

Gold standard for the global goals Monitoring report



June 2017, version 1

Title of the project	Burn Stoves Project in Kenya
Gold Standard project ID	GS 5642
Version number of the monitoring report	04
Completion date of the monitoring report	01/03/2021
Date of project design certification	28/02/2018
Start date of crediting period	Second Crediting period start 26/04/2017
Duration of this monitoring period	01/10/2018 to 31/05/2020 (both days included)
Duration of previous monitoring period	26/04/2017 to 30/09/2018 (both days included)
Project representative(s)	ClimateCare Limited
Host Country	Kenya
Certification pathway (activity certification/impact certification)	Impact Certification
SDG Contributions targeted (as per approved PDD)	1. SDG 1: End poverty in all its forms everywhere 2. SDG 3: Ensure healthy lives and promote well-being for all at all ages 3. SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all 4. SDG 13 Climate Action
Gold Standard statement/product certification sought (GSVER/ADALYs/RECs etc.)	GSVER
Selected methodology(ies)	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC); Version 3.1.0
Estimated amount of annual average certified SDG impact (as per approved PDD)	1, 322,388 tCO _{2e}
Total amount of certified SDG impact (as per approved methodology) achieved in this monitoring period	462,795 tCO _{2e}

SECTION A. Description of project

A.1. Purpose and general description of project

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Project Objective:

The Burn Stoves Project in Kenya seeks to improve health and incomes throughout Kenya by reducing time and money spent acquiring fuel for household and institutional 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 and institutions.

The project uses carbon finance to develop local market channels and to support other affiliate companies as they create sustainable distribution networks of locally appropriate efficient stoves.

Household Stoves:

The Burn Stoves Project in Kenya is collaborating in Kenya with a range of local partners to reach customers with a range of models of efficient cookstoves. Burn Stoves Project in Kenya has invested carbon finance in the design of one locally made cookstove, the Jikokoa, with broad appeal that reduces the fuel use for an average Kenyan family by about 39%. Burn has already invested carbon finance in local manufacturing capability to manufacture over 100,000 stoves per year.

Burn Design Lab HH Charcoal Stove (Jikokoa)



Photo: Burn Design Charcoal

Power Output: 1.175 kW

Thermal Efficiency: 44.9%

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.

Project Partners:

Burn seeks to reduce poverty through innovative business models. Burn has partnered with ClimateCare to support its work in Kenya with carbon finance.

The following are the Key project details:

1. The new project reference number is GS 5642
2. The name of the project changed to Burn Stoves Project in Kenya when the project sought to create a new project out of Paradigm project in line with the design change request submitted to GS
3. The design change occurred and approved by GS on 28th February 2018
4. The design change approval date by GS is, therefore, the effective date of the migration of stoves into the new project
5. First issuance for the monitoring period 01/05/2016 to 25/04/2017
6. Second issuance for the monitoring period 26/04/2017 to 30/09/2018

A.2. Location of project

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The host country is Kenya and the project boundary is defined as the country of Kenya. The project sells the stove across the country and does not limit itself to specific region(s). The stove factory is based in Ruiru from

where the stoves are manufactured and shipped to the retailers and distributors spread across the country. Therefore, the project boundary is taken as the whole country of Kenya.

A.3. Reference of applied methodology

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Burn Stoves project applies the following approved GS VER methodology:

Technologies and Practices to Displace Decentralized Thermal Energy Consumption; Ver 3.1.0

A.4. Crediting period of project

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26th April 2017 (this is the starting date of the 2nd crediting period)

Renewable crediting period (7 years, renewable 2 times)

SECTION B. Implementation of project

B.1. Description of implemented project

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Burn has been selling stoves in Kenya since 2012 and continues to do so. 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 and shared with ClimateCare.

B.2. Post-registration changes

B.2.1. Temporary deviations from Certified Key Project Information, Project Design Document, Monitoring & Reporting Plan, applied methodology or applied standardized baseline

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The project has requested and gotten approval from the Gold Standard to deviate from the registered monitoring plan. The approval has been granted under the COVID-19 interim measure. The temporal changes are as follows:

1. A new KT has not been carried out, instead, data from the previous KT has been applied
2. Carrying out monitoring surveys through telephone instead of household visits
3. Increase of vintage sample size from 30 to 40 samples for telephone surveys.

B.2.2. Corrections

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No corrections.

B.2.3. Changes to start date of crediting period

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No change

B.2.4. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

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No change

B.2.5. Changes to project design of approved project

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No change

SECTION C. Description of monitoring system applied by the project

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Forward Action Requests (FARs) from the Previous Verification

During the previous verification covering the period 26/04/2017 to 30/09/2018, the following FARs was raised:

- 1) PP is requested to follow the updated requirements and guidelines for carrying out usage surveys for projects implementing improved cooking devices for the subsequent MP
- 2) Consider next time to give subjects enough time to be acquainted with the project stove especially for the non-users KCJ ones only before launching the PFT.
- 3) The PP shall include the relevant questions during surveys for all SD indicators and SDGs including the Perception of Air Quality. In the registered monitoring plan, the PP intends to conduct 'Baseline Surveys' while in the latest PDD it will be through 'Survey' for this and most other SDGs. The Baseline Surveys are defined separately from the BFT in the applied methodology. Not clear whether these 'Surveys' are part of the KPT Studies or standalone Surveys. Two of the SD indicators in the registered passport explicitly mention KPT studies as the way of monitoring while the SD10 is through project training records. A clear MP for SDI/SDGs shall be followed

The above FAR has been addressed by the PP during this monitoring period and complied with as follows:

1) Forward Action Request # 1:

The FAR was issued in relation to carrying out surveys and it was envisaged that all households will be surveyed physically in their homes when the next surveys is carried out. However, this was not possible due to COVID-19 pandemic has restricted movement and interactions and to address this FAR, the project sought a temporary deviation approval of GS to allow the project to carry out telephone surveys instead of home visits during this monitoring period. The approval was granted by the GS on 13/07/2020 which allowed the project to undertake telephone survey without actual home visits. In addition, the approval was conditional of the project achieving a sample size of 40 samples per vintage. Having received the approval by the GS to deviate, the PP drew a random sample from its database and selected 45 samples in each vintage. The selected samples were then identified, and their contact details extracted from the database and contacting process started. Having identified their contacts, the households were then given a telephone call to seek their approval to participate in the exercise. In the process, some declined while others accepted and for those who declined and those unreachable, a new sample was drawn randomly to replace them.

