Gold Standard
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TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

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

This document contains the following Sections

KEY PROJECT INFORMATION

PROGRAMME OF ACTIVITY INFORMATION – (DELETE BELOW TABLE IF N/A)

GS ID of Programme	GS10789
Title of the programme	ECOA_BURN multi-country Clean Cooking Programme
Version of POA-DD applicable to this monitoring report	4.1
Name and GS ID of fully Validated CPA/VPAs (i.e. non compliance check)	GS10789 VPA1: Efficient and Clean Cooking for households in Somalia GS ID: GS10790

Key Project Information

GS ID (s) of Project (s)	GS10790
Title of the project (s) covered by monitoring report	GS10789 VPA1: Efficient and Clean Cooking for households in Somalia
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	4.0
Version number of the monitoring report	5.0
Completion date of the monitoring report	25/07/2023
Date of project design certification	01/10/2021
Date of Last Annual Report	N/A
Monitoring period number	3
Duration of this monitoring period	01/04/2022-10/12/2022 (both days included)
Project Representative	BURN Manufacturing Co.
Host Country	Federal Republic of Somalia
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 3.1.0
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
SDG 13 Climate Action	Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	565,852	VERs
SDG 1 End poverty in all its forms everywhere	1.4.1 Proportion of population living in households with access basic services (efficient cook stoves)	35.49%	Equivalent monetary savings in %
SDG 3: Ensure healthy lives and promote well-being for all at all ages	3.9.1 Illnesses and Mortality rate attributed to household and ambient air pollution	96.60% Users reported a decrease	Measurement of user perceptions between the baseline and project scenario: smoke levels, incidence of coughing, incidence of respiratory illness, and incidence of itchy eyes
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	Target 7.1 and 7.B	120,802	Number of sold/ distributed ICS in use
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	No. of jobs created	72	Number of local jobs created

Table 2 – Product Vintages

		Amount Achieved
Start Dates	**End Dates**	**VERs**
01/04/2022	10/12/2022	565,852

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

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This VPA deploys highly efficient improved charcoal cookstoves (ICS), known as 'Jikokoas' for reducing woody biomass consumption for urban and peri-urban households in the Federal Republic of Somalia.

The VPA is implemented by BURN Manufacturing Co. (in the following 'BURN'), at the same time Coordinating and Managing Entity (CME) of the PoA, the biggest manufacturer of highly efficient improved cookstoves in Sub-Saharan Africa producing all its stoves in the first and only modern cookstove manufacturing facility in Kenya. BURN collaborates with various local partners on the ground to assist in the different activities of this cookstove project.

The scenario existing prior to the implementation of the project is the use of very inefficient traditional cookstoves, consuming a lot of non-renewable charcoal and firewood. The high biomass consumption has negative impacts on the environment leading to deforestation and land degradation, Greenhouse Gas Emissions (GHG) emissions, loss of soil fertility and soils' reduced ability of water retention. Further, indoor air pollution through health-damaging pollutants while combusting firewood and charcoal result in diseases like e.g. pneumonia, stroke, ischaemic heart diseases, chronic obstructive pulmonary diseases and lung cancer.

Technologies and/or measures

The VPA deploys an efficient cookstove known as Jikokoa intended for use with charcoal. The technology was designed and developed by BURN. These highly efficient cookstoves translate into considerable charcoal savings when compared to traditional cookstoves.

The Jikokoa stove's design considers the local cooking culture in the project area to ensure that improvements in technology and improved standards of living do not come at the expense of cultural traditions.

Burn Design Lab HH Charcoal Stove (Jikokoa)

A.2. Location of project

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Host Country: Federal Republic of Somalia

Region/State/Province etc:

All the 6 federal member states and Banadir Regional Administration (BRA) of the Federal Republic of Somalia are covered by the VPA. These are the following:

- South-West State
- Puntland
- Somaliland
- Jubaland
- Hirshabelle
- Galmudug
- Banadir Regional Administration (Mogadishu Municipality)

GPS coordinates for the Federal Republic of Somalia:

Latitude: 5° 09' 47.83" N

Longitude: 46° 12' 13.32" E

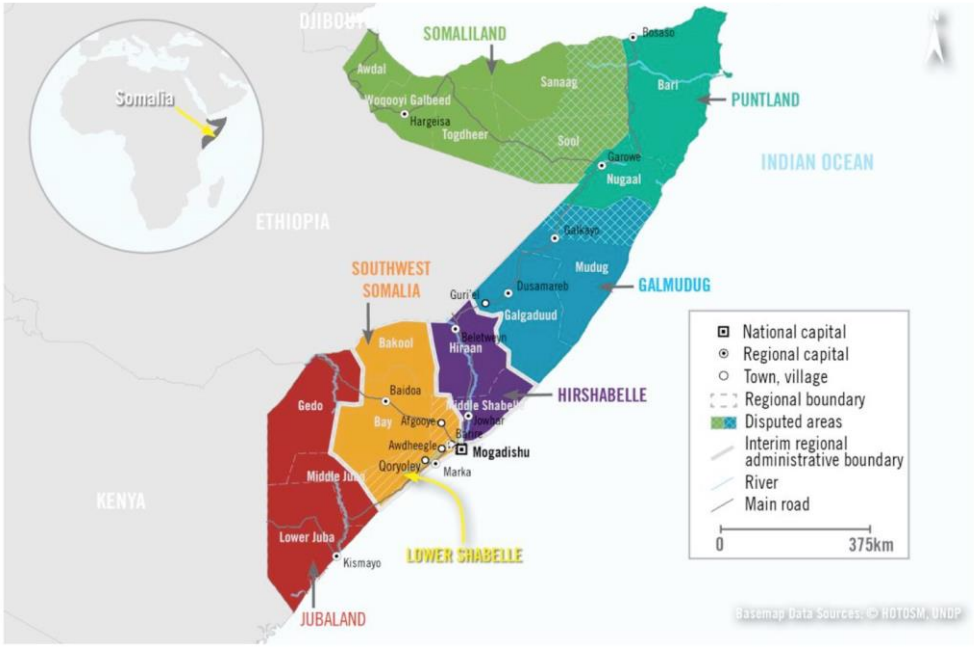

Figure 1: Map of Somalia with the Federal Member States

A.3. Reference of applied methodology

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

A.4. Crediting period of project

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The crediting period of the project is from 02/10/2019 to 01/10/2024. The crediting period for this project is 5 years. The crediting period may be renewed twice in line with the Community Services Activity Requirements.

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

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a) Purpose of the specific-case VPA(s) and the measures taken for GHG emission reductions or net GHG removals by sinks

The purpose of the VPA is to achieve widespread distribution and effective use of efficient cooking technologies in urban and peri-urban households. The widespread use of efficient cooking technologies will result in vastly reduced woody biomass

consumption. Reduced woody biomass consumption will result in GHG emission reductions, relative to the applicable non-renewable biomass factor.

b) Description of the technology employed and installed equipment and/or infrastructure, including information requested by the eligibility criteria.

