in project scenario: Age: 0-1 / Fuel Consumption t/hh/day: 0.01324 Age: 1-2 / Fuel Consumption t/hh/day: 0.00988 Age: 2-3 / Fuel Consumption t/hh/day: 0.01056	Amount of fuelwood saved as per age group (t/hh/day): Age: 0-1 / Fuel Savings t/hh/day: 0.010870 Age: 1-2 / Fuel Savings t/hh/day: 0.014230 Age: 2-3 / Fuel Savings t/hh/day: 0.013550		

E.5. Comparison of actual SDG Impacts with estimates in approved PDD

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values[27] achieved during this monitoring period
13	20,919 tCO_2e - Emission reductions estimated ex-ante during the monitoring period.	20,322 tCO_2e mitigated cumulatively during the first monitoring period
1	3,049 – Number of ICS In-Use estimated ex-ante during the monitoring period.	3,189 Number of ICS in use.
2	90% - Percentage of people reporting ability to expand cooking options estimated ex-ante.	78% average percentage of people reporting ability to expand cooking options.
3	90% – Average proportion of beneficiaries confirming less respiratory disease estimated ex-ante. 90% - Average proportion of beneficiaries confirming improvement in hygiene of the kitchen estimated ex-ante.	92% – Average proportion of beneficiaries confirming less respiratory disease. 92% - Average proportion of beneficiaries confirming improvement in hygiene of the kitchen.

[27] Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

<table>
<tr><td>7</td><td>3,049 - ICS In-Use estimated ex-ante during the monitoring period.</td><td>3,189 number of ICS in use.</td></tr>
<tr><td>8</td><td>23 - Number of job positions created by the project and total payroll costs estimated ex-ante.</td><td>Number of job positions created by the project by year of the monitoring period and total payroll costs.
<table><tr><th colspan="2">GENERAL PAYROLL FIELD + OFFICE</th></tr><tr><th>YEAR</th><th>POSITIONS</th></tr><tr><td>2019</td><td>42</td></tr><tr><td>2020</td><td>43</td></tr><tr><td>2021 TILL JUNE</td><td>27</td></tr><tr><td>AVERAGE</td><td>37</td></tr></table></td></tr>
<tr><td>11</td><td>Estimated fuelwood savings (t/hh/day)<table><tr><th>Age Group</th><th>Estimated Fuelwood Savings (t/hh/day)</th></tr><tr><td>0-1</td><td>0.010693</td></tr><tr><td>1-2</td><td>0.009505</td></tr><tr><td>2-3</td><td>0.008317</td></tr></table></td><td>Amount of fuelwood saved as per age group (t/hh/day):<table><tr><th>Age Group</th><th>Actual Fuel Savings (t/hh/day)</th></tr><tr><td>0-1</td><td>0.010870</td></tr><tr><td>1-2</td><td>0.014230</td></tr><tr><td>2-3</td><td>0.013550</td></tr></table></td></tr>
</table>

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

SDG#13 Climate Action – Emission Reductions tC02e estimated ex-ante during the monitoring period.

$$ER_y = \sum_{b,p} (N_{p,y} * U_{p,y} * P_{p,b,y} * NCVb, _{fuel} * (f\,NRB,b,\, y * EF_{fuel,\,CO2} + EF_{fuel,\,nonCO2})) - \sum LE_{p,y} \quad (1)$$

Where:

$\sum_{b,P}$	Sum over all relevant (baseline b/project p) couples
$N_{p,y}$	Cumulative number of project technology-days included in the project database for project scenario p against baseline scenario b in year y
$U_{p,y}$	Cumulative usage rate for technologies in project scenario p in year y, based on cumulative adoption rate and drop off rate revealed by usage surveys (fraction)
$P_{p,b,y}$	Specific fuel savings for an individual technology of project p against an individual technology of baseline b in year y, in tons/day, as derived from the statistical analysis of the data collected from the field tests
$f_{NRB,b,\,y}$	Fraction of biomass used in year y for baseline scenario b that can be established as non-renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario)
$NCV_{b,fuel}$	Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)
$EF_{b,fuel,CO2}$	CO_2 emission factor of the fuel that is substituted or reduced. 112 tCO_2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{b,fuel,nonCO2}$	Non-CO_2 emission factor of the fuel that is reduced
$LE_{p,y}$	Leakage for project scenario p in year y (tCO_2e/yr)

