Gold Standard for the Global Goals

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

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

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Key Project Information

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KEY PROJECT INFORMATION

This template has been revised to aid a consistent interpretation and to better support project developers submitting documentation for certification. Please read the accompanying guide to understand how to complete this template accurately.
TEMPLATE GUIDE Monitoring Report v. 1.1

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Key Project Information

GS ID (s) of Project (s)	GS 5642
Title of the project (s) covered by monitoring report	Burn Stoves Project in Kenya
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	4.8 09/06/2023
Version number of the monitoring report	4.0
Completion date of the monitoring report	09/11/2023
Date of project design certification	28/02/2018
Date of Last Annual Report	N/A
Monitoring period number	4th
Duration of this monitoring period	01/04/2022 to 13/03/2023 (both days included)
Project Representative	ECOA Climate Capital
Host Country	Republic of Kenya
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), version 03.1
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 (mandatory)	Emission Reductions	492,874	VERs
1 End poverty in all its forms everywhere	Monetary savingsrelated to the purchase of firewood	USD 68.61	Annual monetary savings as calculated in in USD per household
3 Ensure healthy lives and promote well-being for all at all ages	Perceived air quality	95.63%	Percentage of households reporting improved perception of in-door air quality
4. (Quality Education) Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university	Number of people receiving skill development training	37	Number of people who participated in project training
5. (Gender Equality) Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household	Average time saving associated with cooking in the project scenario	83	Average time saved cooking for women in the project scenario (measured in minutes reported by end-user)
7. (Affordable and Clean Energy) Ensure universal access to affordable, reliable and modern energy services	Number of sold/distributed ICS in use	243,830	Number of sold/distributed ICS in use

8. Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all	Number of jobs created	26	Number of jobs created
15. (Life on land) Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	Total non-renewable biomass saved	381,830	Tons of non-renewable biomass saved in the project scenario from continued use of project technologies

Table 2 – Product Vintages

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/04/2022	31/12/2022	390,606
01/01/2023	13/03/2023	102,268

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

>> Burn Stoves Project in Kenya ("the Project") seeks to improve health and incomes throughout Kenya by reducing time and money spent acquiring fuel for household cooking.

Background

This project started as part of GS966 "Paradigm Healthy Water and Cookstoves Project". However, it underwent successfully design change with the Gold Standard and a new project was created for Burn manufacturing and the project was registered on 28th February 2018. In addition, the project underwent success crediting period renewal and was successfully renewed. On 31/10/2022, BURN transferred it's role as Project Developer of the Project to Ecoa Climate capital[1].

Project Objective:

Healthy Kitchens in Kenya ("the Project") seeks to improve health and incomes throughout Kenya by reducing time and money spent acquiring fuel for household cooking.

Project Plan:

To achieve this goal, the project will help Kenyans access healthy, energy saving cookstoves. In order to reach a wide range of Kenyans with the most appropriate technology, the project leverages carbon finance to support the sale and distribution of stoves to households. In addition, the project uses carbon finance to develop local market channels and to support other partners as they create sustainable distribution networks of locally appropriate efficient stoves.

Baseline Household Stoves:

Most Kenyan households spend a significant portion of their time and income acquiring fuel for cooking. The continual collection of firewood and charcoal by Kenyan populations results in the exhaustion of wood supplies around townships and villages across the country. Many people are forced to travel further from the town to collect wood fuel. In the worst cases, mothers are gone for many hours, causing difficulty for children and nursing infants. In some communities, girls are also tasked with collecting firewood, a responsibility which can keep them from attending school. An efficient charcoal stove can cut down the daily fuel consumed thus

[1] Source: Amended Cover Letter

necessitating fewer trips to collect fuel or less money spent on charcoal per week. Efficient, improved stoves are a more sustainable, economic and healthier way to cook.

The project intends to make available to all counties of Kenya each of the project technologies. Additional distribution partners and networks are progressively added to the project activity.

Ecoa Climate capital actively seeks local partnerships to enable access to communities that previously have had limited exposure to new technologies.

The project activity will continually assess technology options with the goal of providing the highest performing, most affordable, and most locally appropriate technologies to Kenyans. These objectives will be carefully balanced to identify the best technology for the project. The first technologies presented for crediting, along with additional new technologies added to the project through the design change are presented below. Household Stoves Burn Charcoal Stove (Jikokoa)



Figure A.1.1: Photo: Burn Design Charcoal Stove

Testing Data[2]

Power Output: 1.175 kW

Thermal Efficiency: 44.9%

[2] Kenya Industrial Research and Development Institute (K IRDI) Testing Report

The Jikokoa stove is a charcoal stove featuring a refractory metal combustion chamber backed by abrasion resistant, lightweight ceramic insulation. This combination increases durability, efficiency and safety of the stove.

A.2. Location of project

>> Republic of Kenya

Region/State/Province etc.- All the 47 counties of Kenya are covered by the project.

City/Town/Community etc.- Whole country of Kenya

GPS coordinates[3] for the Republic of Kenya:

Latitude: 0° 10' 36.73" N

Longitude: 37° 54' 29.98" E

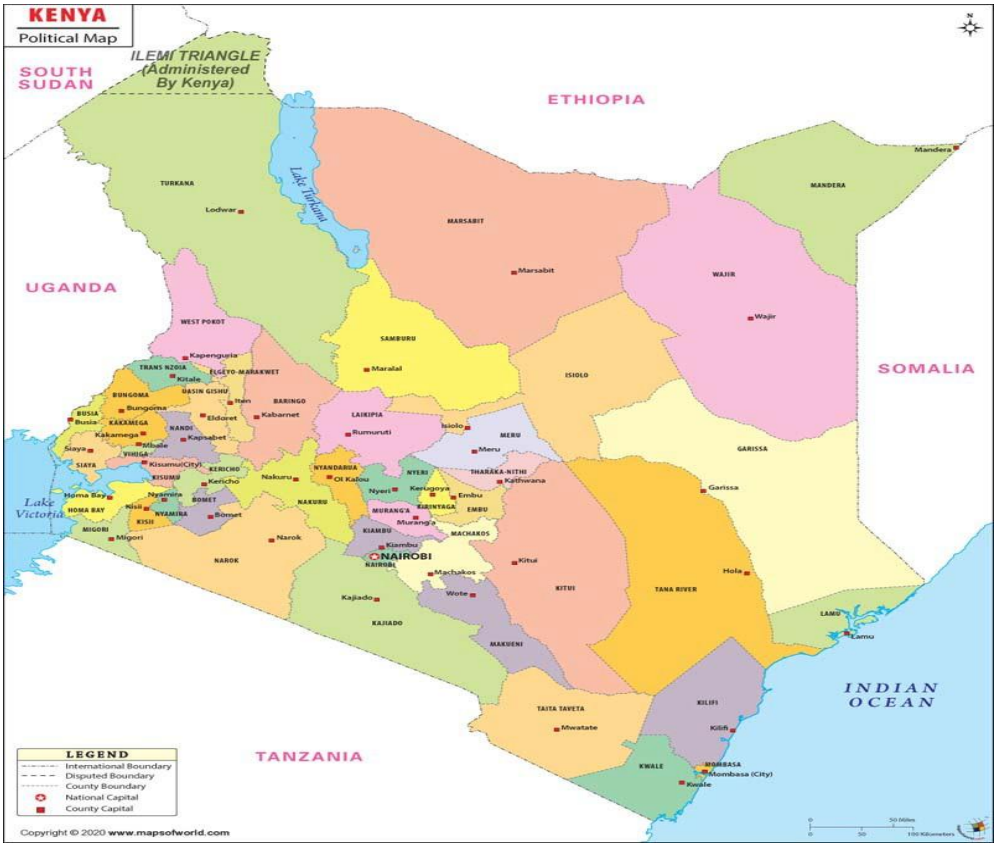


Figure A.2.1 Map of Republic of Kenya

[3] https://latitude.to/map/ke/kenya

A.3. Reference of applied methodology

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Technologies and Practices to Displace Decentralized Thermal Energy Consumption, version 3.1

i. Tool for the demonstration and assessment of additionality (TOOL 01 Version 07.0)[4].

ii. Tool for Calculation of the fraction of non-renewable biomass (TOOL30 Version 3.0)[5]

A.4. Crediting period of project

>> The crediting period of the project GS5642 is from 26/04/2017 – 25/04/2024 Renewable crediting period (7 years, renewable 2 times)

[4] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v3.pdf

[5] chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v3.0.pdf

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

>> Burn has been selling stoves in Kenya since 2012 and continues to do so. Till 30/11/2020, BURN had distributed 379,652 Jikokoa cookstoves in different regions of Kenya. Out of which 12,364 stoves have aged beyond their self-life of 10 years hence not accounted in the calculations. During this monitoring period, only 367,288 stoves were found within the 10 years lifespan specified by manufacturer. The Jikokoa stove is a charcoal stove featuring a refractory metal combustion chamber backed by abrasion resistant, lightweight ceramic insulation. This combination increases durability, efficiency and safety of the stove.