The efficient cook stove relies on two main design principles to achieve a high thermal efficiency, namely improved airflow, and thermal insulation. Improved airflow design allows better fuel-air mixing and regulation of the fuel-air mixture, increasing the rate at which oxygen is delivered to fuel in the combustion chamber. The increased flow rate of oxygen allows the combustion to occur at a higher temperature. The thermal insulation of the efficient cooking stove ensures thermal energy is directed to the cooking surface and does not become waste heat. The VPA deploys efficient charcoal cooking stoves known as Jikokoa Classic (G3.5) and Jikokoa Xtra (G4), which have been designed and developed by BURN Manufacturing Co.

Total ICS distributed under the project activity till the end of the current Monitoring period are 136,563.

Please see the technical specifications in the following table:

Stove Manufacturer	BURN
Stove Model	Jikokoa G3.5
Stove Type	Charcoal Stove

Materials

Stove Body	CRCA Carbon Steel painted high gloss black epoxy powder coat
Pot Rest	StainlessSteel
Burning Chamber	StainlessSteel
Ash Tray	Aluzinc
Feet	StainlessSteel

Measurements

Height	cm	24.4 cm
Diameter (stove top)	cm	26.0 cm
Weight	kg	4 kg

Fuel Chamber Volume	cm^3	954 cm^3
Packaging Dimensions	cm	29.0 L x 28.5 W x 25.1 H

WBT Results

Parameter	Unit	Value
High power thermal efficiency (average of cold start and hot start)	%	48.1%
Firepower	kW	1.99
Boil Time	minutes	27.59

Lifetime

Warranty	2 years
Estimated Lifetime[3]	7 to 10 years

Stove Manufacturer	BURN
Stove Model	Jikokoa Xtra (G4)
Stove Type	Charcoal Stove

Materials

Stove Body	CRCA Carbon Steel painted high gloss black epoxy powder coat
Pot Rest	StainlessSteel & Cast Iron
Burning Chamber	StainlessSteel
Ash Tray	Aluzinc
Feet	Aluzinc

Height	cm	27.0 cm
Diameter (stove top)	cm	30.2 cm
Weight	kg	5.5 kg

Fuel Chamber Volume	cm^3	1030 cm^3
Packaging Dimensions	cm	30.2 L x 30.5 W x 27.5 H

WBT Results

Parameter	Unit	Value
High power thermal efficiency (average of cold start and hot start)	%	44.6%
Firepower	kW	2.36
Boil Time	minutes	26.44

Lifetime

Warranty	2 years
Estimated Lifetime[1]	7 to 10 years

The project has been implemented as described in the PDD. There are no changes from the project design, except that no stoves of the model Ecoa Char MMJ have been distributed yet.

B.1.1 Forward Action Requests

>> N/A

B.2. Post-Design Certification changes

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[1] The lifetime of the Jikokoa Xtra may go beyond the indicated lifetime. Hence, depending on the usage rate of the stoves, stoves will be either removed from the database after the end of its lifetime and not credited anymore or remain in the database for crediting until the moment a significant drop in usage rate is observed. As an alternative, worn out ICS may be replaced by newly distributed stoves. Manufacturer's declaration about the ICS lifetime has beensubmitted to the validating DOE.

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

>> None

e)

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 the Design Certified 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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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 VPA. 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[6]:

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. Kuniokoa)
- # 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: 202728110

- "2" stands for Kuniokoa product ID
- "027280" for S1-S6, meaning it was the 27,281st Kuniokoa produced
- "11" 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

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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	0.1476
Choice of data or Measurement methods and procedures	Table 2.5, volume 2, chapter 2, 2006 IPCC Guidelines for National Greenhouse Gas Inventories.
Purpose of data	To determine the non-CO2 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	CO2 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 CO2 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	tCO2/TJ
Description	Non-CO2 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	0.1476
Choice of data or Measurement methods and procedures	Table 2.5, volume 2, chapter 2, 2006 IPCC Guidelines for National Greenhouse Gas Inventories
Purpose of data	To determine the CH4 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	$EF_{Ch,prod,CO2}$
Unit	tCO2/ton charcoal
Description	CO2 emission factor arising from production of charcoal
Source of data	IPCC 2019 value (Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories), volume 2, chapter 4, Table 4.3.3
Value(s) applied	1.57
Choice of data or Measurement methods and procedures	IPCC 2019 default value (Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories), volume 2, chapter 4, Table 4.3.3
Purpose of data	CO2 emission calculation in baseline and project scenario
Additional comments	NA

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	$EF_{Ch,prod,non-CO2}$
Unit	tCO2/ton of charcoal
Description	Non-CO2 emission factor arising from production of charcoal
Source of data	IPCC 2019 value (Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories), volume 2, chapter 4, Table 4.3.3
Value(s) applied	0.0403 tCO2e/ton of charcoal for methane 0.00008 tCO2e/ton of charcoal for N2O
Choice of data or Measurement methods and procedures	IPCC 2019 default value (Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories), volume 2, chapter 4, Table 4.3.3
Purpose of data	CO2 emission calculation in baseline and project scenario
Additional comments	NA

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/ton
Description	Net calorific value of charcoal fuel used in the baseline
Source of data	IPCC 2006 defaults values
Value(s) applied	0.0156
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 tCO2/t_fuel, remove NCV term from emission calculations.

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	0.0156
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 wood fuel
Additional comments	This has same value as $NCV_{baseline}$ 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	$f_{NRB,i,y}$
Unit	Fractional
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Source of data	C4EcoSolutions Report
Value(s) applied	0.99
Choice of data or Measurement methods and procedures	f_{NRB} assessment based on CDM fNRB tool, Tool 30, version 03.0[2]
Purpose of data	ER calculation
Additional comments	The fNRB value will remain fixed during the 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	Wood-to-charcoal conversion factor
Unit	kg firewood / kg charcoal
Description	Conversion factor for transforming fuel wood into charcoal
Source of data	IPCC default value
Value(s) applied	6
Choice of data or Measurement methods and procedures	Default IPCC value (1996 IPCC Guidelines for National Greenhouse Gas Inventories) is applied (https://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ref3.pdf)

[2] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v3.0.pdf (accessed on 11/06/2020)

Purpose of data	Used to calculate fuel savings in fuel wood equivalent
Additional comments	Fixed ex-ante at VPA level

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	$P_{b,y}$
Unit	t/household/year
Description	Quantity of charcoal that is consumed in baseline scenariob during year y
Source of data	Baseline KPT
Value(s) applied	1.028
Choice of data or Measurement methods and procedures	This value is based on baseline KPTs carried out with 119 end-users. The baseline KPT has followed the procedures as outlined in the methodology in section 7 and Annex 4. For more details see section B.4. of this VPA-DD.
Purpose of data	Used to calculate the fuel savings
Additional comments	The baseline will remain by-default fixed during the crediting period since the project activity targets non- industrial applications (see page 6 of TPDDTEC)

D.2 Data and parameters monitored

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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	$N_{p,y}$
Unit	Number of project cookstove credited (units)
Description	Cookstoves in the project database for project scenario p through year y
Measured/calculated/default	Calculated
Source of data	File: Ex Post ER calculation spreadsheet Sheet Name: ER ICS TPDDTEC Cell: C64
Value(s) of monitored parameter	Full year stoves equivalent: 91,868

	The above mentioned values already take into account multi project stoves operational in a household.
Monitoring equipment	BURN keeps records of all distributed ICS in an electronic database. As a minimum the following information will be recorded through EcoMobile7 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 must register their end-user details through SMS or call.
Measuring/reading/recording frequency:	Continuously
Calculation method (if applicable):	-
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculation of emission reductions
Additional comments	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.