Eventually, the project carried out a usage survey through telephone and each vintage during this monitoring period had a minimum sample size of 40 households which were surveyed.

In the next monitoring and verification, this FAR will be addressed fully whereby all household sampled and to be surveyed will be visited in their homes. Therefore, this FAR will be addressed in the next monitoring period because the temporary deviation was approved during this current monitoring period.

2) Forward Action Request # 2:

This FAR could not be addressed because the project did not carry out a new KT due to COVID-19 pandemic. Instead, the project requested the GS for approval to apply the results of the previous KT survey and the GS granted the approval on 13/07/2020. Therefore, this FAR will be addressed in the next monitoring period when the project will undertake a new KT.

3) Forward Action Request # 3:

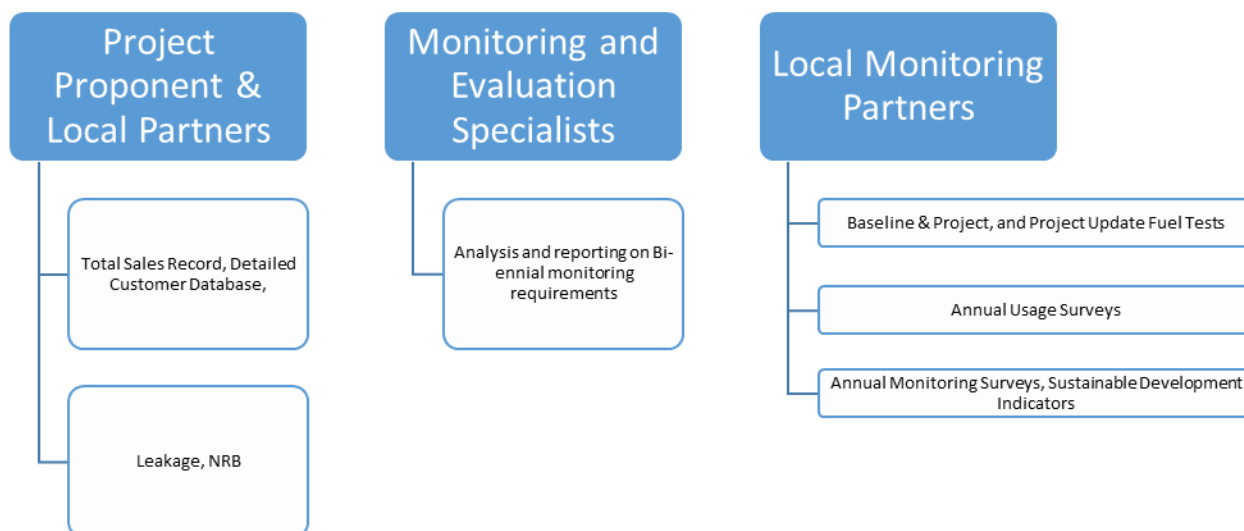
Although the project passport states that surveys were to be carried out during KT surveys. However, the project do carry different surveys on project impacts and as such, the SDG determination is carried together with these surveys. Instead, the project carries out project impact measurement through surveys using third parties and it is through these studies that the project identifies the project impacts on the applicable SDGs.

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The above surveys which were carried during this monitoring period were stand-alone surveys and not KPT surveys. The survey questions were modified to collect the relevant information required and these surveys capture more data and not only SDG data as per the passport. This is the most effective way of determining the project impacts since the surveys are stand alone and designed to capture other project impacts which are relevant to overall project sustainability.

Monitoring System

All monitoring tasks are carried out by Burn manufacturing Limited as outlined in diagram below.



Management

Burn Operations Manager is responsible for all monitoring requirements for the project. All documentations are consolidated within the auspices of Burn, and subsequent reporting and verification requirements will be managed by ClimateCare. ClimateCare is also responsible for organising and maintaining the Detailed Project Database.

The following on-going monitoring is conducted for the project activity. The monitoring activity provides a framework for project preparation and monitoring processes that will be undertaken, as required by the GS rules. This schedule takes into account the key parameters that are needed during the monitoring periods of the project. All required monitoring and documentation will be implemented, reported, consolidated and managed by the project proponent or a qualified expert partner to meet verification requirements.

• Total Sales Record (TSR)

- The TSR records sales volume and location for each project scenario.
- The record will be kept electronically and/or in paper records and provided at verification. The sales record will contain the following information:
 - From the product distribution partner:
 - Distribution partner name and contact information
 - Model/type of project technology sold
 - Quantity of project technology sold
 - Date of sale/installation
 - End username, phone number, and address (if possible)
- Frequency: Ongoing

Kitchen Test

The data applied for the Kitchen Test during this monitoring period was the data carried out during the last monitoring period. However, the GS gave approval for the project to apply the same data for this monitoring period. Below is the explanation on how the previous KT was carried out.

The fuel measurement were carried out in the previous monitoring period and during this period, no new KT was carried out. The use of previous KT results was approved by the GS as part of deviation request under COVID-19 interim measures. However, below is an explanation on previous KT process.

• **Baseline & Project Fuel Tests (FTs)**

The baseline and project performance field tests measure real, observed technology performance in the field. The tests were undertaken by using a paired sample (baseline and project performance measured for same subjects).