Each cook stove produced and distributed under GS 5642 has a serial number tag/sticker, which identifies the cookstove assigning it a unique serial number, which can be tracked against other data such as the end user name and location and factory shipment records.

Once the stove is produced, it has a serial number attached which is scanned into the factory's production database. The serial number is also scanned at dispatch and assigned to a customer. The customer details are retained. This process records the dispatch date of the stove and the quantity sold to each customer or retailer. During warranty activation, the serial number is matched, and the end user details are collected through the "Echomobile" application software. All the records of sales are recorded in electronic format.

The project has been implemented as described in the PDD. With reference to Design change approval dated 28/06/2023, there have been 2 permanent changes have been approved in relation to the Sustainable development goals and frequency of Monitoring of the baseline fuel consumption. The number of project Sustainable Development Contributions has been increased from the current four (4) SDG goals (SDGs 1, 3, 8 & 13) to a total of 8 goals with addition of SDGs 4,5,7 & 15. Baseline Fuel consumption is now fixed ex-ante and not monitored biennially.

At the end of this monitoring period 369,570 had been distributed. The below table shows year wise distribution of the stoves for this project:

Year of distribution	Distributed in GS 5642
2014	22,933
2015	56,028
2016	71,064
2017	83,034

2018	53,651
2019	44,695
2020	34,422
2021	1,461
TOTAL	**367,288**

B.1.1 Forward Action Requests

>> N/A - During the previous monitoring period, covering the period 01/06/2020 to 31/03/2022 no FAR was raised from the performance review. However, 1 FAR was raised from the Verification report as seen on page 33 from the verification report of the previous Monitoring period (MPIII):

"The project activity should undergo a design change before the next verification for the revision of monitoring plan for the parameter Pb,y. (Baseline charcoal consumption) The monitoring plan should be changed from ex-post to fixed ex-ante".

PD carried out design change that has revised the parameter Pb,y such that the parameter is now fixed ex ante. This design change was approved on 28 June 2023. The approval form has been shared as a support documentation.B.2. Post-Design Certification changes

>>

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

>> N/A - No Temporary deviations.

B.2.2. Corrections

>> No Corrections

B.2.3. Changes to start date of crediting period

>> No Change

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

>> With reference to Design change approval dated 28/06/2023, the following permanent changes have been approved in relation to the Sustainable development goals and applied Baseline:

1. The number of project Sustainable Development Contributions has been increased from the current four (4) SDG goals (SDGs 1, 3, 8 & 13) to a total of 8 goals with addition of SDGs 4,5,7 & 15. Appropriate target indicators, methodological choices and monitoring approaches have been included in the updated PDD version 4.8 dated 09/06/2023.
2. Baseline Fuel consumption (parameter Pb,y) has is now fixed ex-ante and not monitored biennially. This can be seen in the updated PDD version 4.8 dated 09/06/2023

3. The non-CO2 emission factor that was previously being claimed as 0 has been updated to 9.46 tCO2/TJ. This value is based on the IPCC guidelines.

4. The Net Calorific Value ("NCV") in the PDD has been adjusted to 0.015 TJ/ton for wood fuel. In furtherance of this change, the PD further adjusted the NCV in the emissions reductions calculations to 0.156 TJ/Ton respecting the Gold Standard clarification CL_171 issued on 08/06/2023.

Impacts of Design Change

a. Additionality

>> There is no impact on the additionality as the project continues to be deemed additional pursuant to the Community Services Activity Requirements, as per which:

"*Project activities solely composed of isolated units where the users of the technology/measure are households or communities or institutions and where each unit results in <= 600 MWh of energy savings per year*" are deemed additional.

b. Applicability of methodology and other methodological regulatory documents with which the project activity has been certified.

>> There is no impact on any applicability of the methodology or other methodological regulatory documents.

c. Compliance with the monitoring plan and the applied methodology

>> The approved changes impact the monitoring plan as stated in the updated (post-Design Change) PDD however, all changes are in compliance with the methodology TPDDTEC v3.1.

The parameter Pb,y has been made an ex-ante parameter instead of ex-post monitoring annually.

Additionally, the PP has added 4 more SDGs to the project namely:

- Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5. Achieve gender equality and empower all women and girls

- Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

The non-CO2 emissions factor, and the NCV have also been updated, both of which are consistent with the IPCC defaults provided in the methodology.

- d. Level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan

>> No changes to the level of accuracy or completeness

- e. Project Scale (note suppressed demand rules for large scale)

>> No change and the project remains large scale

- f. Stakeholder feedback on design change

>> Since the proposed design change is on ex-ante monitored parameters, there is no bearing on stakeholders

- g. Sustainable Development Assessment

The PP has added 4 more SDGs to the project namely:

- Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5. Achieve gender equality and empower all women and girls
- Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

- h. Safeguarding Assessment

>> There is no change to the Safeguarding Assessment

- i. Legislation

>> There is no change to compliance with legislation.

B.2.5. Changes to project design of approved project

>> No Change

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

>> Stoves were distributed to end-users by BURN directly or through dedicated distributors. Distributors were trained on the stove distribution and data collection procedures.

The CME operates and manages an electronic data management system that stores information on and track all efficient cooking technologies under the project. As a minimum the following information will be recorded through EcoMobile in the database:

- Unique serial number (USN) of the ICS
- Date of shipment to distributor/retailer
- Name of distributor/retailer
- Quantity of ICS distributed
- Geographic area (state) of distributor/retailer
- Model type of the ICS

Besides, the distribution database will contain end-user contact details (name, state, mobile number, or national ID number) of at least 10 times the survey and field test sample size (including usage surveys for each age of product), to ensure an adequate end-user pool to which random sampling can be applied. To claim the ICS warranty, end-users have to register their end-user details through SMS or call.

The USN of each ICS entered into the distribution database will be linked to a distribution date (recorded during distribution) or shipment date. Thus, for any monitoring period it is possible to calculate the period of time for which the stoves included in the emissions reduction calculations are deemed operating. If for e.g. a stove has been operating for 180 days, then the full-year operating fraction is 0.493 (=180/365 days stove will be counted as operational (= start crediting) from the next day following the stove distribution or after a conservatively calculated period of the date of shipment. The sum of the operating fractions of all appliances determines the equivalent full-time appliances for the monitoring period.

The USN has the following format comprising of 9 digits:

1st digit	2nd digit	3rd	4th	5th	6th	7th	8th	9th
Product ID	100000th	10000th	1000th	100th	10th	Random	Random	1st
ID	S1	S2	S3	S4	S5	R1	R2	S6

Each section on the USN will identify the product as follows:

• Product type: the first digit identifies the stove type (e.g. Jikokoa)
• # Production number: S1 to S6 are digit slots for a sequential numbering ordered by time of production, allowing for 1 million unique serial numbers. For instance, the first stove off the line would have "000000" for its S1-S6 digits.
• Random digits: R1 and R2 are 2 random digits placed in slots 7 & 8, to make the USN unpredictable to outside parties

Example for USN: 105097338
• "1" stands for Jikokoa product ID
• "050978" for S1-S6, meaning it was the 50,979th Jikokoa produced
• "33" for R1-R2, the random digits

The data for the system will be updated and modified as required to allow for optimal performance of each VPA implementation and monitoring. All data will be stored for at least two (2) years after the expiry of the crediting period.

SECTION D. DATA AND PARAMETERS

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

>>

SDG13

Data/parameter	$EF_{b,wood,CO2}$
Unit	tCO_2/TJ
Description	CO2 emission factor arising from use of fuel wood in baseline scenario
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.5)

Value(s) applied	112
Choice of data or Measurement methods and procedures	Default IPCC value for fuel wood is applied
Purpose of data	Calculation of baseline emissions
Additional comment	If EF is in units of tCO2/t_fuel, remove NCV term from emission calculations. Term can include a combination of emission factors from fuel production, transport, and use.

Data/parameter	$EF_{b,wood,non-CO2}$
Unit	tCO2e/TJ
Description	Non-CO2 emission factor arising from use of fuel wood in baseline scenario
Source of data	IPCC Default value
Value(s) applied	9.46
Choice of data or Measurement methods and procedures	IPCC Default value
Purpose of data	Non-CO2 Emission calculation in baseline
Additional comment	The non-CO2 emission factor is based on the AR5 GWP values.