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	t/household/year
Description	Quantity of fuel that is consumed in project scenario p during year y
Measured/calculated/default	Calculated
Source of data	Project KPT and WBT analysis File: Ex Post ER calculation spreadsheet Sheet Name: ER ICS TPDDTEC Cell: D15, E15,F15, G15
Value(s) of monitored parameter	0.410
Monitoring equipment	-

Measuring/reading/recording frequency:	Every 2 years or in case that aging test approach (as per Annex 8 of the applied methodology) is applied, once prior to 1st issuance.
Calculation method (if applicable):	Determined through project WBT. The procedure as per Annex 8- Aging Test approach for Project fuel updates of the applied methodology TPDDTEC and formula given in latest version of the methodology has been followed. A project KPT was done prior to first issuance of the project for which the project fuel consumption was 0.392 and average efficiency of the ICS was 46.18%. For this monitoring a WBT analysis has been carried out, four age groups have been considered being representative of the total population of project cookstoves in the database. The sample size selected was 16 each for both types of ICS used in the project activity. Following formula has been used to calculate the project fuel consumption: $SFC_{p,i,y} = SFC_{p,1} * (n_{new,i,1}/n_{new,i,y})$ Where: $n_{new,i,1}$ = Efficiency of the project cookstove type i in year 1 $SFC_{p,1}$= Specific fuel consumption for an individual household using project technology in project scenario p in year 1 $n_{new,i,y}$ = Efficiency of project cookstove in year y (after first year/issuance)
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculation of project emissions
Additional comments	A single project fuel consumption parameter is weighed to be representative of the quantity of project technologies of each age being credited in a given project scenario.

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 File: Ex Post ER calculation spreadsheet Sheet Name: Usage Analysis Cell: D4

<table>
<tr><td></td><td></td></tr>
<tr><td>Value(s) of monitored parameter</td><td>89% (Weighted average usage rate)

Age Group 0-1 usage rate: 90%[3] (93.3%)
Age Group 1-2: usage rate: 90%[4] (92.7%)
Age Group 2-3: usage rate: 90%[5] (91.4%)
Age Group 3-4: usage rate: 86.7%

Where the values are over 90%, they have been capped at 90% to calculate the emission reductions.</td></tr>
<tr><td>Monitoring equipment</td><td>KT Measurements</td></tr>
<tr><td>Measuring/reading/recording frequency:</td><td>Usage/Monitoring surveys</td></tr>
<tr><td>Calculation method (if applicable):</td><td>-</td></tr>
<tr><td>QA/QC procedures</td><td>Transparent data analysis and reporting</td></tr>
<tr><td>Purpose of data</td><td>Estimation of CO2e emission reductions</td></tr>
<tr><td>Additional comments</td><td>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.
For all age groups, the cap value of 90% for “good practice” as per “Usage Rate Monitoring Requirements and Guidelines” has been applied.
Only those households have been accounted for as users who use the project stove for at least 7 meals per week and who indicated the last usage within a week.
Those households, for which on-site observations in the kitchen did not indicate clear usage, have been defined as “Non-user”.

A comparison of the Up,y value per vintage with previous MPs is provided in the following table

<table>
<tr><td>MP/vintage</td><td>0-1</td><td>1-2</td><td>2-3</td><td>3-4</td></tr>
<tr><td>3 (current)</td><td>90%</td><td>90%</td><td>90%</td><td>86.7%</td></tr>
<tr><td>2</td><td>90%</td><td>90%</td><td>90%</td><td>N/A</td></tr>
<tr><td>1</td><td>90%</td><td>89.20 %</td><td>N/A</td><td>N/A</td></tr>
</table>
</td></tr>
</table>

[3] cap value good practice as per “Usage Rate Monitoring Requirements and Guidelines”
[4] cap value good practice as per “Usage Rate Monitoring Requirements and Guidelines
[5] cap value good practice as per “Usage Rate Monitoring Requirements and Guidelines

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	tCO2e per year
Description	Leakage in project scenario p during year y
Measured/calculated/default	Measured
Source of data	Baseline and monitoring surveys File: Ex Post ER calculation spreadsheet Sheet Name: ER ICS TPDDTEC Cell: D22, E22,F22, G22
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	Leakage assessment has been carried out for this monitoring period and the results have been submitted to the VVB.

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	$\eta new,i$
Unit	Fraction
Description	Efficiency of the ICS of each type i being deployed as part of the project activity
Measured/calculated/default	Measured
Source of data	Water Boiling Tests (WBT) following the WBT protocol, 4.2.3. (https://www.cleancookingalliance.org/technology-andfuels/testing/protocols.html) File: Ex Post ER calculation spreadsheet Sheet Name: Database Summary Cell: J2

Value(s) of monitored parameter	Weighted average thermal efficiency: 44%
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	The procedures as outlined in Annex 8 of TPDDTEC has been followed. The WBT results of each age group comply with the 90/10 rule.
QA/QC procedures	-
Purpose of data	To calculate project fuel consumption
Additional comments	Ageing test approach has been used in MPIII. .

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	μ_y
Unit	Fraction
Description	Adjustment to account for any continued use of pre-project devices (baseline stove) in the project scenario during the year y
Measured/calculated/default	Measured
Source of data	Monitoring/Usage surveys File: Ex Post ER calculation spreadsheet Sheet Name: ER ICS TPDDTEC Cell: D17, E17,F17, G17
Value(s) of monitored parameter	0.992
Monitoring equipment	-
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	The usage survey has captured the total project fuel consumption on all stoves, i.e. also includes the fuels consumed on any baseline stoves. The survey includes number of meals cooked per household using baseline stoves and an adjusted fraction has been calculated for all the sampled households. A weighted fraction has been calculated from all age groups for ER calculations.
QA/QC procedures	-
Purpose of data	Emission reduction calculation
Additional comments	-

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, itchy eyes and breathing problems
Measured/calculated/default	-
Source of data	Usage/monitoring survey File: Ex Post ER calculation spreadsheet Sheet Name: Usage Analysis Cell: C86
Value(s) of monitored parameter	96.60% perceive an improved air quality
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):	Carrying out 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 compared to the baseline scenario.
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 SDG 3
Additional comments	This parameter is measured qualitatively, but not quantitatively.