Ex-ante Emission Reductions			Baseline estimates	Project estimates	Net benefit
2019	16/04/2019	31/12/2019	5,525	3,038	2,487
2020	01/01/2020	31/12/2020	23,678	13,284	10,394
2021	01/01/2021	30/06/2021	18,958	10,920	8,038
Totals 16/04/2019-30/06/2021			**48,161**	**27,242**	**20,919**

20,919 tCO_2e - Emission reductions estimated ex-ante during the monitoring period. This value was calculated following the methodology requirements as detailed in PDD section B.6.1 and the Ex-Ante Emission Reduction Calculations. The value in the approved PDD is expressed in terms of estimated annual averages during the

crediting period, as required by the template. The applied value is expressed in terms of estimated ex-ante during the monitoring period to provide a valid comparison.

SDG#7 Affordable and Clean Energy - Number of ICS in use estimated ex-ante during the monitoring period saving energy for cooking, thereby providing a means of clean energy.
& SDG#1 No Poverty – Number of ICS in use estimated ex-ante during the monitoring period saving energy for cooking, thereby improving the quality of basic domestic services and reducing poverty levels.

3,049 – ICS In-Use estimated ex-ante during the monitoring period.

This value was calculated in the Ex-ante Emission Reduction Calculations by means of inputting historical installation and projecting future installation. The project installation rate was estimated into 2024 based on resource and funding projections. The installation projections were created starting with 2000 stoves installed in 2021, doubling every year with 4000 in 2022, etc. The usage and drop off rates are then applied to the stoves installed and forecasted to calculate the number of ICS in use. As expressed in the approved PDD, the total stoves estimated in use ex-ante during the 5 year crediting period is averaged across the 5 year crediting period:

Ex-Ante Stoves Installed over 5 year crediting period		
Age	Operational Stoves	Usage Rate %
0-1	6,421	90%
1-2	4,576	85%
2-3	2,579	80%
3-4	1,488	75%
4-5	1,669	70%
Weighted Operational Stoves		14,015
Annual Average		2,803

ICS In-Use estimated ex-ante during the monitoring period are as follows:

Ex-Ante Stoves In-Use over monitoring period

Installed Stoves	Operations Stoves for period 16/04/2019-30/06/2021
1,758	1,582
1,424	1,211
320	256
Weighted average operational stoves monitoring period 16/04/2019-30/06/2021	3,049

SDG#2 Zero Hunger: 90% - Percentage of people reporting ability to expand cooking options estimated ex-ante was estimated based on the project's experience and assumptions. Most commonly the traditional cooking technology design does not allow for the opportunity to cook multiple foods at once.

In many cases the cooking pot rest over the open fire directly (e.g. three stone and cinder blocks stoves), it does not provide to opportunity to cook two dishes simultaneously. Although other traditional stoves may have a grate that allows the use of two cooking pots, it is not common because the heat required for each dish may be different (e.g. stew and rice). Therefore, it was expected that the majority of people would report the ability to cook multiple dishes at once on the Patsari because of it's multiple burner design.

SDG#3 Good Health and Well Being: 90% – Average proportion of beneficiaries confirming less respiratory disease estimated ex-ante.

Respiratory diseases due continuous exposure to harmful smoke and gases while cooking on the traditional *fogón* are expected and known to occur at the baseline scenario. Studies available indicate a strong correlation between the use of the baseline technology and increased indoor air pollution and disease. The Patsari stove is specifically designed to efficiently burn fuel and vent the harmful smoke outside of the home. Therefore, the project estimated a high response in terms of health improvement.

90% - Average proportion of beneficiaries confirming improvement in hygiene of the kitchen estimated ex-ante.

The soot and ashes from the inefficient combustion of the fuelwood in the traditional *fogón*, in most of the cases with no chimney makes it nearly impossible to keep the kitchen clean and to have hygienic environment.

The baseline technology does not have the design features of an improved cookstove and therefor significantly increases the concentration of particulate matter in the home. The Patsari stove is specifically designed to efficiently burn fuel and vent the harmful smoke outside of the home. Therefore, the project estimated a high response in terms of hygiene improvement.