Data/parameter	$EF_{p,wood,CO2}$
Unit	tCO2/TJ
Description	CO2 emission factor arising from use of fuel wood in project scenario
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, volume 2, chapter 2 (Table 2.5)
Value(s) applied	112

Choice of data or Measurement methods and procedures	Default IPCC value for fuel wood is applied.
Purpose of data	CO_2 emission calculation in project scenario
Additional comment	

Data/parameter	$EF_{p,wood,non-CO2}$
Unit	tCO_2e/TJ
Description	Non-CO2 emission factor arising from use of fuel wood in project scenario
Source of data	IPCC Default value
Value(s) applied	9.46
Choice of data or Measurement methods and procedures	IPCC Default value
Purpose of data	Non-CO_2 emission calculation in project scenario
Additional comment	The non-CO2 emission factor is based on the AR5 GWP values.

Data/parameter	NCVb
Unit	TJ/ton of fuel wood
Description	Net calorific value of the fuel wood used in baseline
Source of data	IPCC default 2006, volume 2, chapter 1 (Table 1.2)
Value(s) applied	0.0156
Choice of data or Measurement methods and procedures	Default IPCC value for fuel wood is applied.
Purpose of data	CO_2 emission calculation in baseline scenario
Additional comment	-

Data/parameter	NCV_p
Unit	TJ/ton of fuel wood
Description	Net calorific value of the fuel wood used in project scenario
Source of data	IPCC default 2006, volume 2, chapter 1 (Table 1.2)
Value(s) applied	0.0156
Choice of data or Measurement methods and procedures	Default IPCC value for fuel wood is applied.
Purpose of data	CO_2 emission calculation in project scenario
Additional comment	-

Data/parameter	$f_{NRBi,y}$
Unit	fraction
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Source of data	C4EcoSolutions report
Value(s) applied	0.97
Choice of data or Measurement methods and procedures	fNRB assessment based on CDM fNRB tool, Tool 30, version 03.0
Purpose of data	Emission Reduction calculation
Additional comment	The fNRB value will remain fixed during the crediting period

Data/parameter	$P_{b,y}$
Unit	t/household/year
Description	Quantity of charcoal (in firewood equivalent terms) that is consumed in baseline scenario b during year y
Source of data	Baseline Survey

Value(s) applied	3.58
Choice of data or Measurement methods and procedures	KT measurements using weighing scale and moisture meter Digital Moisture Detector- Wood moisture Wood range- 4-75% Accuracy- ± 0.5% Weighing scale Hook type with temperature 50 kgs
Purpose of data	Calculation of baseline emissions
Additional comment	A single baseline fuel consumption parameter is weighted to be representative of baseline technologies being compared for project crediting. The average charcoal consumption per household in the baseline was 1.6335 kg/hh/day . This was validated and verified in the second Monitoring period of the second crediting cycle. In addition, Gold Standard has approved the use of these results from the baseline via email communication dated 17 June 2022 which stated: *"Have you conducted any survey for the baseline KPT in the second crediting period and derived any value?* *a. If yes, then use the most conservative one out of the value fixed at design certification renewal and the value derived from baseline KPT"* The Baseline fuel consumption applied is the most conservative value as compared to the fixed value applied in CP1.

D.2 Data and parameters monitored

>>

Data / Parameter	$N_{p,y}$
Unit	Number of project cookstove credited (units)
Description	Cookstoves in the project database for project scenario p through year y
Source of data	Distribution database
Value(s) applied	303,298

Measurement methods and procedures	BURN keeps records of all distributed ICS in an electronic database. As a minimum the following information will be recorded through EchoMobile[6] in the database: • Unique serial number (USN) of the ICS • Date of shipment to distributor/retailer • Name of distributor/retailer • Quantity of ICS distributed. • Geographic area of distributor/retailer • Model type of the ICS Besides, the distribution database will contain end-user contact details (name, address, mobile number, or national ID number, mode of use) of at least 10 times the survey and field test sample size (including usage surveys for each age of product), in order to ensure an adequate end-user pool to which random sampling can be applied. In order to claim the ICS warranty, end-users have to register their end-user details through SMS or call.
Monitoring frequency	Continuously
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Estimation of CO_2e emission reductions
Additional comment	The total distribution record is divided based on project scenario to create the project database. Any multiple use of the same BURN ICS as well as the lag time between sale/shipping and actual usage is conservatively taken into account.

Data / Parameter	$U_{p,y}$
Unit	Percentage

[6] https://www.echomobile.org

Description	Usage rate in project scenario p during year y
Source of data	Annual Usage Survey
Value(s) applied	66.39%
Measurement methods and procedures	Calculated
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To calculate the Usage rate in project scenario p during year y.
Additional comment	A single usage parameter is weighted to be representative of the quantity of project technologies of each age being credited in a given project scenario. The mandatory and Good Practice level as per the 'GS Requirements and Guidelines: Usage rate Monitoring' is being followed as follows -. • A "user" is defined as a household which uses the project stove for at least 7 meals per week and who indicated the last usage within a week. Usage was confirmed during monitoring/usage surveys. • All surveys were in person physical household visits. • The primary cook was interviewed to ascertain the kitchen practices along with some photographs of the General kitchen area showing all stoves in use in the household taken. • The geo coordinates of all the Households visited in person were also recorded. • The results were cross verified by BURN Manager by calling sampled HH to check if they were called or visited by BURN team and verify the response. • As a Good practice training is provided to field staff on how to carry out the Usage surveys. • The records of training, demonstrations at the point of sale, post-sale follow up with end users and awareness campaigns has been submitted to VVB. As per the manufacturer's specifications the lifetime of the Jikokoa stove is between 7 to 10 years. As a significant drop in the usage rate is observed, some stoves have not been considered for calculation from the database during the lifetime and not credited anymore.

Data / Parameter	$P_{p,y}$
Unit	t/household/year
Description	Quantity of charcoal (in firewood terms) that is consumed in project scenario p during year y

Source of data	Total sales record, Project FT, project FT updates, and any applicable adjustment factors
Value(s) applied	1.96[7]
Measurement methods and procedures	KT measurements Digital Moisture Detector- Wood moisture Wood range- 4-75% Accuracy- ± 0.5% Weighing scale Hook type with temperature 50 kgs
Monitoring frequency	Updated every two years
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculation of project emission reductions
Additional comment	A single project fuel consumption parameter is weighted to be representative of the quantity of project technologies of each age being credited in a given project scenario. The value is based on the Project Kitchen Performance Test carried out from 22nd November 2021 to 25th February 2022

Data / Parameter	$LE_{p,y}$
Unit	tCO_2e per year
Description	Leakage in project scenario p during year y
Source of data	Baseline and monitoring surveys
Value(s) applied	0
Measurement methods and procedures	-
Monitoring frequency	Every two years

[7] Biennial Project KPTs were conducted in MPII from 22nd November 2021 to 25th February 2022.

QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Used to calculate leakage emissions
Additional comment	Aggregate leakage can be assessed for multiple project scenarios, if appropriate

SDG 1

Data / Parameter	Monetary savings related to the purchase of charcoal
Unit	Monetary savings based on fuel savings and prevailing fuel cost
Description	Monetary savings related to the purchase of charcoal Per household per day
Source of data	Usage/monitoring survey
Value(s) applied	USD 68.61
Measurement methods and procedures	Carrying out surveys (either site visits or telephone surveys) to check on the money spent for purchasing charcoal in the project scenario compared to the baseline scenario.
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	-
Purpose of data	Reporting on SDG 1
Additional comment	This parameter is measured qualitatively, but not quantitatively.

SDG 3

Data / Parameter	Perceived air quality
Unit	-
Description	Smoke levels, itchy eyes and breathing problems
Source of data	Usage/monitoring survey
Value(s) applied	95.63%
Measurement methods and procedures	Carrying out usage surveys (either site visits or telephone surveys) to check on the pollution-related inconveniences (such as smoke levels, itchy eyes and breathing problems) in the

	project scenario
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	-
Purpose of data	Reporting on SDG 3
Additional comment	This parameter is measured qualitatively, but not quantitatively.