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	Monetary savings related to the purchase of charcoal
Unit	-
Description	Monetary savings related to the purchase of charcoal

Measured/calculated/default	Measured and calculated
Source of data	Usage/monitoring survey File: Ex Post ER calculation spreadsheet Sheet Name: Usage Analysis Cell: C87
Value(s) of monitored parameter	35.49%
Monitoring equipment	Direct calculation based on results from the usage survey
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	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.
QA/QC procedures	-
Purpose of data	Reporting on SDG 1
Additional comments	This parameter is measured qualitatively, but not quantitatively.

Relevant SDG Indicator/Safeguarding Principle	SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all. Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services
Data / Parameter	Number of sold/distributed ICS in use
Unit	Numbers
Description	Number of sold/distributed ICS in use
Measured/calculated/default	Calculated
Source of data	Project database Supporting files: File: Ex Post ER calculation spreadsheet Sheet Name: ER ICS TPDDTEC Cell: C63
Value(s) of monitored parameter	120,802 (N° of yr-stoves in use)
Monitoring equipment	-

Measuring/reading/recording frequency:	Continuously
Calculation method (if applicable):	The total number of ICS sold/distributed is summed up in the database
QA/QC procedures	-
Purpose of data	Reporting on SDG 7

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	Project records like contracts, payment slips, employee list or others
Source of data	Project records File: Employee list support document Sheet: Som Employees Summary Cell: M8
Value(s) of monitored parameter	In the following the No. of employees across the monitoring period including both casual and contract employees: Casual Jobs=57 Contract Jobs = 15
Monitoring equipment	Direct measurement based on employment numbers of those employed directly by the project
Measuring/reading/recording frequency:	Annual
Calculation method (if applicable):	Counting employee contract
QA/QC procedures	-
Purpose of data	Reporting on SDG 8

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

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
$P_{p,y}$	0.410	0.401
$U_{p,y}$	89%	90%

$N_{p,y}$	91,868	107,448
$LE_{p,y}$	0	0
Perceived Air quality	96.60%	98.43% customers experienced a change in health
Equivalent monetary savings	35.49%	1.747 kg/day of charcoal translating to 43% savings
Average hourly earnings of female and male employees, by occupation, age and persons with disabilities	72 people employed and several trainings done	147 people employed and several trainings done
Number of people/households with access to the energy efficient cook stoves and the usage rates of efficient cook stoves.	120,802units active Usage rate- 89%	107,448 units active Usage rate- 90%

D.4. Implementation of sampling plan

>>

Monitoring/Usage Surveys and Project WBTs

Methodology Followed

Data collection for usage/monitoring survey was conducted from 18th December 2022 to 30th January 2023. A team of 2 trainers were trained for the data collection by BURN team to ensure understanding of usage/monitoring requirements, data collection procedure, and specific requirements pertaining to WBTs.

The leading team in Somalia consisting of team leaders and project managers, were trained by the Carbon officer from BURN headquarter in Kenya and external carbon consultant. This team thereafter trained a local team of 22 surveyors who were well versed with the local culture and language. The training was adequately tailored to usage surveys/WBTs and included an interactive discussion of questions with surveyors, going through the questions of the usage survey questionnaire (data collection form) and WBT surveys, role plays as well as interview techniques.

The usage monitoring surveys and WBT households were visited between 11th December 2022 to 30th January2023.

Monitoring Deviation

No monitoring deviation was sought for the current monitoring period.

Sampling frame

The sampling frame for the usage/monitoring survey and WBTs consisted of households registered with end-user details (like location, phone number etc) in BURN´s sales database.

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 and WBTs as well as conducting telephone usage surveys.

Usage Survey Sample Size

As per the applied methodology, the minimum sample size is 100. The project developer sampled 30 stoves from age group 0-1, 82 from age group 1-2, 93 from age group 2-3 and 30 from age group 3-4. The PP sampled more stoves to cater for any possible non-responses.

Of the sampled households, all physical site visits were conducted across four age groups.

Age group	Planned samples	Actually sampled	Users	Non-users
0-1	104	30	28	2
1-2	303	82	76	6
2-3	340	93	85	8
3-4	152	30	26	4
TOTAL	**899**	**235**	**215**	**20**

Further, of these 235 sampled HHs 215 HHs reported using ICS whereas 20 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, collection of WBT stoves. Data was collected by trained enumerators who spoke the local language. In compliance with the Deviation request, all household visited had the following evidence:

The sampled households for WBTs were asked prior to conducting the WBT whether they use the stove. Since WBTs are only to be conducted on operational stoves.

Usage Rate Applied

In accordance with section 2 of the Gold standard requirements and guidelines: Usage rate monitoring v2.0, PD has claimed Good Practice level of Usage rate as the claimable maximum usage rate. This is based on the CME complying with the Gold standard requirements of Mandatory and Good Practice Level:

1. Mandatory Requirements

1.1 Define Use and Non Use

As per the registered VPA DD, Use is defined as Use of the project stove for minimum of 7 times in a week. In compliance with this, the PD has counted as users only households in the usage monitoring surveys who use the stove a minimum of 7 times in a week. This can be seen in Column *CO* of the *Ex Post ER calculation spreadsheet* in tab labelled *"KOBO Usage Survey Results".* All usage survey respondents who use the Jikokoa/Jikokoa Xtra stove less than 7 times in a week are counted as non users. A total of 18 households were therefore counted as non users for not meeting this requirement.

PD also defines non use based on "Last day of use" of the project ICS in that if the ICS was last used more than 7 days ago from the day of the usage survey visit, they are counted as non users. This can be seen in column AR of the Ex post ER calculations spread sheet in tab labelled "KOBO Usage Survey Results". In this Monitoring period, 1 household was counted as a non user for failure to comply with this definition of a user (the household last used the household More than 1 month ago from the day of the Usage survey visit).

1.2 In person Household Usage Survey

PD carried out in person usage surveys for all 235 households randomly selected for Usage monitoring survey to determine project technology use. The following activities were part of the In person household visits during this Monitoring campaign:

1.2.1 Kitchen Observation:

The enumerators visited each household and gathered key information to support the usage survey findings. The enumerator investigated signs of Use of the Project ICS by recording observations as to whether the ICS was warm to touch, whether there were ashes or embers on the ICS, and any other observations on signs of use. Since the interviewer was observing the signs of use of the ICS, there was no survey bias from the respondent answering questions in a way that they think the interviewer wants to hear, as is the risk with remote surveys.

1.2.2. Interview with the Primary cook

The enumerators only interviewed Primary cooks of the household to gather information on the ICS use patterns, including information on duration and frequency of use, as well as information on multiple stove use and seasonal trends. This can be seen in the question on column G of the KOBO Usage Survey results tab where households were asked *"Are you the primary cook for your household?".* 100% of respondents interviewed for the usage monitoring survey campaign were Primary cooks in their households.

1.2.3 Photos of Cooking Areas

The enumerators took photographs of the project technology to gather visual data on the status of the project technology. These photos show the whole kitchen area including all stoves in use at the time of the survey in the household. These photos served as evidence that the households were indeed visited for the Usage monitoring survey. All households gave consent to have photo of their kitchen areas to be taken.

1.2.4 GPS coordinates

All households visited had GPS coordinated to provide further evidence that the Household was visited. Evidence of this can be found in column HH and HI in the tab "*KOBO Usage Survey Results*" of the Ex Post ER calculations Excel File[6].

1.3 Verification of Accuracy of results

At the conclusion of the data collection, the project developer randomly called 6% of the surveyed households (total of to verify that the homes were visited by the enumerators and the recorded responses were correct. A total of 15 households were taken through this verification process.

Based on the information provided from 1.1 to 1.3 above PD has met the requirements of the Mandatory usage requirements.

2.0 Good Practice Monitoring requirements

BURN is claiming up to a maximum 90% usage rate following the below monitoring requirements, in addition to the mandatory requirements described above.

2.1 Field team training and supervision

BURN provided training and supervision to field enumerators to ensure field teams were equipped with the capacity needed to carry out successful usage monitoring surveys. The purpose of the trainings was to ensure that each enumerator collected complete and accurate information. Both Male and female enumerators were selected as enumerators. The training workshops were conducted immediately before the commencement of the field work. The first training workshop was conducted on 29th November 2022 for Call agents who would be booking appointments with households for the Usage monitoring visits. The second training was held on 6th December 2022 where 12 enumerators were trained for In person usage surveys by 2 trainers. The essence of Usage Monitoring survey was communicated to enumerators to ensure data collection, data management, field trouble shooting protocols were well understood. Field teams were supervised by BURN staff to ensure accuracy of process

[6] 20FEB2023_POA10789_VPA001_ERcal_V1.0_CONFIDENTIAL

is maintained throughout the data collection process. Daily supervision was conducted in the following ways:

i. WhatsApp Group: The Project Manager created a group WhatsApp for the surveyors. 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 surveyors 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.

2.2 End User Training and Follow Up Visits

BURN Manufacturing provides end-user training on the Jikokoa stove use through organized demonstrations and in some cases, home follow-up visits. The purpose is to ensure sensitization of end users towards correct and sustained use of the project stove.

i. End User Follow Up:

In the Monitoring period, BURN carried out home visits to follow up with end users on the use of the Jikokoa stoves. Photographs have been provided as support documentation of these visits.

Picture showing Activators visiting a household for follow up visit and training

Picture showing Activators at a household training end user on proper use of stove

ii. Warranty Booklet

Warranty booklets are distributed with the Stove to show how to use the Jikokoa stove properly.

2.3 Awareness Campaign

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.

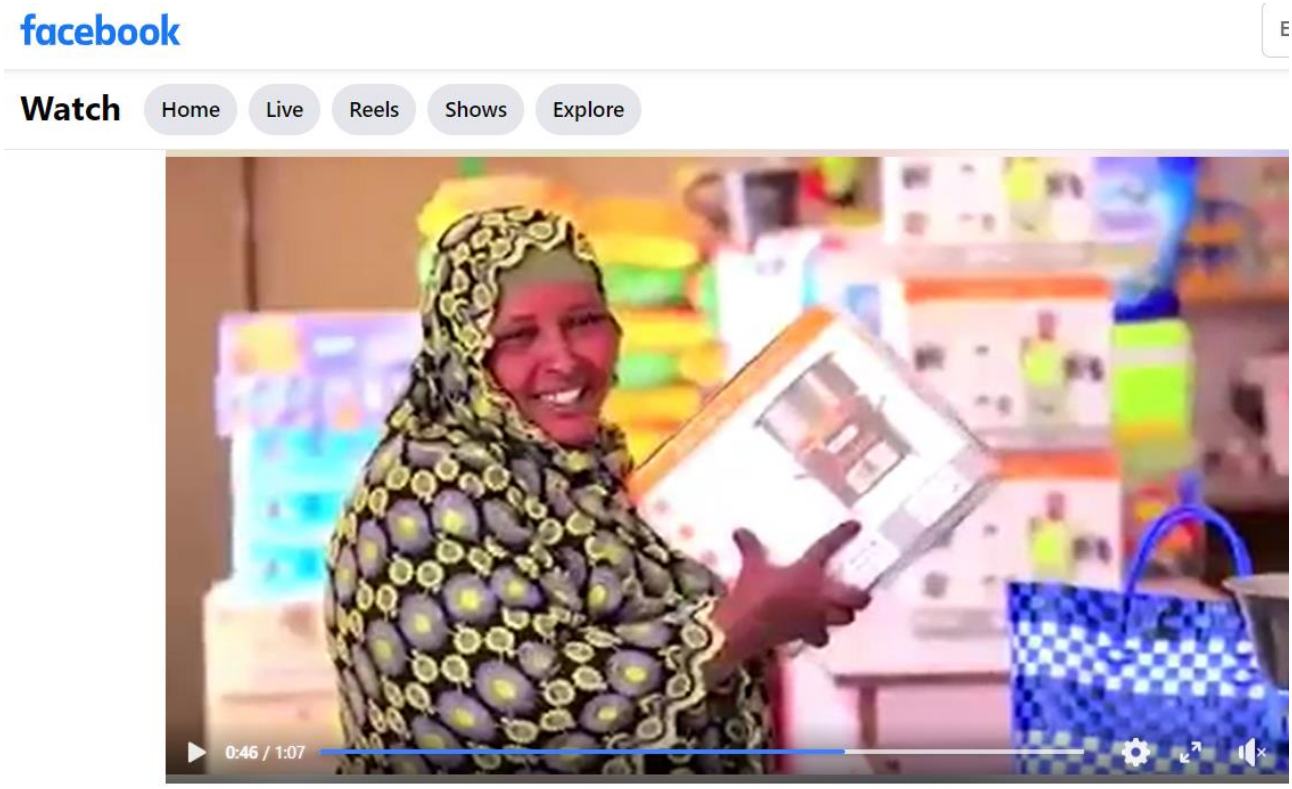
Market activations are conducted in all regions in which BURN distributes stoves and conducted at least 5 times a month.

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.

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 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 Somalia. 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.



3. Household Visits

In a bid to encourage end user adoption of the new stove technologies, BURN also 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.

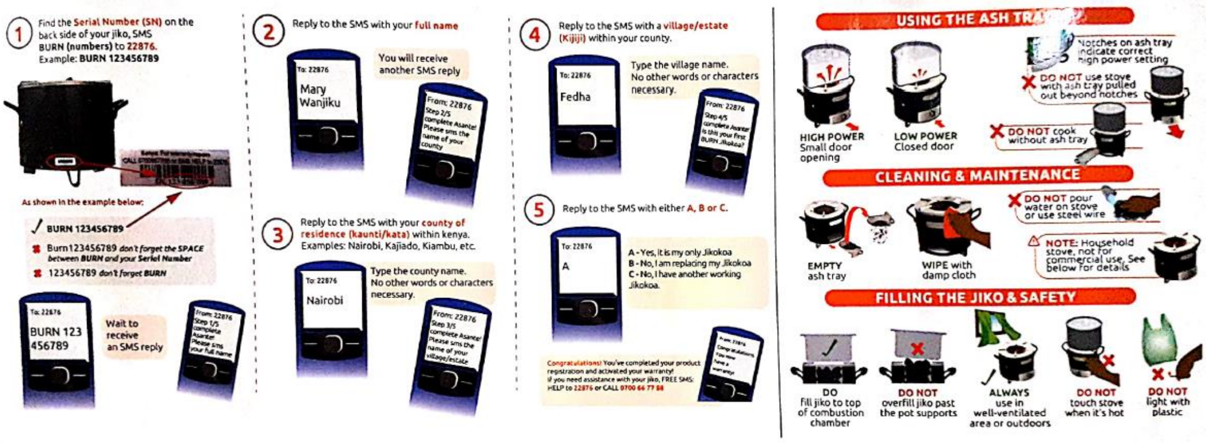
Respecting local custom and tradition, household visits are typically conducted by female sales agents. As an extension of these household visits, BURN has a dedicated customer experience team in Somalia (Hargeisa) that also conducts verification and registration checks where the household experience is vetted, and a further opportunity is provided to walk customers through any stove use, warranty or repair issues they might have.

4. 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 Somali with full instructions on stove use, warranty activation, carbon ownership and BURN contact information.

TO ACTIVATE YOUR WARRANTY SEND FREE SMS TO 22876

To ensure the maximum benefit from your stove, please read and follow the recommendations below. Terms and Conditions apply.



OUR COMMITMENT BURN Manufacturing USA (BURN) is committed to offering the world's highest quality cookstoves. Your Jikokoa™ cookstove is designed to provide years of fuel-efficient cooking enjoyment. If, for any reason, within 14 days of purchase you are not satisfied with the performance of your new Jikokoa, contact the BURN Customer Care department for a full refund. A dated and original proof-of-purchase receipt from the retailer must be presented in order to qualify for the guarantee.

WARRANTY PERIOD All stove components are warranted for a period of 1 year for Jikokoa and 2 years for Jikokoa Xtra from the date of purchase, subject to conditions, exclusions and limitations as described below.

WARRANTY REGISTRATION In order to be valid, the warranty must be activated by the consumer via SMS within 7 days of purchase. See the above section of this calender for warranty registration details.

WARRANTY COVERAGE BURN warrants the product will be free from defects in materials and workmanship for normal household use. BURN defines normal household use as cooking no more than 3 meals per day for no more than 8-20 people per cooking event. If BURN determines, in its sole discretion, that the product is defective in materials and workmanship, BURN, in its sole discretion, shall either repair or replace the covered components.

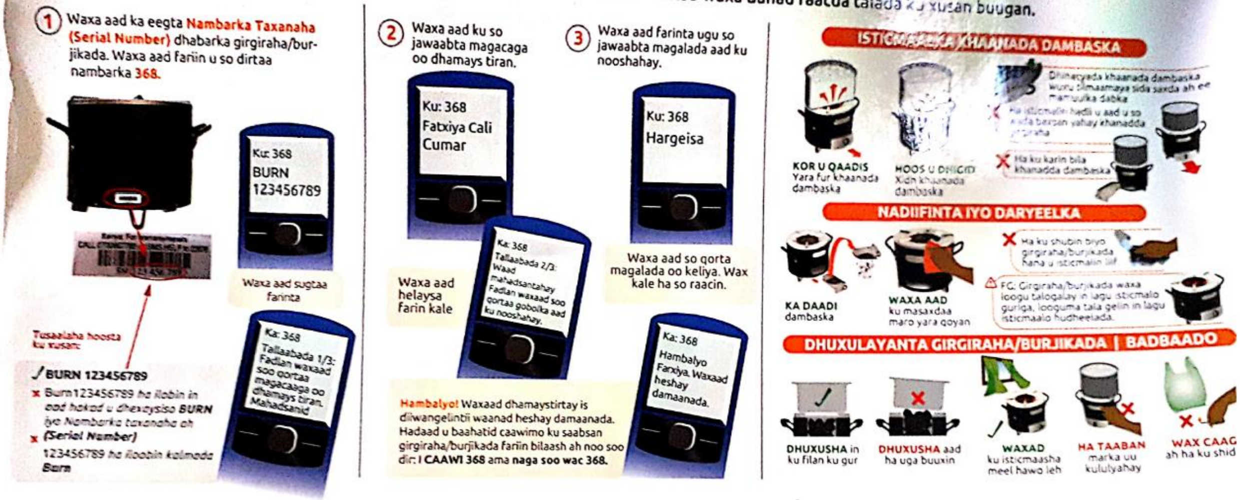
WARRANTY EXCLUSIONS This warranty does not cover the following:
- Normal wear and tear of product. As a cooking appliance, some changes in color of interior and exterior surface finishes may occur, including surface rust. This is not a flaw and not covered under warranty;
- Any discoloration or degradation of the colored powder coating finish;
- Damage due to misuse, lack of care, mishandling, accident, abuse or other abnormal use;
- Damage due to external causes, not attributable to manufacture or material defect;
- Damage caused by unauthorized modification, use or repair;
- Damage caused by exposure to excessive moisture or sunlight; or
- Damage by commercial use of the stove. Commercial use is defined by BURN as use of your jiko for preparation and sale of foodstuffs.

To claim your warranty, contact BURN directly either through SMS at 22876, or by calling 0700 66 77 88.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, WRITTEN OR ORAL, EXPRESS OR IMPLIED. There are no warranties which extend beyond the description hereof. Agents, distributors or employees of BURN are not authorized to modify this warranty or to make any additional warranties that are binding on BURN. Accordingly, statements by such individuals, whether oral or written, do not constitute warranties and should not be relied upon. This product is supported by carbon credits generated through its use. By buying this product and registering the warranty therefore, you agree to waive your rights to carbon credits to BURN. SMS HELP to 22876 or call 0700 66 77 88 if you have any problems during the life of your stove.

WAXA AAD IS DIIWANGELI DAMAANADA ADIGU FARIIN BILAASH AH U DIRAAYA NAMBARKA 368

Si aad uga faaidaysatid girgiraha/burjikada, fadlan akhriso waxa aanad raacda talada ku xusan buugan.



BALLANQAADKAYAGA: BURN Manufacturing USA (BURN) waxay ku ballanqaadaysa in ay bixiso girgiraha/burjikada ugu tayada fiican aduunka. Girgiraha/Burjikada Jikokoa waa raandhiis, dhuxusha ayu madhxiyaa si sahal ah ba lagu karin kara. Marka aad iibsato Jikokoa hadii aad ku qanci weydo muddo 14 cisho gudahood waxa aad la soo xidhidha qaybta daryeelka macamiisha si lagugu celiyo lacagta. Wa in aad la timada caddayn mujinayasa wakhtigi iyo goobti aad ka iibsatay (boono) si laguu xaqiijiyo.

MUDDADA DAMAANADA: Girgiraha/Burjikadu wuxuu leeyahay damaanad 1 sanno jikokoa ah iyo 2 sanno Jikokoa Xtra ah ka bilaabmaya marka aad iibsato. Hoosta waxa ku xusan xaaladaha aad ku heli karto damaanada iyo kuwa aanad ku heli karin.

IS DIIWANGELINTA DAMAANADDA: Marka aad iibsato 7 cisho gudahood waa in aad isku diiwangelisa oo farin aad so dirta. Qaab is diiwangelintu waka kor ku xusan.

WIXI DAMAANDA HOOS IMANAYA: Burn waxay ka madax banaan tahay cilladaha qalabka iyo shaqada ee isticmaalka caadiga ah ee qoyska. Burn waxay qeexaysaa isticmaalka caadiga ah ee qoyska sida cunto karinta wax aan ka badnayn 3 wakhti maalin kasta oo aan ka badnayn 8-10 qofba wax kasta oo wax lagu karsado. Haddii Burn go'aaminayo, iyada oo ujeedadiisu tahay, in wax cilad ah anu lahayn qalabka iyo shaqada, Burn, iyada oo kali ah, waa inay dayactirto ama bedeshaa girgiraha.

WIXI DAMAANADDA KA BAXSAN: Lama damaanadd qaadayo qodobadan so socda:
- Waxa laga yaaba in u ku imado girgiraha/burjikada in u midabku is badelo daxalna ku imadao. Taasi cillad maha kumana jirto damaanadda.
- In u dheehu ka dhaco ama u midabku is badalo.
- Wixi dhawaac so gaadha sababo la xidhidha dayaacad ama in si qaldan loo isticmaalo.
- Dhawac kaga imid dibada oo aan lo aanayn karin shirkadda.
- Dhawac ku imid qof aan lo ogolaan oo wax ka badal ama dib u habayn ku sameeya.
- Dhaawac ku imi marka lo dhigo cadeeda ama u roob ku da'ao.
- Dhaawac ku imid girgiraha/burjikada oo ganacsi lo isticmaalay. Ganacsi wax looga jeeda in logu isticmaalo girgiraha/burjikada huteelada iwm.

DAMMAANADDA KOR KU XUSAN WAA MID U GOONI AH , OO LAKULMAAYO DAMAANAD KALE, QORAAL AMA HADAL, MUUJIN AMA QEEXID. Ma jiraan wax damaanad ah oo ka baxsan sharaxaadda halkan. Wakiilada, kuwa wax iibiya ama shaqaalaha Burn looma ogola inay wax ka beddelaan damaanada ama inay sameeyaan wax damaanad ah oo dheeraad ah oo ku xiran Burn. Si waafaqsan warbixinta shakhsiyaadkaas, ha ahaato hadal ama qoraal ah, ha noqdaan damaanad iyo in aan lagu tiirsanayn. Waxyaabahaas waxaa taageer dhibcaha kaarboonka ee loo marayo isticmaalka. Sidaa darteed adoo iibsan badeecadan, waxaad ogolaatay inaad ka tanaasushto xuquuqdaada dhibca kaarboonka ee Burn. Farin waxad ku so dirta kalmada I Caawi nambarka 3 ama la so hadal 368 hadii aad la kulanto wax dhibato ah inta aad isticmala girgiraha/burjikada.

The efficacy of these end user awareness mechanisms is evident from the usage survey results, column "GS" of the "Kobo Usage Survey Results" as is summarized below:

How did you learn about how to use the JIKOKOA/JIKOKOA XTRA?	Usage Survey Count of Respondents by End User Awareness Mechanism
Leaflet/waraaqaha xayeysiiska	66
Household_visit/[Booqasho qoys	41
Sales_promotion/Xayeysiiks kor logu qaadayo iibka	26
Media_like_radio_TV_newspaper/Idaacad, Tifiga, Jaraa'id	24
Info_by_salesperson/Xog qof iibiye ah	22
Info_at_point-of-sale/Goob wax-iibsi	21
Cooking_demonstration/Bandhig cunto karineed	10
Leaflet/waraaqaha xayeysiiska	5
Leaflet/waraaqaha xayeysiiska Household_visit/[Booqasho qoys	4
Cooking_demonstration/Bandhig cunto karineed	2
Household_visit/[Booqasho qoys Sales_promotion/Xayeysiiks kor logu qaadayo iibka	1
Info_at_point-of-sale/Goob wax-iibsi Household_visit/[Booqasho qoys Info_by_salesperson/Xog qof iibiye ah	1
Info_at_point-of-sale/Goob wax-iibsi Media_like_radio_TV_newspaper/Idaacad, Tifiga, Jaraa'id	1
Leaflet/waraaqaha xayeysiiska Household_visit/[Booqasho qoys Media_like_radio_TV_newspaper/Idaacad, Tifiga, Jaraa'id	1
Media_like_radio_TV_newspaper/Idaacad, Tifiga, Jaraa'id	1
Media_like_radio_TV_newspaper/Idaacad, Tifiga, Jaraa'id Household_visit/[Booqasho qoys	1
Other/wax-kale	1
Grand Total	**228**

The Usage Monitoring survey results further corroborate the efficacy of the end-use awareness mechanisms with 97.45% of the respondents reporting that they felt they

were sufficiently informed on how to use the project stove, while 97.02% reported that they felt they were sufficiently informed on the benefits of the project stove.

Unreachable and declining households

Out of all households shortlisted for in-person surveys, 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 268- households were replaced due to unreachability of the households at the time of the surveys, while another 396- 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.

Results

Usage survey

Type of survey	Period of survey	Number ofsample HHs using stove	Achieved precision
Usage/monitoring survey	18th December 2022 to 30th January 2023	215	Not applicable. Minimum sample size of 100

Water Boiling Tests

Stove type	Period of WBT	Actual number of samples (N° of stoves) conducted	Achieved precision

Jikokoa Classic	09/01/2023 to 23/01/2023	16 Age group 0-1: 4 Age group 1-2: 4 Age group 2-3: 4 Age group 3-4: 4	Age group 0-1: 0.17% Age group 1-2: 0.24% Age group 2-3: 0.13% Age group 3-4: 0.20%
Jikokoa Xtra	09/01/2023to 23/01/2023	16 Age group 0-1: 4 Age group 1-2: 4 Age group 2-3: 4 Age group 3-4: 4	Age group 0-1: 0.43% Age group 1-2: 0.17% Age group 2-3: 0.36% Age group3-4: 0.27%

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.

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

Where:

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

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

$P_{p,b,y} = (Pb,y - Pp,y)*CF$

$P_{p,b,y}$ = Specific fuel savings in wood equivalent
$P_{b,y}$ = Baseline fuel consumption
$P_{p,y}$ = Project fuel consumption
CF = Wood-to-charcoal conversion factor

Following table shows sample calculation for Monitoring period III:

Item	**Unit**	**2019**	**2020**	**2021**	**2022**
Project Technology Days (N)	days	7,816	44,020	36,292	4,475
Cumulative Usage Rate (U)	fraction	89%	89%	89%	89%
Baseline fuel consumption (Pb,y)	tons/household/year	1.028	1.028	1.028	1.028
Project fuel consumption (Pp,y)	tons/household/year	0.410	0.410	0.410	0.410
Non-renewable biomass fraction (baseline)	fraction	99.00%	99.00%	99.00%	99.00%
μy	Fraction	0.992	0.992	0.992	0.992
Wood to charcoal conversion factor	fraction	6	6	6	6
EF,b,wood, CO2 (combined)	tCO2e/t charcoal	1.7472	1.7472	1.7472	1.7472
EF,b,wood, nonCO2 (combined)	tCO2e/t charcoal	0.1476	0.1476	0.1476	0.1476
Net Caloric Value*	TJ/t charcoal	n.a	n.a	n.a	n.a
Leakage LE	tCO2e/t year	0	0	0	0
ER(tCO2e)	**tCO2e**	48,117	270,350	220,834	26,551

Where, project technology days has been calculated as:

Project technologies credited (N) Year 2019	8,016.66
% of HH with one project ICS (Jikokoa stove) in use	94.89%
% of HH with two project ICS (Jikokoa stove) in use	5.11%
% of HH with three project ICS (Jikokoa stove) in use	0.00%
Project technologies credited (units)	7,812
Project technologies credited (N) Year 2020	45,042.20
% of HH with one project ICS (Jikokoa stove) in use	94.89%
% of HH with two project ICS (Jikokoa stove) in use	5.11%
% of HH with three project ICS (Jikokoa stove) in use	0.00%
Project technologies credited (units)	43,892
Project technologies credited (N) Year 2021	36,792.42
% of HH with one project ICS (Jikokoa stove) in use	94.89%
% of HH with two project ICS (Jikokoa stove) in use	5.11%
% of HH with three project ICS (Jikokoa stove) in use	0.00%
Project technologies credited (units)	35,853
Project technologies credited (N) Year 2022	4,423.59
% of HH with one project ICS (Jikokoa stove) in use	94.89%
% of HH with two project ICS (Jikokoa stove) in use	5.11%
% of HH with three project ICS (Jikokoa stove) in use	0.00%
Project technologies credited (units)	4,311

SDG 1

In the baseline scenario, it is estimated that households spend 100% in charcoal fuel, i.e. that there are no savings. The savings are a result of the implementation of the project activity.

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 7

In the baseline scenario, it is estimated that no improved cookstoves are implemented, hence the baseline value is zero. 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.

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.

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

Where:

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

$$P_{p,b,y} = (P_{b,y} - P_{p,y}) * CF$$

$P_{p,b,y}$ = Specific fuel savings in wood equivalent

$P_{b,y}$ = Baseline fuel consumption

$P_{p,y}$ = Project fuel consumption

CF = Wood-to-charcoal conversion factor

Results from this monitoring period shows that the project has achieved 565,852 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 (either site visits or telephone surveys) to check on the money spent for purchasing charcoal in the project scenario compared to the baseline scenario. Results from this monitoring period show that in average the monetary savings are 35.49% 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 (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 compared to the baseline scenario. Results from this monitoring period show that 96.60% of respondents perceive air quality improvements at their homes since purchasing and cooking with the project stove as compared to the baseline.

SDG 7

The parameter 'project technologies in use' has been calculated as part of the outcome calculation for SDG 13 and is provided in the separate ER calculation excel spreadsheet. The eligible project technology days are multiplied with the usage rate (Up,y) to determine the 'project technologies in use'. In this monitoring period, the project technologies in use has been calculated as 120,802 .

SDG 8

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.

Casual jobs-

Male- 25 Female- 14

Contract jobs

Male- 11 Female- 7

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

E.3. Calculation of leakage

>>

Leakage assessment carried out in this Monitoring period shows no Leakage occurring. Therefore the value applied is 0 tCO2e/yr.

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	565,852
SDG 1	End poverty in all its forms everywhere	100%	-	35.49%
SDG 3	Ensure healthy lives and promote well-being for all at all ages	100%	3.40%	96.60%
SDG 7	Ensure access to affordable, reliable, sustainable and modern energy for all	0	120,802	120,802
SDG 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	0	72	72

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[7] achieved during this monitoring period
SDG 1: End poverty in all its forms everywhere	62%	35.49%
SDG 3: Ensure healthy lives and promote well-being for all at all ages	80%	96.60%
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	96,517	120,802
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	25	72
SDG 13: Climate actions	691,859 tCO2e	565,852 tCO2e

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 (01/04/2022-10/12/2022) has been shown in detail in the ER

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

calculation sheet. The reported actual average charcoal savings (SDG 1) are less in the current MP (35%) than estimated in the registered VPA-DD (62%) and the reported health benefits (SDG 3) are more (96.60%) than what has been estimated in the registered VPA-DD (80%), based on the Usage survey results. More ICS are in use for SDG 7 (120,802) as compared to ex-ante VPA-DD (96,517). More jobs (72) have been generated (SDG 8) than estimated in registered VPA-DD (25).

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

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For SDG 1, the actual value is lower than the estimated (ex-ante) value. For SDG 8, More jobs have been created than estimated as the actual workload for distribution/sale, follow up, sensitization, awareness raising, monitoring has been higher than expected. For SDG 7 more ICS as in use as complared to the ex ante, as this is based on actual usage rate and actual stoves sold in this MP. For SDG 13, the actual value is lower than the estimated (ex-ante) value. For SDG 3, based on the usage survey response, the actual values are more than the estimated (ex-ante) values which reflects more response from the users and health has improved in the HHs.

SECTION F. SAFEGUARDS REPORTING

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Not applicable

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.

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The Grievance Mechanism for this VPA is set up in 3 ways:

i. **Phone Number:** End users can call in 368 which is the dedicated phone number where they can call and communicate their comments or complaints to BURN's after sales service unit. No phone calls with any comments, disputes, inputs have been received.

ii. Logbook: The 3 log-books have been placed in Hargeisa, Garowe and Mogadishu offices at the addresses mentioned in the VPA-DD. No comments, disputes, inputs have been received on the log books during the monitoring period.

iii. Internet Email Access: No comments, disputes, inputs have been received via email during the monitoring period.

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

>> Not applicable

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

>> No legal contests have arisen with the project during the monitoring 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