SDG# 8 Decent Work and Economic Growth: 23 - Number of job positions created by the project and total payroll costs estimated ex-ante. The estimation was calculated based on the total positions created by the project in the most recent calendar year available. "Jobs created by the project" has been defined as all positions directly funded by the project and essential to its continued operation. This includes full time employees and contract positions. The estimation was calculated based on the total positions created by the project in the most recent calendar year available.

SDG#11 Sustainable Cities and Communities – Estimated fuelwood savings (t/hh/day).
There are no expected fuelwood savings under the baseline scenario in the absence of the project activity. However, the estimated fuel savings based on the project stove efficiency and usage rates were estimated in order to provide ex-ante calculations for fuelwood saved as per age group.

The average estimated efficiency of the project was 35%, starting at 45% with a 5% degradation over time. This value was modeled after results obtained from another Gold Standard certified project using similar ICS in similar regions. The average value reported for Mircrosol for the Patsari model efficiency is 31%. Therefore, the estimations applied in the Ex-ante ER calculations are considered appropriate.

Estimated	Based on theoric value of 45% efficiency (saving) and -%5 of degradation per year.	**Age**	**Estimated project stove efficiency**	The values at the right are the efficiency rates reported by other ICS in Mexico.	**Microsol**
		0-1	45%		**37%**

		1-2	40%		**36%**
		2-3	35%		**18%**
		3-4	30%		**33%**
		4-5	25%		
		Average	35%		31%

The estimated ex-ante usage rate of the Patsari was also calculated in this way, based on the most recent data available.

Ex-ante Estimation Usage Rate		
Age	Operational Stoves	Usage Rate %
0-1	6,421	90%
1-2	4,576	85%
2-3	2,579	80%
3-4	1,488	75%
4-5	1,669	70%
Estimated weighted average operational stoves		14,015

Combining the estimated usage rate with the estimated stove efficiency provided the calculations for estimated fuel savings:

Age	Estimated Fuel Saving t/household/day
0-1	0.010693
1-2	0.009505
2-3	0.008317

>>

E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

SDG#13 Climate Action – Emission Reductions tCO_2e mitigated cumulatively during the first monitoring period.

The value was defined based on the baseline, project, leakage, and net emissions over the entire first crediting period. There was no increase between the ex-ante value of 20,919 tCO_2e and the value of 20,322 tCO_2e mitigated cumulatively during the first monitoring period.

1st Monitoring Period	16/04/2019 - 30/06/2021
Baseline Emission tCO_2e	44,910
Project Emission tCO_2e	23,027
Leakage Emission tCO_2e	1,562
Emission Reductions tCO_2e	20,322

Ex-ante Emission Reductions			Baseline estimates	Project estimates	Net benefit
2019	16/04/2019	31/12/2019	5,525	3,038	2,487
2020	01/01/2020	31/12/2020	23,678	13,284	10,394
2021	01/01/2021	30/06/2021	18,958	10,920	8,038
Totals 16/04/2019-30/06/2021			48,161	27,242	20,919

SDG#1 No Poverty– Number of ICS in use saving energy for cooking, thereby improving the quality of basic domestic services and reducing poverty levels.
SDG#7 Affordable and Clean Energy - Number of ICS in use saving energy for cooking, thereby providing a means of clean energy.

There is an increase between the ex-ante value of 3,049 ex-ante estimated ICS in use during the monitoring period and the monitored value of 3,189 ICS in use during the first monitoring period.

Ex-Ante Stoves In-Use over monitoring period	
Installed Stoves	Stoves In-Use for period 16/04/2019-30/06/2021
1,758	1,582
1,424	1,211
320	256
Weighted average stoves In-Use monitoring period 16/04/2019-30/06/2021	3,049

Stoves In Use First Monitoring Period			
Age	Stoves installed	Usage Rate %	Operational Stoves
0-1	1,955	88%	1,720
1-2	1,415	85%	1,203
2-3	303	88%	266
Weighted average operational stoves			3,189

As can be seen above, there is a slight increase of 140 stoves In-Use from the monitored and estimated value. The difference between the estimated and actual usage rates of the Patsari is not significant and in line with the project's expectation. The discrepancy can be explained simply by the fact that there were more stoves installed during the actual monitoring period than were estimated ex-ante. Moreover, the average usage rate of the ex-ante values (85%) is slightly lower than the monitored average usage (87%), leading to less stoves in use ex-ante.