SDG 4

Data / Parameter	Number of people trained/ year
Unit	Number
Description	Number of people who participated in project trainings
Source of data	Training records and participation lists
Value(s) applied	37
Measurement methods and procedures	Training records and participation lists
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Reporting on sustainable development of the project
Additional comment	

SDG 5

Data / Parameter	Average number of minutes saved while cooking in project scenario (user estimate of comparative cooking time in baseline to project scenario)
Unit	Minutes
Description	Number of minutes spent on average for cooking in the project scenario
Source of data	Project monitoring survey
Value(s) applied	83

Measurement methods and procedures	Statistical average of the end-user reported difference between the number of minutes spent cooking in the project scenario compared to baseline conditions for similar meals
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Reporting on sustainable development of the project
Additional comment	

SDG 7

Data / Parameter	Number of sold/distributed ICS in use
Unit	Number of units in use
Description	Number of sold/distributed ICS in use
Source of data	Project database & supporting files
Value(s) applied	243,830 The usage rate is 66.39%
Measurement methods and procedures	Calculated: Total stoves Distributed * Weighted Average Usage rate
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Reporting on sustainable development of the project
Additional comment	This value is calculated by Multiplying the Total Number of stoves assumed to be distributed in the Project over the Crediting Period by the Usage rate per year

SDG 8

Data / Parameter	Average hourly earnings of female and male employees, by occupation, age and persons with disabilities
Unit	Number
Description	Number of people directly employed by the project

Source of data	Project records
Value(s) applied	26
Measurement methods and procedures	Direct measurement based on employment numbers of those employed directly by the project
Monitoring frequency	Annually
QA/QC procedures	Employee list can be cross-checked with contracts/payment slips or others
Purpose of data	Reporting on SDG 8
Additional comment	-

SDG 13

Data / Parameter	Number of people/households with access to the energy efficient cook stoves and the usage rates of efficient cook stoves.
Unit	Number of stove users and usage rate
Description	Number of stove users and usage rates
Source of data	Stove database records and surveys
Value(s) applied	The project has been selling stoves in Kenya since inception and currently there are 367,288 active households who have access to the stove within the period of monitoring. However, by adjusting with usage rate, the number of stoves reduces to 303,298 and this is the number which claims emission reductions. The weighted average usage rate for the project is 66.39%
Measurement methods and procedures	Usage Surveys
Monitoring frequency	Annually
QA/QC procedures	Check of database to ensure consistency of reported data Reporting on sustainable development of the project
Purpose of data	Reporting on SDG Impacts of the projects
Additional comment	-

SDG 15

Data / Parameter	Total amount of non-renewable fuel savings due to displacement or energy efficiency improvements of baseline technology
Unit	Tons
Description	Reduced non-renewable biomass consumption attributed to charcoal savings
Source of data	Project database, Monitoring & Usage Surveys
Value(s) applied	381,830
Measurement methods and procedures	Computed as a function of specific fuel savings for an individual technology multiplied by the total number of operational technologies (discounted for usage rate in the monitoring period) and the non-renewable Biomass fraction in Kenya.
Monitoring frequency	Annually
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Reporting on sustainable development of the project
Additional comment	-

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

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
$P_{b,y}$	3.58 tons	3.58 tons
$P_{p,y}$	1.96	1.96
$U_{p,y}$	66.39%	67.94%
$N_{p,y}$	303,298 technology days	370,606 technology days
$LE_{p,y}$	0	0
Perceived Air quality	95.63%	96.33%
Equivalent monetary savings	USD 68.61 Per household per year	USD242.10 Per household per year

Number of people trained/ year	37 persons	N/A[8]
Average time saved cooking for women in the project scenario (measured in minutes per day per household reported by end-user)	83 minutes per day	N/A[9]
Total Jobs	26 jobs	242 jobs
Number of people/households with access to the energy efficient cook stoves and the usage rates of efficient cook stoves.	243,830 ICS units active Usage rate- 66.39%	370,606 ICS units active Usage rate- 67.94%
Tons of non-renewable biomass saved in the project scenario from continued use of project technologies	381,830 tons	N/A[10]

D.4. Implementation of sampling plan

>>

Monitoring/Usage Surveys

Methodology Followed

Data collection for usage/monitoring survey was conducted from 13 March 2023 to 5 May 2022, where a total of 358 Usage Monitoring surveys were conducted. A team of 37 enumerators

8 SDG 4 is a new SDG included in GS 5642 from the Design change mentioned in this Monitoring report. No values exist for the previous MP as a result

9 SDG 5 is a new SDG included in GS 5642 from the Design change mentioned in this Monitoring report. No values exist for the previous MP as a result

10 SDG 15 is a new SDG included in GS 5642 from the Design change mentioned in this Monitoring report. No values exist for the previous MP as a result

were trained for the data collection by BURN team to ensure understanding of usage/monitoring requirements, data collection procedure, and specific requirements pertaining to KPTs.

The training was adequately tailored to usage surveys and included an interactive discussion of questions with surveyors, going through the questions of the usage survey questionnaire (data collection form), role plays as well as interview techniques.

Monitored Parameters related to SDG 13

1. Up,y - Usage rate in project scenario p during year y
2. Np,y - Project technologies credited (units)
3. LEp,y - Leakage in project scenario p during year y

Sampling frame

The sampling frame for the usage/monitoring survey consisted of households registered with end-user details (like location, phone number, etc) in BURN´s sales database. Sampling based monitoring was carried out for two monitoring parameters: Usage rate and Project Fuel consumption. The Project fuel consumption values are being used from the results of a KPT conducted in the previous Monitoring period as it is being applied at a biennial frequency. The KPT was applicable as it was established that the precision level of 90/10 was achieved, and the average fuel savings was therefore used for the ER calculations. Usage rate sampling was applied as discussed below:

Sampling Method

The simple random sampling approach was used.
Registered households were randomly selected by using a random generator. With random numbers generated, the matching stoves were then selected from the database and their details were identified and contacted via telephone to make bookings for availability for physical visits.

Usage Monitoring Survey Sample Size

As per the applied methodology, the minimum total sample size is 100, with at least 30 samples for project technologies of each age being credited. Since there were no stove distributed in the project from December 2020 onwards, and the end date of the Monitoring period was on 13 March 2023, there were consequently no stoves to sample in Ages 0-1 and 1-2. No stoves were sampled from Age 9-10 as this age is deemed to exceed their useful life, and therefore

conservatively not sampled or considered in the ER calculations. The project developer sampled from the 7 age groups as follows:

Age Group	Number of Usage Surveys Sampled	Users	Non Users
Age group 0-1	0	0	0
Age group 1-2	0	0	0
Age group 2-3	30	27	3
Age group 3-4	36	32	4
Age group 4-5	47	40	7
Age group 5-6	82	59	23
Age group 6-7	67	44	23
Age group 7-8	65	27	38
Age group 8-9	30	8	22
Age group 9-10	0	0	0
TOTAL	**357**	**237**	**120**

Of these 357 sampled HHs 237 HHs reported using ICS whereas 120 HHs had damaged ICS or were being used for commercial purpose.

In person Surveys

In person surveys were conducted for the purpose of both the usage/monitoring survey. Data was collected by trained enumerators who spoke the local language.

Unreachable and declining households

Out of all surveys conducted, there were households that declined to participate in the surveys, while others were unreachable during the duration of the survey period. For all unreachable households, the PP ensured to make at least 3 separate attempts to reach the household before they were discounted as unreachable. To replace such households, the PP ensured to select the next available household in the randomized list of households until they found a household available for the surveys. A total of 1,619 households were replaced due to unreachability of the households at the time of the surveys, while another 1,976 households declined to participate in the surveys for various reasons.

The main reasons for replacement of households selected were:

i. The telephone number could not be reached at least 3 attempts made on 3 days

ii. Uncooperative/Hostile respondents; e.g. did not want to participate

iii. The primary cook unavailable during the data collection period e.g. travelled.

1. Mandatory Monitoring Requirements:The Project has met the Mandatory requirements for Usage surveys in MP4 as demonstrated below:

Step 1. Defining stove use and non-use: A Jikokoa User has been defined based on last day of use of the stove, Frequency of use of the stove, Mode of use of the stove, signs of use of the Stove, as summarized below:

Category	**Definition of a User**	**Definition of Non User**
Frequency of Use	At least 7 times in a week	Less than 7 times in a week
Last day of Use	Less than or equal to 7 days ago	More than 7 days ago
Mode of Use	Domestic	Commercial
Observable Signs of Use (Ashes/warm to touch, etc)	1. Warm to the touch 2. Ashes/Embers visible 3. Food debris on stove 4. Cooking taking place	No observable signs of use

In MP4, only households who meet the definition of a User have been considered as users as per step 1 above.

Step 2: Household Usage Surveys:

All surveys were conducted via in person household visits to determine the project technology use. The usage surveys included the following activities:

i. Kitchen Observation: The enumerators visited households to gather objective information to support usage findings e.g. checking if there were any observable signs that the stove was in use by checking if the stove was warm to the touch, whether there were ashes present on the stove, embers of charcoal on the stove, food debris on the stove, or whether there was cooking taking place at the time of the Usage survey visit. Any of these observations would indicate that the stove is indeed in use. Outcomes of these observations would counter

against survey bias from the respondent answering questions in a way that they think the interviewer wants to hear. Any household that showed no sign of use of the stove was discounted as a non user.

ii. Interview with the Primary cook: The enumerators made sure to interview the Primary cook of the household to gather information on the project stove use patterns including information on frequency of use, and presence of any other stoves in the home in use.
All respondents interviewed for the Usage surveys confirmed to be the primary cooks.

iii. Photos of the Cooking Area(s): The enumerators took photographs of the project technology to gather visual data on the status of the project technology, whether the stove is abandoned, damaged, or being actively used was all captured via clear photographs. The photos took showed the whole kitchen, including all the stoves in use. The Photos also serve to provide confirmation that the household was visited.
All households visited for the usage surveys have photos of their general kitchen areas taken.

iv. GPS Coordinates: The enumerators recorded the GPS coordinates of the households visited. The Geo coordinates provide verification that the household was visited.
All households in the Usage survey sample set had their Geo location captured and recorded.

Step 3: Verification Checks:

The verification checks of survey data was performed by the project developer prior to verification by the Verification/Validation Body (VVB). At the conclusion of the data collection phase of the survey, the project developer representative telephoned a randomly selected 6% of the surveyed households to verify that homes were visited by surveyors and the recorded responses are correct. The project developer has recorded the audio telephone calls with the details of the households and responses provided that have been reached via telephone.
In total 22 randomly selected households out of the total 357 households in the sample frame were taken through verification checks and in all cases, the responses confirmed what was reported in the Usage surveys as well as confirmed that the households were visited for the Usage Surveys.

PD has therefore met all the requirements for the Mandatory Usage requirements in the Requirements and Guidelines: Usage Rate Monitoring version 2.0

2. Good Practice Monitoring Requirements:
BURN has claimed up to a maximum of 90% usage rate following the below Monitoring requirements in addition to the Mandatory requirements described above:

i. Field Team Training and Supervision: BURN provided training and supervision necessary to ensure enumerators had the capacity required to complete usage survey successfully. The training of the field team was key to obtain a complete and accurate stove use dataset. Both male and female enumerators were trained. A training workshop was held on 8th March 2023, which was 5 days away from the first Usage Monitoring survey conducted. The aim of the training workshop was to ensure that all team members have the knowledge and skills to carry out the usage surveys with confidence and to a high standard. The team members were trained on among other things the usage survey objectives, data collection and management processes, and protocols for troubleshooting issues arising during the field work.
Daily supervision was conducted in the following ways:
i. WhatsApp Group: The Project Manager created a group WhatsApp for the enumerators. In this way the Project Manager could ensure that all questions coming in from the field were addressed in real time as they were happening
ii. Direct Observation: The Project Manager ensured to accompany enumerators in the first days of the data collection exercise to ensure that correct procedures were being followed as per training given to the teams.
iii. Data Review: The survey data was reviewed daily in team meetings with the project manager, and the field team supervisors. The surveys were created in such a way that as soon as the enumerator finished his/her survey, they would sync the data and it would immediately be received in the BURN database. In that way, the data analysis report could be generated daily, and errors flagged. The Project manager and team leaders would then call enumerators to seek clarifications and provide additional guidance where a clear lack of understanding of survey questionnaire or survey protocols were addressed.
The training of enumerator can be evidenced by signed participant lists which were signed by the trained team of enumerators at the end of the training workshop.

ii. End-User Training and follow up visits: In a bid to encourage ensure correct and sustained use of the project stove, BURN engages its sales agents to conduct post-purchase visits with a random sample of households who purchase the Jikokoa stoves. The in-person visits provide a useful interface through which BURN can provide personalized messaging on stove use and to understand any concerns that end users might have on stove-use, repairs, or warranty information.

During this Monitoring period, BURN conducted household visits to some of the end users to check on the use of stove and retrain the proper use to the stove where needed.



Figure 1 Margaret Nyambura, SN: 1926858322-Kiambu County being explained on how to use the stove



Figure 2 Mercy Muthoni SN: 1836135133-Nairobi County learning how to remove the ash from the stove from Burn's Agent

iii. Awareness campaigns: In this Monitoring period, BURN has carried out awareness campaigns to make sure end users of the Jikokoa stoves are aware about the continuous use of the ICS and the key benefits of the stove. These are carried out during sales promotion as well as during end user household training visits. A record of all awareness campaigns held has been provided as a support document.
Within the monitoring period, BURN rolled out its awareness campaigns through the following mediums:

1. Market Activations

Market activations are organized as a combined promotional activity as well as an opportunity to demonstrate the use of the stoves to potential end users as well as an opportunity to show case the benefits of the use of the Jikokoa in comparison to traditional stoves. These market activations are a particular useful medium because they are conducted in the local language and allow for an interface where trained sales agents can communicate stove use in an interactive setting. Market activations are conducted in all regions in which BURN distributes

stoves and conducted at least 5 times a month. BURN trains its team of sales agents prior to the market activations to ensure that the correct end user messaging is provided. As with all training and employment, BURN ensures that the sales agents recruited have an equal number of men and women in participation.



Figure 1 Sales Agent, explaining the stove usage in Voi-Kilifi County



Figure 2 Market Activation in Mombasa County

2. Media Advertisements

To further amplify end user awareness, BURN engages different mass media communication channels to communicate stove use and benefits. Within this monitoring period, BURN employed radio and social media advertisements, both in English and the local language.

The use of social media promotion (Facebook & YouTube) represents an evolution in the communication channels used to reach out to a wider audience of potential end users in Kenya. The messaging here retains the traditional focus on stove use, access and benefits but also allows for a visual medium that provides real time end user testimonials.

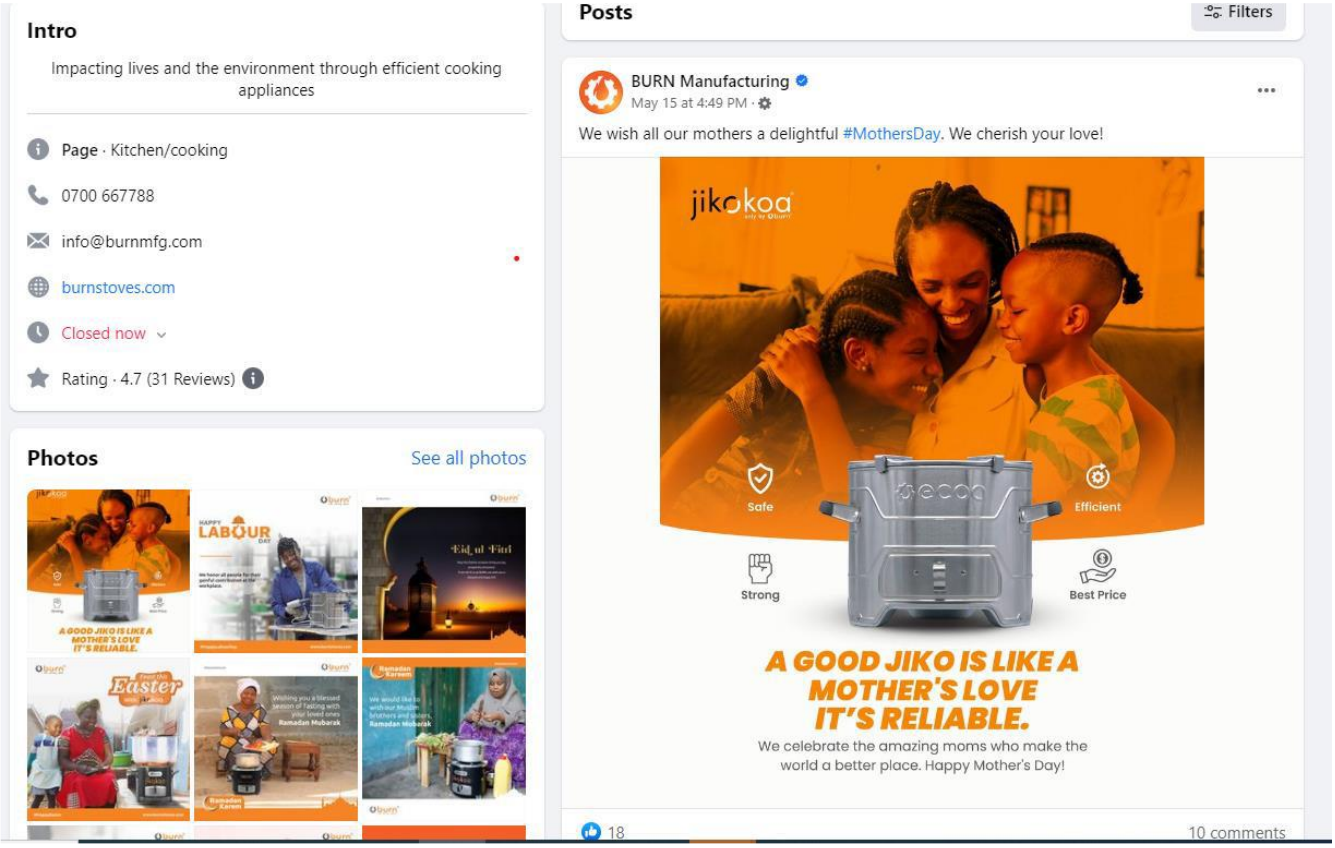
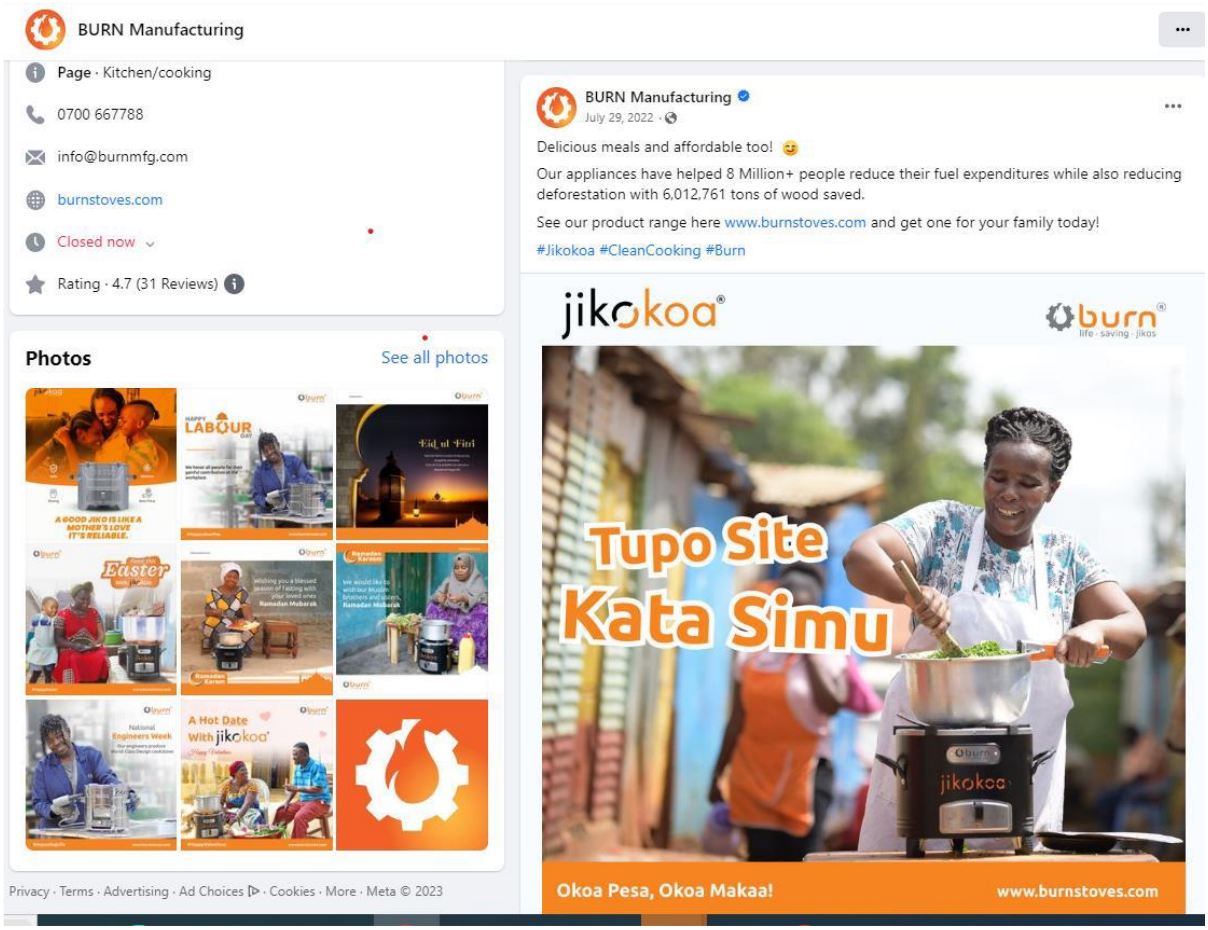


Figure 3: Post on Facebook creating awareness on stove's Fuel savings and Money savings on charcoal expenditure



3. Leaflet accompanying the stove.

To ensure that the end-user has a written record on stove use, a leaflet is provided in both English and Swahili with full instructions on stove use, warranty activation, carbon ownership and BURN contact information.

SECTION E. CALCULATION OF SDG IMPACTS

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

>> SDG 13: The transparent ex-ante calculations of the outcomes of SDG 13 (i.e. CO2e reductions) are provided in a separate excel spreadsheet uploaded to GS registry for the performance certification review.

The methodology directly provides the following equation for emission reductions;without separate baseline, project or leakage emission reduction equations.

$$ERy = \Sigma_{b,p} (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_{b,fuel} * (f_{NRB,b,y} * EF_{fuel,CO2} + EF_{fuel,nonCO2})) - \Sigma LE_{p,y}$$

Equation (1)

Baseline Emissions is calculated by:

$$ER_y = \Sigma_{b,p} (N_{p,y} * U_{p,y} * \underline{B_{,b,y}} * NCV_{b,fuel} * (f_{NRB,b,y} * EF_{fuel,CO2} + EF_{fuel,nonCO2})) - \Sigma LE_{p,y}$$

Equation (1)

BASELINE EMISSIONS									
Item	**Unit**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	Source
Project Technology Days (N)	days	19,013	46,451	58,917	68,841	44,481	37,056	28,538	See below
Cumulative Usage Rate (U)	fraction	66.39%	66.39%	66.39%	66.39%	66.39%	66.39%	66.39%	As per Usage Analysis
Baseline fuel consumption (Pb,y)	tons/household/year	0.596	0.596	0.596	0.596	0.596	0.596	0.596	Baseline KPTs
Non-renewable biomass fraction (FNRB,b, y)	fraction	97.00%	97.00%	97.00%	97.00%	97.00%	97.00%	97.00%	C4EcoSolutions report
Wood to charcoal conversion factor	fraction	6	6	6	6	6	6	6	IPCC default value
EF,b,wood, CO2 (combined)	tCO2e/t	112	112	112	112	112	112	112	IPCC 2006 default
EF,b,wood, nonCO2 (combined)	tCO2e/t	9.46	9.46	9.46	9.46	9.46	9.46	9.46	IPCC default value
Net Caloric Value Wood	TJ/t	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156	IPCC 2006 default
Leakage LE	tCO2e/t	0	0	0	0	0	0	0	Usage Surveys
Net Caloric Value LPG	TJ/t	0.0473	0.0473	0.0473	0.0473	0.0473	0.0473	0.0473	IPCC 2006 default
$EF_{b,LPG,CO2}$	tCO2/TJ	63.1	63.1	63.1	63.1	63.1	63.1	63.1	IPCC 2006 default
HH LPG use Project	t/hh/yr	0.04	0.04	0.04	0.04	0.04	0.04	0.04	Project KPTs
HH LPG use Baseline	t/hh/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Baseline KPTs
HH Firewood use Project	t/hh/yr	0.23	0.23	0.23	0.23	0.23	0.23	0.23	Project KPTs
HH Firewood use Baseline	t/hh/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Baseline KPTs
ER(tCO2e)		**83,190**	**203,244**	**257,787**	**301,209**	**194,621**	**162,133**	**124,867**	Calculated

Table showing: Calculation of Baseline emissions.

The total baseline emissions are 1,327,048 [11]Tco2e.

SDG 1

In the baseline scenario, it is estimated that the households are spending on average USD 140.39 per household per day on charcoal[12].

SDG 3

In the baseline scenario, it is estimated that 100% of the households suffer pollution- related inconveniences (such as smoke levels, itchy eyes and breathing problems).

Improved air quality is a result of the implementation of the project activity.

SDG 4

In the baseline scenario, it is estimated that no trainings are held in the absence of the Project, and therefore baseline value of 0[13] is applied for the baseline.

SDG 5

In the baseline scenario, there are no time savings related to use of an ICS.

11 Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "Baseline and Project Emissions" cell C37

12 Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "'KOBO Usage Survey Results" cell IC30

13 Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "SDG Calculations" cell C12

SDG 7

In the baseline scenario, it is estimated that no improved cookstoves are implemented, hence the baseline value is 0[14]. The distribution of improved cookstoves is a result of the implementation of the carbon project activity.

SDG 8

In the baseline scenario, it is estimated that no jobs are being generated. Job creation is a result of the implementation of the carbon project activity.

SDG 15

In the baseline scenario, 846,100.00 tons of nonrenewable biomass are consumed. This is a calculated value which is a function of:

Number of ICS * Weighted average Usage rate*Baseline Fuel consumption* FNRB

Where:

Number of ICS = 367,288 [15]

Up,y = 66.39%[16]

FNRB = 97.00%[17]

Pb,y = 0.596[18] t/hh/year

Wood to charcoal conversion Factor = 6[19]

Baseline Consumption NRB = Number of ICS * Weighted average Usage rate*Baseline Fuel consumption* FNRB

= 367,288 * 66.39% * 97.00% * (0.596*6)

= 846,100.00 [20] Tons

[14] Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "SDG Calculations" cell C20

[15] Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "Technology Days" cell E13

[16] Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "Usage Analysis" cell D4

[17] Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "ER ICS TPDDTEC" cell D17

[18] Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "ER ICS TPDDTEC" cell D14

[19] Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "ER ICS TPDDTEC" cell D18

[20] Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "SDG Calculations" cell C28

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

>> SDG 13:

The transparent ex-post calculations of the outcomes of SDG 13 (i.e. CO2e reductions) are provided in a separate excel spreadsheet uploaded to GS registry for the performance certification review.

The methodology directly provides the following equation for emission reductions; without separate baseline, project or leakage emission reduction equations.

$$ERy = \Sigma_{b,p} (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_{b,fuel} * (f_{NRB,b,y} * EF_{fuel,CO2} + EF_{fuel,nonCO2})) - \Sigma LE_{p,y}$$

Equation (1)

Emission reductions									
Item	Unit	2014	2015	2016	2017	2018	2019	2020	Source
Project Technology Days (N)	days	19,013	46,451	58,917	68,841	44,481	37,056	28,538	See below
Cumulative Usage Rate (U)	fraction	66.39%	66.39%	66.39%	66.39%	66.39%	66.39%	66.39%	As per Usage Analysis
Baseline fuel consumption (Pb,y)	tons/household/year	0.596	0.596	0.596	0.596	0.596	0.596	0.596	Baseline KPTs
Project fuel consumption (Pp,y)	tons/household/year	0.327	0.327	0.327	0.327	0.327	0.327	0.327	Project KPTs
Fuel savings (Pp,b,y)	tons/household/year	0.269	0.269	0.269	0.269	0.269	0.269	0.269	
Non-renewable biomass fraction (FNRB,b, y)	fraction	97.00%	97.00%	97.00%	97.00%	97.00%	97.00%	97.00%	C4EcoSolutions report
Wood to charcoal conversion factor	fraction	6	6	6	6	6	6	6	IPCC default value
$EF_{b,wood,\ CO2\ (combined)}$	tCO2e/t	112	112	112	112	112	112	112	IPCC 2006 default
$EF_{b,wood,\ nonCO2\ (combined)}$	tCO2e/t	9.46	9.46	9.46	9.46	9.46	9.46	9.46	IPCC default value
Net Caloric Value Wood	TJ/t	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156	0.0156	IPCC 2006 default
Leakage LE	tCO2e/t	0	0	0	0	0	0	0	Usage Surveys
Net Caloric Value LPG	TJ/t	0.0473	0.0473	0.0473	0.0473	0.0473	0.0473	0.0473	IPCC 2006 default
$EF_{b,LPG,CO2}$	tCO2/TJ	63.1	63.1	63.1	63.1	63.1	63.1	63.1	IPCC 2006 default
HH LPG use Project	t/hh/yr	0.04	0.04	0.04	0.04	0.04	0.04	0.04	Project KPTs
HH LPG use Baseline	t/hh/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Baseline KPTs
HH Firewood use Project	t/hh/yr	0.23	0.23	0.23	0.23	0.23	0.23	0.23	Project KPTs
HH Firewood use Baseline	t/hh/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Baseline KPTs
ER(tCO2e)		**30,897**	**75,486**	**95,744**	**111,871**	**72,283**	**60,217**	**46,376**	Calculated

Source: NON-CONFIDENTIAL_1NOV2023_ GS5642 Ex Post ER calculations v4.0 Tab: ER ICS TPDDTEC

Results from this monitoring period shows that in MP4, the project has achieved 492,874 tCO_2e emission reductions.

SDG 1

The monitoring of SDG 1 has been made through a qualitative evaluation of a sample of households during the usage/monitoring survey (physical in person household visits) to check on the money spent for purchasing charcoal in the project scenario as compared to the baseline scenario. Results from this monitoring period show that on average the monetary savings are USD 68.61 per household per year related to the purchase of charcoal in the project scenario.

SDG 3

The monitoring of SDG 3 has been made through a qualitative evaluation of a sample of households during the usage/monitoring survey (physical in person household visits) to check on the pollution-related inconveniences (such as smoke levels, itchy eyes and breathing

problems) in the project scenario compared to the baseline scenario. Results from this monitoring period show that 95.63% of respondents perceive air quality improvements at their homes since purchasing and cooking with the project stove as compared to the baseline.

SDG 4

The number of people trained in this monitoring period has been determined for the respective years of the monitoring period. In total, 37 members of staff (casual/contract) have been trained. Participant lists have been provided as support documents.

SDG 5

The time savings achieved in relation to cooking time between the project and baseline scenario was calculated based on results from the Usage monitoring survey and the baseline estimate in the Design certified PDD. Households reported on average time savings of 83[21] minutes per day.

SDG 7

The project stoves distributed under this project is multiplied with the usage rate (Up,y) to determine the SDG 7. In this monitoring period, the project stoves in use have been calculated as 243,830 ICS in use.

Total Distributed stoves * Up,y

Where:

Total distributed stoves = 367,288

Weighted average Usage rate = 66.39%

SDG 7 = 243,830 [22]

SDG 8

[21] Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "SDG calculations" cell E16

[22] Source: File Name - 09JUNE2023 GS5642 Ex Post ER calculations, Tab "ER ICS TPDDTEC" cell C93

The number of created jobs has been determined for the respective years of the monitoring period. Both Casual and Contract employees have been considered for this parameter. An employee list has been provided as a supporting document.

	Male	Female
Contract	0	0
Casual	6	20
TOTAL	6	20

Table showing Jobs created in MP4

Total jobs created: 26[23]

SDG 15

The tons of non-renewable biomass saved in the project scenario from continued use of project technologies was achieved as by calculation of baseline Tons of NRB and Project NRB. The exact approach is as follows:

Number of ICS * Up,y * Ppby * FNRB

Where:

Number of ICS = 367,288

Up,y = 66.39%

Pp,b,y = 0.269

CF = 6

FNRB = 97%

SDG 15 = 367,288 * 66.39% * (0.269 * 6) * 97%

= 381,830 Tons

E.3. Calculation of leakage

>> The value applied for Leakage is 0Tco2.

[23] Source: File Name - 26May2023 POA 5642 Employment List, cell E35

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

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
SDG 13	Climate Action	N/a	N/a	492,874
SDG 1	End poverty in all its forms everywhere	USD 140.39/hh/year	USD 71.79/hh/year	USD 68.61/hh/year
SDG 3	Ensure healthy lives and promote well-being for all at all ages	100%	95.63%	95.63%
SDG 4	Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university	0	37	37
SDG 5	Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household	0	83	83
SDG 7	Ensure access to affordable, reliable, sustainable and modern energy for all	0	243,830	243,830

SDG 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	0	26	26
SDG 15	Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	846,100.00	464,269.00	381,830

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[24] achieved during this monitoring period
SDG 13: Climate actions	1,427,826	492,874
SDG 1: End poverty in all its forms everywhere	USD 77.99/hh/year	USD 68.61 /hh/year
SDG 3: Ensure healthy lives and promote well-being for all at all ages	96%	95.63%

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

SDG 4: Ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university	50	37
SDG 5: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household	25	83
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	293,444	243,830
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	242	26
SDG 15: Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	384,394	381,830

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

>> The actual emission reductions achieved in this monitoring period are less than the ex-ante estimations (see SDG 13). The pro-rata ex-ante estimations for the current Monitoring period (01/04/2022-13/03/2023) has been shown in detail in the ER calculation sheet.

PDD Period	Current MP	No. of days	Pro-rata PDD ERs (in tCO2e)
2022 (01/04/2022-31/03/2023)	01/04/2022-13/03/2023	347	1,427,826[25]

SDG 1: From the monitoring surveys, less financial savings per household have been reported by households than what was estimated in the Ex Ante determination in the approved PDD. This is because the usage monitoring surveys is based on real case situations as reported by households as opposed to estimations and assumptions made in the ex ante scenario.

SDG 3: From the monitoring surveys, a lower percentage (by a negligible margin) of households reported improvement in health as a result of reduced smoke on the Jikokoa while cooking as compared to the baseline scenario. This is because the usage monitoring surveys is based on real case situations as reported by households as opposed to estimations and assumptions made in the ex ante scenario.

SDG 4: In this monitoring period, fewer people participated in training than was anticipated in the ex-ante assumptions.

SDG 8: In this monitoring period, fewer jobs were created than what was anticipated in the ex-ante scenario, and this is because distribution of stoves which contributes the highest number of jobs came to an end (no additional distribution was carried out during MP4).

SDG 7: In thins monitoring period, fewer stoves were found to be in use than what was estimated in the Ex-Ante scenario. SDG 7 is a function of Number of distributed stoves in the Monitoring period and the Usage rate. Both parameters were assumed to be higher in the ex ante than in the ex post scenario and this led to the SDG 7 number during MP4 being less than what was anticipated in the ex-ante case.

[25] Source: File name "09JUNE2023 GS5642 Ex Post ER calculations" tab ÉR Calc Prorata" cell G12

SDG 15: The calculated value of SDG 15 achieved in MP4 is lower than what was calculated in the ex ante scenario. SDG 15 is a function of Usage rate and number of stoves distributed (as well fuel savings and FNRB which remain constant for the MP as well as Ex Ante figures). Given that the ex ante had assumed a higher usage rate and stove distribution than what was actually achieved in MP4, SDG 15 achieved in MP4 is consequently lower than what was calculated in the ex ante.

SDG 5: SDG 5shows more time savings reported by households when cooking on the project ICS as opposed to when using the baseline stove. This is based on actual account from the household during the Usage monitoring surveys, which points to the fact that the project is having a positive impact on the BURN Jikokoa stove end users.

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

>> SDG 5 show a higher achievement in MP4 than what was estimated in the registered PDD. This can be attributed to the fact that SDG 5 is based on actual Survey data collected from households during the usage survey. The actual values are more than the estimated (ex-ante) values which shows that the impact of the project on time savings have improved in the HHs.

SECTION F. SAFEGUARDS REPORTING

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Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)

3.1 Human Rights	1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights	No	Improved cookstoves respect the dignity, cultural property and indigenous qualities of local communities. The project will improve local health through reduced indoor air pollution from reduced use of high emission stoves.[10]	No mitigation measure required
	2. The Project shall not discriminate with regards to participation and inclusion.	No	Improved cookstoves project does not discriminate anyone. Stakeholders are involved in project planning and implementation.	No mitigation measure required.
3.2 Gender Equality and Women's Rights	1. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits?	No	The project seeks to promotes gender equality and the empowerment of women. Women will have access to the cookstoves and they are the ones who make household decisions on which stove to use and buy. During project surveys, they will be interviewed and their comments will be used during research development of the stove. There is no discrimination against women.	There is no mitigation selected for this safeguarding principle.
	2. Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)?	No No	The cook stove project will help in reducing the burden faced by women in search of fuelwood and charcoal for household use.	No mitigation measure is required.

	3. Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, child care duties, low literacy or educational levels, or societal discrimination)?	Yes	The cook stoves provide an easy way of cooking. They require less fuel and also save money spent on fuel and cooking. The women will therefore get more time to engage in other activities child care.	No mitigation measure is required.
	4. Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)?	No	Both men and women will have equal opportunities to participate in decisions when it comes to buying the efficient stove. In addition, the use of project stoves will not alter the gender roles in households.	No mitigation measure is required.
	5. Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities?	No	The project does not increase women's workload but rather reduces their workload by reducing the amount of time and money spent on fuel and cooking. Time saved can be spent on other activities.	No mitigation measure is required.

	6. Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits?	No	The project does not discrimination against women, instead they empower them in decision making in households since they choose they stoves. Also they will have access to job opportunities that will be created by the project.	No mitigation measure is required.
	7. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services?	No	The project aims to reduce the amount of fuel used for providing household energy. Since most users of the stoves are women and reducing fuel consumption saves forests, then the women will play a big role in protecting forests.	No mitigation measure is required.
	8. Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?	No	The project activity will distribute energy efficient cook stoves which will displace the traditional cookstoves used in the households. This will consequently reduce the level of indoor air pollution in	No mitigation measure is required.

			the households and all health impacts associated with indoor air pollution.	
3.4.2 Forced Eviction and Displacement not	1. Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	Project participants are self-selecting in that they choose whether or not to purchase a subsidized stove. The sale and distribution of cookstoves will not cause involuntary resettlement.[11]	No mitigation measure is required.
3.4.4 Indigenous Peoples	1. Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	The project involves cook stoves which are individual units and they are purchased by individual households. Their use will not involve resettlement or intrusion into indigenous people's way of life.[12]	No mitigation measure is required.
3.5 Corruption	1. The project does not involve and is not complicit in corruption.	No	The project is not involved or complicit in corruption.[13]	No mitigation measure is required.
3.6.1 Labour Rights	1. The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights 2. The project does not involve and is	Yes No	The project respects all employees' freedom of association and does not restrict these rights.[14] All employees have right to join trade union. Participation in the project is voluntary; no	No mitigation measure is required. No mitigation measure is required.

	not complicit in any form offorced or compulsory labour. 3. The project does notemploy and is not complicit in any form ofchild labour. 4. The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis. 5. The project providesworkers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments	No No Yes	forced or compulsory labour is employed by the project. all employees of the project sign employment contracts. **See footnote for indicator4 for related national agreements.* The project does not employ and is not complicit in child labor.[15] The project employs staffwho are above the legal age of 18 years. The project does not involve any form of discrimination based on gender, race, religion, sexual orientation, or any other basis. *See footnote for indicator4 for related national agreements The manufacture of cookstoves involves light factory work.[16] Employees are provided with protective clothing for use. The project has in place health and safety procedure to be followed by all employees.	No mitigation measure is required. No mitigation measure is required. No mitigation measure is required.

3.6.2 Negative Economic Consequences	1. Is the project financialsustainable 2. Will the Projects leadto negative economic impacts to the local economy during project design, implementation, operation and after theproject.	Yes No	The cookstove project is being implemented with aim of being financially sustainable and the carbonfunds will help in meeting its financial operating costs. This cook stove project generates employment through the manufacture, sales, distribution of the cook stoves. Additionally, jobs are created during annual monitoring surveys of the cookstoves.	No mitigation measure is required. No mitigation measure is required.
4.1.1 Emissions	1. Will the Project increase greenhouse gasemissions over the Baseline Scenario?	No	There project will reduce GHG emission given that the project introduces energy efficient cook stoves which uses less fuel compared with baseline stoves. By reducing the consumption charcoal andthe smoke levels, GHG emissions are reduced.	No mitigation measure is required.
4.1.2 Energy Supply	1. Will the Project use energy from a local grid or power supply (i.e., notconnected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The cook stoves use charcoal sourced from thelocal vendors which does not involve use of energy supply from the local grid.	No mitigation measure is required.

4.2.1 Impact on natural water patterns and flow	1. Will the Project affect the natural or pre- existing pattern of watercourses, ground- water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project activity consists of cook stoves that does not impact on natural water patterns and flow.	No mitigation measure is required.
4.2.1 Erosion and/or water body stability	1. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? If 'Yes' or 'Potentially' proceed to question 2.	No	Use of energy efficient sook stoves will minimise deforestation in the project boundary since they require less fuel. This in turn will lead to reduction in the occurrence and severity of soil erosion.	No mitigation measure is required.
	2. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	The project area is not susceptible to excessive erosion or water body instability and the proposed project activity shall not negatively affect soil conditions in the project scenario.	No mitigation measure is required.
4.3.1 Landscape modification n and soil	1. Does the Project involve the use of land and soil for production of crops or other products?	No	The project is a cook stove project and It therefore does not involve production of crops neither will it lead to soil degradation.	No mitigation measure is required.

4.3.2 Vulnerability y to Natural Disaster	1. Will the Project be susceptible to or lead to increased vulnerability towind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The project does not create nor increase vulnerability to natural disasters or other extremeclimatic conditions.	No mitigation measure is required.
4.3.3 Genetic Resources	1. Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collectionand/or harvesting, commercial development)?	No	The project activity is a cook stove project and does not involve the use ofGMOs in its operations.	No mitigation measure is required.
4.3.4 Release of pollutants	1. Could the Project potentially result in therelease of pollutants tothe environment?	No	The project activity is a cook stove project which isaimed at reducing the amount of fuel used in the households as well as reduce indoor air pollution. The project has therefore no potential of releasing pollutants to the environment.	No mitigation measure is required.
4.3.5 Hazardous and Non-hazardous Waste	1. Will the Project involve the manufacture,trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The construction of the and distribution of thecook stoves will not lead torelease or use of hazardous and non-hazardous chemicals and materials.	No mitigation measure is required.

4.3.6 Pesticides and fertilizers	1. Will the Project involve the application of pesticides and/or fertilisers?	No	The project is a cook stove project that does not use pesticides nor fertilizers.	No mitigation measure is required.
4.3.7 Harvesting of forests	1. Will the Project involve the harvesting of forests?	No	The project Activity will lead to sustaining the forests and the biodiversity as less fuel is required.	No mitigation measure is required.
4.3.8 Food	1. Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The project is a cook stove project that aims at providing affordable, clean, efficient and easy- way of cooking. It therefore does not affect crop production, quality, quantity and availability of the same in any way.	No mitigation measure is required.
4.3.9 Animal Husbandry	1. Will the Project involve animal husbandry?	No	The project is a cook stove project and It therefore does not involve animal husbandry practices.	No mitigation measure is required.

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.

>>N/A: No grievances and complaints have been received during this Monitoring period

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

>> N/A - No stakeholder mitigations were agreed to be monitored

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

>> N/A - There have not been any legal contest or dispute for the project during this period

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