FT Sampling Design

- *Objectives and Reliability Requirements:* to determine the average amount of project technology fuel savings by measuring mean values for $P_{b,y}$ (quantity of fuel that is consumed in baseline scenario b, during year y) and $P_{p,y}$ (quantity of fuel that is consumed in project scenario p, during year y)
- *Target population:*
 - BFT: users who were located near the PFT users and were randomly identified.
 - PFT: sample of end users with project stove technologies falling within the project boundary
- *Sampling Method:* The project sells stoves all over Kenya and majority of them are sold within the urban and peri-urban areas. Due to the nature of the sales and the distribution patterns of the active stove users, the project proponent had to take into consideration several conditions while determining the setup of the Kitchen Tests (KT). These factors were, the cost of carrying out the KT, the logistics of user identification, access, their availability and geographical location.

In considering the above, the PP selected three regions from where the KT was to be carried out (i.e. Kiambu, Machakos and Muranga). These regions represent areas where a lot of stoves have been sold and they neighbour Nairobi, hence they are considered peri-urban areas.

The PFT users who are within these regions and whose stoves are active (3 years and below) were selected randomly from the project database. The database was clustered based on these regions and users falling within these regions and whose stoves are active were filtered and selected randomly.

However, for the BFT users, the survey enumerators were requested to scout them physically and once found, they were recruited. Those who were enlisted to the KT were located near the project stove users, hence they were all located within the project boundary.

- *Sample Size and Desired Precision:* The sample size shall be sufficient to meet 90/30 confidence/precision (90/10 for single sample tests). The project selected paired samples of 104 users in total.
- *Sampling Frame:*
 - BFT: Representative households within the project boundary. These households were randomly scouted and recruited into the KT. The survey enumerators having identified the PFT, they then asked around for households who are not using the project stove and recruited them after explaining what the KT entails and seeking their consent.
 - PFT: DCD for project scenario P as defined by sales date, technology type, and end-user information.
- *Frequency:* the KT is done Biennially and during this period, the KT was carried out in the Month of July and August 2018.

A. Monitoring Surveys (MS)

The MS investigates changes over time in a project scenario by surveying end users with project technologies on an annual basis.

During this period, the PP carried surveys to determine how the project is performing over time. The repair/warranty claims is a continuous process. The project keeps records on project warranty claims and repairs done to stove which are out of warranty. From information, the PP collects information that helps determine how the project performs over time and helps them to establish the parts which need repairs more often. Through this, the PP gets to improve on their research and design.

This repair information also helps the project to calculate the drop off rates of the stoves and help in estimating the life of the stove.

B. Usage Survey (US)

Monitoring Deviation

Although the methodology prescribes that usage survey should be carried out through household visits, the project could not carry out individual household visits due to COVID-19 pandemic. As such, the project requested the Gold Standard to approve a deviation request from the monitoring plan in order to allow the project to carry out a usage survey through telephone survey, instead of physical household visits. The approval was granted by the GS on 13/07/2020. Upon granting of the approval to deviate from the registered monitoring plan and GS rules on usage survey for cook stoves, the project drew a random sample from the project database of 135 samples.

Target Population

The target population for the application of the monitoring procedure was the users of the Burn JikoKoa Stoves distributed and recorded under the project in the *Sales Database* maintained by Burn.

Sampling Method

Stratified random sampling was applied since there are three different ages. The total population of JikoKoa stoves was stratified by age. The stratifications are as shown in the tables below.

Total Stove Sale by Age

Age of Stove	Numbers of Stoves	%
Year 1	74,735	26.15%
Year 2	85,904	30.06%
Year 3	125,175	43.80%
Total	285,814	100%

On each of the strata, all stoves with end user details were given a number. Using online random number generator software <https://stattrek.com/statistics/random-number-generator.aspx>, 45 random numbers were generated from each age group/stratum. With random numbers generated, the matching stoves were then selected from the database and their details were identified and contacted via telephone and a questionnaire was administered.

Sample Size

As per the COVID-19 interim measures and approval provided by the GS, minimum sample size recommended was 40 stoves for each age. JikoKoa has a life of 3 years and therefore, the project developer sampled 45 stoves from each age cluster totalling 129 stoves. The PP sampled more stoves in order to cater for any non-responses.

Telephone Survey

The survey was conducted by trained Burn staff and a questionnaire was administered by telephone. All the data collectors spoke the local language which enabled full understanding of responses given by users, and any questions arising.

The following criteria was applied to analyse the survey results to determine the drop offs and usage rates:

- i. Those users who said they did not have the stoves or stove was broken were automatically counted as drop-off.
- ii. Those cases where the baseline stove was found to be still in use along the project stove were treated, a discount factor was applied for usage
- iii. Those who were found to be using other stoves in combination with project stove, a discount factor was established and applied for usage.

The data collected was entered and analysed in an Excel Spreadsheet. The survey resulted in a weighted average usage rate value of 83.20%. However, as per the deviation request, the value should be compared with the previous values and a conservative value be applied. Therefore, the project compared the result with the previous value of 75% applied in the last verification and since 75% is more conservative than the survey value of 83.20%, the PP opted to apply 75% in emission reduction calculation for the project during this monitoring period.

However, not all those who were sampled in the first round were contacted. In the first round, 18 users could not be reached because of:

- i. The telephone number could not be reached after more than 5 attempts

- ii. Uncooperative user who kept on hanging up
- iii. The main cook had travelled hence could not be interviewed
- iv. The mobile user could not answer the telephone after more than 5 attempts.

This prompted the project to carry out a second round of sampling for 18 users to meet the required minimum sample size of 40 users as recommended by the GS COVID-19 interim measures approval requirements. After the second round of sampling, the survey managed to interview 12 user as shown in the table below:

First and Second Round Sampling			
Age	Sample Size	Successful survey	Unreachable/ Uncooperative
Age 1	45	43	2
Age 2	45	38	7
Age 3	45	36	9
Total	135	117	18

Second Round Sampling			
Age	Sample Size	Successful survey	Unreachable/ Uncooperative
Age 1	2	1	1
Age 2	7	6	1
Age 3	9	5	4
Total	18	12	6

• Leakage Assessment

Potential sources of leakage will be assessed every other year as part of the Project Fuel Test Updates. QA/QC procedures will include transparent data analysis and reporting. The leakage assessment has been explained in section D.3 below.

The leakage was determined in the last KT and the Gold Standard allowed project to applied last monitoring KT data values under the COVID-19 rules. Therefore, during this period, the leakage was not assessed.

SECTION D. Data and parameters

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

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	EF _{b,CO2}
Unit	tCO ₂ /TJ
Description	CO ₂ emission factor arising from use of fuels in baseline scenario
Source of data	IPCC Default emission factor
Value(s) applied	112
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To determine the CO ₂ emission factor of the wood fuel
Additional comments	Term can include a combination of emission factors from fuel production, transport, and use.

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	EF _{b,nonCO2}
Unit	tCO ₂ /TJ
Description	Non-CO ₂ emission factor arising from use of fuels in baseline scenario
Source of data	IPCC defaults are applied in conjunction with credible published literature
Value(s) applied	0.00
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To determine the Non-CO ₂ emission factor arising from use of fuels in baseline scenario
Additional comments	Can include a combination of emission factors from fuel production, transport, and use. The PP has opted not to account for this source in order to ensure conservativeness.

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	EF _{p,CO2}
Unit	tCO ₂ /TJ
Description	CO ₂ emission factor arising from use of fuels in baseline scenario
Source of data	IPCC Default emission factor
Value(s) applied	112
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To determine the CO ₂ emission factor of the wood fuel
Additional comments	Can include a combination of emission factors from fuel production, transport, and use. This has same value as EF _{baseline} in projects which reduce use of the same fuel.

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	EF _{p, nonCO2}
Unit	tCO ₂ /TJ
Description	Non-CO ₂ emission factor arising from use of fuels in project scenario
Source of data	IPCC defaults are applied in conjunction with credible published literature
Value(s) applied	0.00
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To determine the CH ₄ emission factor of the wood fuel
Additional comments	Can include a combination of emission factors from fuel production, transport, and use. This has same value as EF _{baseline} in projects which reduce use of the same fuel. The PP has opted not to account for this source in order to ensure conservativeness.

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	NCV _b
Unit	TJ/tonne
Description	Net calorific value of fuel used in the baseline
Source of data	IPCC 2006 defaults values
Value(s) applied	0.015
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To determine the calorific value of wood fuel used in the baseline
Additional comments	If EF is in units of tCO ₂ /t _{fuel} , remove NCV term from emission calculations. The project uses charcoal, but this has been converted to woody biomass equivalent and the calorific value for wood is applied. Although the PDD value had reflected a value of 0.029 for charcoal, the charcoal has been converted to woody biomass using a factor of 6 and the ER calculated using the NCV of wood.

Relevant SDG Indicator	SDG 13: Climate Action Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
Data/parameter	NCV _p
Unit	TJ/ton
Description	Net calorific value of the fuels used in the project
Source of data	IPCC 2006 defaults values
Value(s) applied	0.015
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To determine the net calorific factor of the wood fuel
Additional comments	This has same value as NCV _{baseline} in projects which reduce use of the same fuel. The project uses charcoal, but this has been converted to woody biomass equivalent and the calorific value for wood is applied. Although the PDD value had reflected a value of 0.029 for charcoal, the charcoal has been converted to woody biomass using a factor of 6 and the ER calculated using the NCV of wood.

D.2. Data and parameters monitored

Relevant SDG Indicator/Safeguarding Principle	SDG 13: Climate Action Target: 13.1 Strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries
Data / Parameter	$f_{NRB,i,y}$
Unit	Fractional non-renewability
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Measured/calculated/default	Calculated
Source of data	Calculated as per the UNFCCC Methodological tool 30-Calculation of the fraction of non-renewable biomass
Value(s) of monitored parameter	0.8948
Monitoring equipment	Calculated using official country forest data
Measuring/reading/recording frequency:	Fixed by baseline study for this crediting period
Calculation method (if applicable):	-
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To calculate the quantity of non-renewable biomass being consumed in the baseline scenario and the project scenario
Additional comments	As applicable, NRB assessment may be used for multiple scenarios

Relevant SDG Indicator/Safeguarding Principle	SDG 13: Climate Action Target : 13.1 Strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries
Data / Parameter	$P_{b,y}$
Unit	Kg/household-day
Description	Quantity of fuel that is consumed in baseline scenario b during year y
Measured/calculated/default	calculated
Source of data	Baseline FT or default baseline fuelwood consumption, baseline FT updates, and any applicable adjustment factors
Value(s) of monitored parameter	1.6335 (GS 5642 - Burn Database_ER_Sheet_210201, ER per Stove Tab, C7)
Monitoring equipment	KT measurements
Measuring/reading/recording frequency:	Updated every two years
Calculation method (if applicable):	-
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculation of baseline emissions
Additional comments	A single baseline fuel consumption parameter is weighted to be representative of baseline technologies being compared for project crediting. The KT value of charcoal usage is multiplied by 6 to get the equivalent woody biomass

Relevant SDG Indicator/Safeguarding Principle	SDG 13: Climate Action Target : 13.1 Strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries
Data / Parameter	$P_{p,y}$
Unit	kg/household-day
Description	Quantity of fuel that is consumed in project scenario p during year y
Measured/calculated/default	Measured and calculated
Source of data	Project FT or default baseline fuelwood consumption, project FT updates, and any applicable adjustment factors
Value(s) of monitored parameter	1.0679 (GS 5642 - Burn Database_ER_Sheet_210201, ER per Stove Tab, C12)
Monitoring equipment	KT measurements
Measuring/reading/recording frequency:	Updated every two years
Calculation method (if applicable):	-
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculation of project emission reductions
Additional comments	A single project fuel consumption parameter is weighted to be representative of baseline technologies being compared for project crediting. The KT value of charcoal usage is multiplied by 6 to get the equivalent woody biomass

Relevant SDG Indicator/Safeguarding Principle	SDG 13. Climate Action Target: 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Data / Parameter	$U_{p,y}$
Unit	Percentage
Description	Usage rate in project scenario p during year y
Measured/calculated/default	Calculated
Source of data	Annual Usage Survey
Value(s) of monitored parameter	83.20% (GS 5642 - Burn Database_ER_Sheet_210201, Usage Tab, E2)
Monitoring equipment	KT Measurements
Measuring/reading/recording frequency:	Annual or more frequently, in all cases on time for any request for issuance
Calculation method (if applicable):	-
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To calculate the Usage rate in project scenario p during year y.
Additional comments	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. As per the deviation request, the usage rate value determined for this period should be compared with the previous values and a conservative value be applied. Therefore, the project compared the survey result value of 83.20% with the previous value of 75% applied in the last verification and since 75% is more conservative, the PP opted to apply 75% in emission reduction calculation for the project during this monitoring period.

Relevant SDG Indicator/Safeguarding Principle	SDG 13. Climate Action Target: 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
Data / Parameter	$N_{p,y}$
Unit	Project technologies credited (units)
Description	Technologies in the project database for project scenario p through year y
Measured/calculated/default	Calculated
Source of data	Total sales record
Value(s) of monitored parameter	285,814(GS 5642 - Burn Database_ER_Sheet_210201, Vintages Tab, H21)
Monitoring equipment	Project database records
Measuring/reading/recording frequency:	Continuous
Calculation method (if applicable):	-
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To calculate the number project scenario P through year y.
Additional comments	The numbers are stoves which has been sold by the project. however, not all of them are claiming emissions since some of them are more than 3 years old. The operational stoves are 285,814. However, numbers shown above are for the operational stoves which have not reached the end of their 3 year life after adjusting for usage rate. However, for the calculation of ER, actual days each stoves will operate in any given monitoring period will be determined and used for ER computation.

Relevant SDG Indicator/Safeguarding Principle	SDG 13: Climate Action Target: 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
Data / Parameter	$LE_{p,y}$
Unit	tCO _{2e} per year
Description	Leakage in project scenario p during year y
Measured/calculated/default	Measured
Source of data	Baseline and monitoring surveys
Value(s) of monitored parameter	0
Monitoring equipment	KT measurements
Measuring/reading/recording frequency:	Every two years
Calculation method (if applicable):	-
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To determine leakage in project scenario p during year y
Additional comments	Aggregate leakage can be assessed for multiple project scenarios, if appropriate

Relevant SDG Indicator/Safeguarding Principle	SDG 3: Ensure healthy lives and promote well-being for all at all ages Target: 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
Data / Parameter	Perceived Air quality
Unit	-
Description	Smoke levels and particulates
Measured/calculated/default	-
Source of data	Survey
Value(s) of monitored parameter	-Majority of those surveyed were of the opinion that the air quality in their kitchens has improved due to use of JikoKoa. this is more so because the JikoKoa does not produce smoke compared with baseline charcoal stoves. On the thirds party survey carried out, 51% of customers said that they have experienced a change in health as a result of using the BURN cookstove. The most common benefits were no smoke or headaches when cooking with the stove
Monitoring equipment	Carrying out a survey through in person site visit of sampled households and telephone surveys.
Measuring/reading/recording frequency:	Biennial
Calculation method (if applicable):	-
QA/QC procedures	The type of measurement employed should take into consideration those factors which are out of control of households when reporting on this parameter.
Purpose of data	Reporting on sustainable development of the project
Additional comments	The project employed a third party entity to carry out survey and determine the impact of the project on health outcomes amongst other parameters.

Relevant SDG Indicator/Safeguarding Principle	SDG 1: End poverty in all its forms everywhere Target1.4: By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
Data / Parameter	Equivalent monetary savings
Unit	Monetary savings based on fuel savings and prevailing fuel cost
Description	Financial impact
Measured/calculated/default	Measured and calculated
Source of data	Survey and KT results
Value(s) of monitored parameter	0.57 kg/day of charcoal translating to 63 shillings per day savings
Monitoring equipment	Direct calculation based on results from the KT
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Analysed statistically at 90/10
QA/QC procedures	The survey questions should be evaluated so that they bring out a clear picture of the gains of the stove
Purpose of data	Reporting on sustainable development of the project
Additional comments	The project stove is fuel-efficient and uses less charcoal compared with the baseline stoves. From the KT results, it has been observed and determined that on average, JikoKoa Stove saves 0.57Kg of charcoal per day, which translates to about 204 KGs/year. Charcoal prices in Kenya vary from time to time and on average a kilo of charcoal currently sells for 84 shillings in 2019 and 110 ¹ shillings in 2020 and with a savings of 0.57kg/day, a family can save in the region of 17,000 -22,000 (approximately US\$171 and US\$224) shillings in a year for 2019 and 2020 respectively. This is a substantial amount of money that a family saves and can be utilised by a family to meet other household needs.

¹ Current prices of charcoal is around 110 shillings per kilogram

Relevant SDG Indicator/Safeguarding Principle	SDG 8: Decent Work and Economic growth Target 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value for both men and women.					
Data / Parameter	Average hourly earnings of female and male employees, by occupation, age and persons with disabilities					
Unit	Numbers					
Description	Number of people directly employed by the project					
Measured/calculated/default	Calculated					
Source of data	Project records					
Value(s) of monitored parameter	242					
Monitoring equipment	Direct measurement based on employment numbers of those employed directly by the project					
Measuring/reading/recording frequency:	Annual					
Calculation method (if applicable):	-					
QA/QC procedures	-					
Purpose of data	Reporting on sustainable development of the project					
Additional comments	DEPARTMENTS		Numbers	Gender		Average salary scale (Ksh)
				M	F	
	After Sales	15	3	12	47,333	
	Finance	11	3	8	129,545	
	HR & Admin	16	3	13	82,346	
	Inventory	13	12	1	85	
	IT	2	2	0	117,000	
	Market Research	13	8	5	77,058	
	Marketing	4	1	3	116,284	
	Production line	64	29	35	88	
	Production management	10	7	3	134,233	
	Quality Assurance	15	7	8	120	
	Research and Development	29	27	2	98,159	
	Sales	39	10	29	34,559	
	Supply chain	11	10	1	106,163	
	Total number of employees	242	122	120		
	In addition, several other people have gained employment as a result of the project such as 62 trained stove repair experts spread across 62 repair centres in the country. For each repair done to the stove, the repair expert is paid KES 250 per repair.					

Relevant SDG Indicator/Safeguarding Principle	Goal 13. Take urgent action to combat climate change and its impacts Target 13.1 Strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries
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
Measured/calculated/default	Calculated
Source of data	Stove database records and surveys
Value(s) of monitored parameter	The project has been selling stoves in Kenya since inception and currently there are 351,876 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 237,809 and this is the number which claims emission reductions. These are the households whose stove is within the 3-year life span. The weighted average usage rate for the project is 83.20% as per the survey findings, although for ER calculation, a value of 75% has been applied in compliance with deviation request approval.
Monitoring equipment	Calculated
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	-
QA/QC procedures	Check of database to ensure consistency of reported data
Purpose of data	Reporting on sustainable development of the project
Additional comments	The project carried out a telephone survey to establish project stove usage. The samples which were surveyed were categorised by vintage and a weighted average value was established. This is the eventual value which is applied in the ER calculation.

D.3. Implementation of sampling plan

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The baseline and the project performance field tests (BFT and PFT) measure real, observed technology performance in the field. The FTs were undertaken by testing a paired sample (baseline and project performance measured for the same subjects).

FT Sampling Design

Due to COVID-19 Pandemic, the project did not carry out Fuel Test as per the monitoring plan. Instead, the project sought and received approval on 13/07/2020 from the Gold Standard under the COVID-19 Interim Measured to apply the last monitoring period Fuel Test data result for this current monitoring period. Therefore, during this monitoring period, no new KT was conducted, instead, the section below outlines the process which was followed in carrying out the previous KT whose results has been allowed for use in the current monitoring period.

KT Timing

The previous KT which the project is using the data from having been approved by the GS to use was carried out in July and August 2018. In Kenya, there is no seasonal variation in cooking patterns over different months of the year. Most communities have a specific menu that they prepare year-round. As such, the timing of KT did not have to take care of any seasonal variation.

Protocol

The KT sampled only project users who had activated their warranty since their contacts were available in the Echomobile system managed by the PP.

In carrying out the surveys, the project randomly selected 112 households who were surveyed by telephone to establish if they are still using their stove or not. The 112 stoves were broken down as follows; 30 year 1 stoves,

Gold Standard

43 year 2 stoves and 39 year 3 stoves. The telephone interview involved them being asked questions about their stove usage. All of them confirmed that they owned the JikoKoa stove and that they are using it. The results of the telephone survey showed that the usage of the stove was 100%.

Out of the 112 households who participated in the telephone survey, the PP randomly selected 53 households from 112 who were visited physically in their households to confirm the results of the telephone survey and also, the same households were used to participate in the KT exercise. The 53 households were surveyed physically to establish if the answers they provided during the telephone survey was correct and during the physical survey, it was confirmed that all of them indeed use the stove. The physical surveys were done during the launching of the KT exercise.

In addition, to the 53 JikoKoa users, the KT used 51 baseline stove users who have never bought JikoKoa before and paired them with project stove users to participate in the KT. The baseline stove users were scouted by enumerators and recruited to participate in the KT. This approach was used because it was practical, and it was the best way to recruit.

Carrying out the KT must be practical and logistically possible in order to ensure that fuel is measured in time, households must be available and willing to participate in the KT and the budget for the KT must be within the limits of the PP. All those factors were considered by the PP when sampling and these influence the location of the KT.

The villages were selected randomly and they had to be accessible by road, they had to be located near Nairobi i.e. lies within the peri-urban area defined by their proximity to Nairobi ranging within a 70 kilometres from Nairobi city centre and also their household availability be ensured for the entire period of the exercise.

The identified users were provided with charcoal to use for the entire period of the KT. Once the households were identified to participate in the KT, they were called and informed about the exercise and their consent and availability discussed. They were then visited by the KT enumerators on first day and a questionnaire was administered and also, they KT launched where each household was given charcoal and told on what to do.

Each day, the enumerators visited the household and weight their remaining charcoal and determined the quantities they had used. This was repeated for the entire period of the KT (3 days with project stove and 3 days with baseline stove).

The KT used a paired sample where half of the respondents were project stove users while the other half were those who were not using the project stove. The users where given fuel (charcoal) which was pre-weighed and advised to cook normally. They were also informed that enumerators will visit them daily to take records on fuel consumption. Having used their respective stove for 3 days, they swapped to the other stove (i.e. KCJ switched to start using JikoKoa and those who were using JikoKoa switched to using baseline stove (KCJ).

Sample size.

The project methodology prescribes a minimum sample size of 30 users. For this exercise, the project used a sample of 104 households for KT and 112 stoves for telephone survey. The survey samples were broken down as follows; 30 year 1 stoves, 43 year 2 stoves and 39 year 3 stoves. This sample size was enough to meet the precisions level of 90/10.

Household Identification

The project used the contact details of the sampled project stove users from the warranty activation system which contains the details of the users. They were then telephoned and requested for their participation.

For those who were not using the project stove, they were randomly identified through scouting where those who were using the stove were requested to help in identifying those who have not bought it. It was easy for the selected users to recommend them since they always have interactions with them and some of them have expressed willingness to buy one should they get enough money.

Fuel savings Analysis

The KT was carried out over a three-day period using one stoves and on the fourth day, the households switched to the other stove which they again used for 3 days. During their usage, field surveyors visited the households at same time in the day and monitored their fuel usage (i.e. fuel used, food cooked, number of people cooked

for, etc). in situations where the fuel being monitored was low, they supplemented it and took records which was being used to calculate the daily fuel savings.

The daily fuel usage for baseline stoves and project stoves was then calculated and analysed statistically before the mean daily fuel consumption was established and subsequent fuel saving by the project stove (JikoKoa) was established. The analysis established that the precision level of 90/10 was achieved, and the average fuel savings was therefore used for the ER calculations.

- **Monitoring Surveys (MS)**

The MS investigates changes over time in a project scenario by surveying end users with project technologies.

During this period, the PP carries surveys continuously to determine how the project is performing over time. These surveys are meant to enhance market intelligence and user feedback to help in improving the project stove. The project keeps records on project warranty claims and repairs done to the stove which are out of warranty. From information, the PP collects information that helps determine how the project performs over time and helps them to establish the parts which need repairs more often. Through this, the PP gets to improve their research and design.

This repair information also helps the project to calculate the drop off rates of the stoves and also help in estimating the life of the stove.

- **Usage Survey (US)**

Under the GS COVID-19 Interim Measures, the project was allowed to carry out usage surveys through telephone. The project sampled and interviewed 153 households who are JikoKoa users. The survey involved telephoning the users and administering a questionnaire on the stove use, its condition and stove benefits and getting photographic pictures of the stoves whenever possible. The survey aimed to identify the following:

- a) Stove usage trends
- b) Stove drop-offs
- c) Stove benefits to end-users
- d) Other sustainable development benefits of the stove to the household.

Sampling

The project database was organised in such a way that stoves were clustered by age. At the time of clustering, the project had a total active stove count of 285,814 stoves. Since only stoves with end user details are able to be contacted, only activated stoves in each age were allocated a number and the project developer used a random number generator to sample a total of 153 stoves by the allocated numbers. In each age, samples were drawn based on the sample sizes determined as outlined in section C above.

Having generated the random samples, the respective sampled numbers were identified based on the allocated numbers and their details extracted from the database. With the end users of sampled stoves extracted, the survey exercise started. The respective stove users were then contacted by phone and the reason for contacting them was provided and they were asked for their consent to continue with the exercise. Once approval was granted, a survey questionnaire was administered by phone.

The data collected was then analysed statistically and it was established that about 11.42% of year 1 stoves fail, 17.12% of year 2 stoves fail and 19.24% of year 3 stoves will fail. The overall weighted average usage rate was determined to be 83.20%. However, as per the deviation request, the resultant value should be compared with previous values and if higher, the more conservative value be applied. For this project during this monitoring period, the survey value of 83.20% was compared with the previous value of 75% and since 75% is more conservative, the conservative value has been applied in the ER calculations.

For sustainable benefits, the outcomes are reported in section D.2 of this monitoring report.

- **Leakage Assessment**

Leakage analysis was carried out in the last KT as described below.

Potential sources of leakage was assessed as part of the Project Fuel Test Updates.

Source	Risk	Findings
The displaced baseline technologies are reused outside the project boundary in	Very low	The displaced baseline stoves are not shared with other households hence there is no chance

place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project		of them being used by those households that have not bought the JikoKoa stove.
The non-renewable biomass or fossil fuels saved under the project activity are used by non-project users who previously used lower emitting energy sources	Very low	Due to the rising demand for charcoal and increased population, new households are coming up which puts the demand for domestic fuels and this leads to increased demand for charcoal. Therefore, the project stove help in reducing the demand and need to make more charcoal. This, therefore, does not lead to leakage.
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	Very low	The impact of project stove on NRB of the country is low. As such, during the KT, the users explained that charcoal availability is still a challenge since the charcoal ban affects free flow.
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	No Risk	There is no space heating using since the majority of households cooks from kitchens which are separate from the main house for both during the baseline and project scenario.
By virtue of promotion and marketing of a Burn Stove, 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	Very low	Households commonly used charcoal in the baseline and few households were using wood and moved to JikoKoa. Although some households have LPG stoves, they normally use them mostly in the morning for quick breakfast making and this was the case even in the baseline scenario.

From the surveys during the KT, it was established that charcoal availability has gone down due to the charcoal ban in the country. Due to this, the household fuel consumption trends has changed and now the households are using less and less charcoal due to their lack of availability and price increase.

From the above, therefore, the leakage for this project is zero.

SECTION E. Calculation of SDG outcomes

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

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SDG 13: As noted before in section D.1 Fuel Production, the PP has chosen to use a biomass conversion factor. The baseline fuel and the project fuel are the same and the baseline emission factor and project emission are considered the same. The overall GHG reductions achieved by the project activity in year y are calculated as follows:

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

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 wood fuel savings for an individual technology of project p against an individual technology of baseline b in year y, in tonnes/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

NCV _{b,fuel}	Net calorific value of the wood fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/tonne)
EF _{b,fuel,CO2}	CO ₂ emission factor of the wood fuel that is substituted or reduced. (112 tCO ₂ /TJ for Wood/Wood Waste)
EF _{b,fuel,nonCO2}	Non-CO ₂ emission factor of the wood fuel that is reduced
LE _{p,y}	Leakage for project scenario p, in year y (tCO ₂ e/yr

As stated above, the project applies charcoal to wood biomass conversion factor 6 on charcoal savings to account for the emissions reductions associated with the production of charcoal fuel.

SDG 1: End poverty in all its forms everywhere, the baseline stoves consume more charcoal and from the KT results. When applying the last KT values, it has been observed and determined that on average, baseline stoves use about 1.633Kg of charcoal per day, which translates to about 596 Kgs/year in the current market prices. Charcoal prices in Kenya vary from time to time and currently, a kilo of charcoal goes for 110 shillings. With high baseline consumption, a household will incur an expenditure of 110 shillings/day.

SDG 3: For 'Users' perception on smoke reduction and particulates the baseline situation is poor due to the use of low efficient stoves which generates more smoke and particulates and leads to health problems pertaining to smoke.

SDG 8: 'Decent Work and Economic growth' there was no employment needed to continue the use of the conventional cooking system in the baseline situation.

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

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SDG 13. No project emissions since the emission are calculated based on the fuel savings as shown in section E.1 above.

SDG 1: End poverty in all its forms everywhere, the project stove is fuel efficient and uses less charcoal compared with the baseline stoves. From the KT results, on average, a household using JikoKoa uses about 0.576Kg of charcoal per day, which translates to about 204 KGs/year. Charcoal prices in Kenya vary from time to time and on average a kilo of charcoal sells for 110 shillings in 2020, the project uses about 63 shillings/day on charcoal.

SDG 3: For 'Users' perception on smoke reduction and particulates qualitative assessment was done through third party research and results from end users response shows that the standard of quality of life has improved since the project produces less smokes.

SDG 8: 'Decent Work and Economic growth' the project has employed 242 staff directly and 62 stove repair experts indirectly.

E.3. Calculation of net benefits as difference of baseline and project values or direct calculation for each SDG outcome

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The project uses a direct calculation of emission reductions using equation 1 as shown above.

$$\text{For SDG 13: } ER_y = \sum_{b,p} (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_{b,fuel} * (f_{NRB,b,y} * EF_{b,fuel,CO2} + EF_{b,fuel,nonCO2}) - \sum LE_{p,y}) \quad (1)$$

By substituting the above formula, the emission reduction per stove per years as follows:

$$ER_y = \sum_{b,p} (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_{b,fuel} * (f_{NRB,b,y} * EF_{b,fuel,CO2} + EF_{b,fuel,nonCO2}) - \sum LE_{p,y}) = 1.421 \text{ tCO}_2\text{e/yr} \quad (1)$$

Item	Baseline estimate	Project estimate	Net benefit
SDG 13:	Not calculated	Not calculated	1.576 tCO ₂ e/yr

SDG 1	High charcoal consumption leading to high expenses for charcoal (KSh. 110/day)	Reduced charcoal consumption leading to high expenses for charcoal (KSh. 63/day)	Fuel savings of Ksh.47/day
SDG 3	Presence of high smoke and particulates	Less and minimal smoke generation and particulates. Improved standard of living.	Improved air quality leading to positive outcome of improving people's lives
SDG 8	No investment hence no jobs in baseline	Project created a business and jobs for project staff and indirect jobs to repair artisans.	Positive outcome

E.4. Summary of ex-post values of each SDG outcome for the current monitoring period

Item	Baseline estimate	Project estimate	Net benefit
SDG 1: End poverty in all its forms everywhere	1.633 Kg of charcoal used per day	1.068 Kg of charcoal used per day	0.565 Kg of charcoal saved per day
SDG 3: Ensure healthy lives and promote well-being for all at all ages	N/A	Stove users reported home and health improvement	Stove users reported home and health improvement
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	N/A	242 people employed and several trainings ² done	242 people employed and several trainings done
SDG 13: Climate actions	N/A active	285,814 units active 2.10 ER/stove/year	285,814 units active 1.421 ER/stove/year

Vintage-wise break-up of ex-post emission reductions:

Period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Emissions reductions (tCO ₂ e)
01/10/2018 to 31/12/2018	69,913 tCO ₂ e	0 tCO ₂ e	69,913 tCO ₂ e
01/01/2018 to 31/12/2019	277,373 tCO ₂ e	0 tCO ₂ e	277,373 tCO ₂ e
01/01/2020 to 31/05/2020	115,509 tCO ₂ e	0 tCO ₂ e	115,509 tCO ₂ e
Total benefits	462,795 tCO₂e	0 tCO₂e	462,795 tCO₂e

E.5. Comparison of actual value of outcomes with estimates in approved PDD

Item	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period
SDG 1: End poverty in all its forms everywhere	1.633 Kg of charcoal used per day	1.068 Kg of charcoal used per day
SDG 3: Ensure healthy lives and promote well-being for all at all ages	N/A	The stove has high efficiency and consumes less fuel and produces less smoke. Kitchens have been

² Basic first aid training, Fire safety training, Health and safety training and HR trainings.

		improved and less particulates are produced using the stoves
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	N/A	242 people employed and several trainings done
SDG 13: Climate actions	715,060 units active 2.10 ER/stove/year	285,814 units active 1.421 ER/stove/year
Total benefits	1,322,388 tCO₂e	462,795 tCO₂e emissions

Vintage-wise break-up of project emission reductions for the period:

Period	Emission reductions per vintage (tCO ₂ e)
01/10/2018 to 31/12/2018	69,913 tCO ₂ e
01/01/2018 to 31/12/2019	277,373 tCO ₂ e
01/01/2020 to 31/05/2020	115,509 tCO ₂ e
Total	462,795 tCO₂e

E.6. Remarks on difference from estimated value in approved PDD

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The difference in VERs per stove per year was caused by the following:

1. The fuel savings applied is based on previous KT values of the previous monitoring period.
2. Change in NRB for the country compared with the values applied in the PDD
3. Reduced fuel consumption per households
4. Change in usage rates applied as monitored compared with PDD values.

SECTION F. Stakeholder inputs and legal disputes

F.1. List all inputs/grievances which have been received for the project during the monitoring period together with their respective answers/actions

There have not been any grievances received during this monitoring period.

F.2. List all inputs/grievances from previous monitoring period where follow up action is to be verified in this monitoring period

There have not been any grievances for the project. All stoves within the warranty period are repaired free of charge by the project and those out of warranty, are also repaired for a small fee.

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

There have not been any legal contest or dispute for the project during this period