SDG#2 Zero Hunger: Average percentage of people reporting ability to expand cooking options.

The ex-ante value was estimated at 90% Percentage of people reporting ability to expand cooking options. There was no increase between the achieved and estimated values. The achieved impact, 78% average percentage of people reporting ability to expand cooking options, reflects the expected outcome that the majority of users would report the ability to cook multiple dishes at once on the Patsari.

SDG#3 Good Health and Well Being: Average proportion of beneficiaries confirming less respiratory disease.

The applied value of 92% is slightly higher than the 90% estimated, but in line with the expectations. As can be confirmed through peer reviewed papers, field experience, project survey results, and VVB interviews, the Patsari stove significantly decreases the symptoms of respiratory disease.

Average proportion of beneficiaries confirming improvement in hygiene of the kitchen.

The applied value of 92% is slightly higher than the 90% estimated, but in line with the expectations. 92% of beneficiaries confirming improvement in hygiene of the kitchen, reflects the expected outcome that the majority of users would report an improvement in hygiene.

SDG# 8 Decent Work and Economic Growth: Number of job positions created by the project by year of the monitoring period and total payroll costs.

The estimated (23) and monitored values differ due to the fact that the actual value was calculated based on the number of job positions created by year of the monitoring period, not just the most recent year. The estimation was calculated based on the total positions created by the project in the most recent calendar year available. Reporting job positions by monitoring period year was determined to be more representative the of the SDG impact over the entire first monitoring period.

Jobs Created	
YEAR	POSITIONS
2019	42
2020	43
2021 TILL JUNE	27

AVERAGE	37

SDG#11 Sustainable Cities and Communities: Amount of fuelwood saved as per age group (t/hh/day)

The comparison between the ex-ante estimation and actual values of the fuel saving shows that the project fuel savings is slightly higher than estimated. This can be explained by the values obtained from the Baseline KPT and Project Survey carried out during the monitoring period. The actual result obtained for baseline fuel consumption from the KPT are higher than those used in the ex-ante estimations. Moreover, the usage rate of the Patsari was higher than estimated, reflecting proper adoption and sustained use of the project technology. Lastly, there were more stoves installed during the monitoring period than estimated ex-ante. The comparison between estimated and actual fuel savings is provided below:

Age	Estimated Fuel Saving t/hh/day
0-1	0.010693
1-2	0.009505
2-3	0.008317

Age group (years)	Actual fuel savings t/hh/day
0-1	0.010870
1-2	0.014230
2-3	0.013550

>>

SECTION F. SAFEGUARDS REPORTING

Principles	Mitigation Measures added to the Monitoring Plan
N/A	No mitigation measures were identified during the stakeholder consultation nor during the preliminary review.

>>

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.

Despite providing and managing the approved continuous input and grievance mechanism, no inputs or grievances have been received. The mechanism in place is described below:

Method	Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers.
Continuous Input / Grievance Expression Process Book (mandatory)	Mexico: Yesta # 77, Colonia Bosque Camelinas, Morelia, Michoacán, Mexico 58290
GS Contact (mandatory)	help@goldstandard.org
Internet/Email Access	ecolifeconservation.org/where-we-work/Mexico admin@ecolifeconservation.org
SMS	Beneficiaries can contact the project through SMS (or WhatsApp) messages. +52 (443) 534 2649
Dial-up	USA- (760) 740-1346 MX- +52 01 (443) 350 4013 Contact Promoter- +52 (443) 534 2649

>>

G.2. Report on any stakeholder mitigations that were agreed to be monitored.

Although the stakeholder consultation included an assessment of the safeguarding principles, no mitigation measures were identified during the stakeholder consultation.

>>

G.3. Provide details of any legal contest that has arisen with the project during the monitoring period

N/A. The project is not involved in any legal contest.

>>

Revision History

Version	Date	Remarks
1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption