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[GS 5642](#)

Gold Standard for the Global Goals
Key Project Information & Project Design Document (PDD)



Version 1.1 – August 2017

KEY PROJECT INFORMATION

Title of Project:	Burn Stoves Project in Kenya
Brief description of Project:	Project History Burn Stoves Project in Kenya ("the Project") seeks to improve health and incomes throughout Kenya by reducing time and money spent acquiring fuel for household cooking. This project started as part of GS966 "Paradigm Healthy Water and Cookstoves Project". However, it was successfully converted to a new project through a Design Change and a new project GS5642 was created for Burn Manufacturing involving its own sale charcoal stoves. The project may be expanded to include further designs of stoves in the future. 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. Burn Manufacturing ("Burn") has built a factory in Ruiru, north of Nairobi, to make very efficient charcoal burning stoves. It has a number of routes to market: through distributors and its own direct sales. All stoves to date have been sold with carbon finance under GS 966. As explained in the Memorandum, this part of GS 966 is being re-designed to create a separate project in which Burn is a Project Participant and owner of the project itself.
Expected Implementation Date:	Renewed crediting period starts on 24/04/2017
Expected duration of Project:	7 years renewable crediting periods
Project Developer:	Burn Manufacturing ("Burn")
Project Representative:	ClimateCare Limited
Project Participants and any communities involved:	Burn Manufacturing ("Burn")
Version of PDD:	Version 04.4
Date of Version:	Date: 30/12/2021
Host Country / Location:	The Republic of Kenya
Certification Pathway (Project Certification/Impact Statements & Products)	Project Certification
Activity Requirements applied: (mark GS4GG if none relevant)	Verified Emission Reductions

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Methodologies applied:	Selected methodology(ies): Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC); Version 3.1
Product Requirements applied:	GHG Emissions Reduction & Sequestration
Regular/Retroactive:	Regular
SDG Impacts:	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
Estimated amount of SDG Impact Certified	901,698 tCO2e

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SECTION A. Description of project

A.1. Purpose and general description of project

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1. General operating and implementing framework of PoA

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

Background

This project started as part of GS966 "Paradigm Healthy Water and Cookstoves Project". However, it underwent successfully design change with the Gold Standard and a new project was created for Burn manufacturing and the project was registered on 28th February 2018. In addition, the project underwent success crediting period renewal and was successfully renewed.

Project Objective:

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

Project Plan:

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

Baseline Household Stoves:

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

The project activity contributes to Kenya's sustainable development in the following ways:

1. **Air quality improvement:** the project stove has a higher fuel efficiency compared to the baseline stove. The project stove burns faster and with less smoke and particulate matter compared with the baseline stove. The use of the stove for cooking therefore leads to improved quality of air, especially indoor air quality.

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2. **Reduced fuel costs for households:** Because the stoves are more fuel efficient than the baseline stove, the households switching to project stoves will save money that would have otherwise been used to buy charcoal. The savings will then be available to the households for alternative use.
3. **Reduced GHG emissions:** Fuel consumption by households is reduced using the project stove. This in turn helps in reducing the emission GHG to the atmosphere.
4. **Reduced deforestation and improved biodiversity:** Charcoal production and use is a major contributor to deforestation in Kenya. The continued demand for charcoal puts more pressure on the few remaining forests and this will continue if it is not reversed or contained. Reduced charcoal consumption for a given cooking demand will contribute to reduced deforestation. The project activity will reduce pressure on the remaining forest in Kenya. Given that for every tonne of charcoal produced, 6 tonnes of wood is required using the traditional charcoal production kilns commonly in use in Kenya. With more forests conserved in Kenya, the biodiversity within the forests will improve.
5. **Employment creation:** Since the stoves are produced and sold in Kenya, the project activity has created employment across the stove supply chain from manufacturing, distribution, and sales of the stoves.
6. **Improved livelihoods:** The circumstances of poor families will be improved since the stoves reduce fuel costs. Reduced household fuel cost enables families to make saving which can be utilised in other areas.
7. **Access to energy services:** The improved stoves use less fuel for a given cooking demand compared to the baseline stove. Charcoal, in a number of areas, can be scarce and/or expensive to buy, the project therefore increases their ability to access energy at minimal cost. The project stoves have also been found by users to be more convenient to use, with shorter cooking time.

There are no laws, policies or mandatory requirements in Kenya, stipulating the adoption of efficient charcoal cook-stoves. This project is a voluntary action by Burn Manufacturing.

Measures for continual improvements of the project management have been established and will be implemented as part of the project.

A.2. Eligibility of the project under Gold Standard

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As per the Gold Standard for the Global Goals Community Services Activity Requirements, version 1.1, lists the general eligibility criteria which community service projects must meet. The proposed project falls under 1.2.2 (b) End- Use Energy efficiency: *Project activities that reduce energy requirements as compared to baseline scenario without affecting the level and quality of services or products, where the end user of the products and services are clearly identified and when the physical intervention is required at the user end. For example, efficient cooking, heating, lighting, etc.*

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The project activity consists of energy efficient cook stoves that seeks to reduce the amount of fuel used in the households by displacing the traditional cook stoves that require a lot of fuel. The project stoves are efficient charcoal stove that cuts down the daily fuel consumed thus necessitating fewer trips to collect fuel or less money spent on charcoal per week. Efficient, improved stoves are a more sustainable, economic and healthier way to cook. The project activity therefore qualifies under section 1.2.2 (b) End- Use Energy efficiency. The project therefore is automatically eligible for Gold Standard Certification under the 3.1.1.1 since its is an approved Gold Standard Activity Requirements and/or Gold Standard Impact Quantification Methodologies associated with it and as referenced in Gold Standard Product Requirements.

A.3. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

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Burn Manufacturing owns the legal trademark of JikoKoa. Burn Manufacturing private organization that seeks to provide energy efficient cook stoves that transform lives, create employment and also save the forests. The stoves are produced at a factory in Ruiru, north of Nairobi, where the company manufactures the stoves. these stoves are then sold through various marketing channels.

The project proponent will clearly communicate to all project participants that The Burn Manufacturing is claiming ownership rights and selling the emission reductions resulting from the distribution of project technologies. The transfer of carbon rights will be explained to end-user through a manual and written messages in the stove packaging containing a written explanation that the rights associated with the environmental benefits of the technology belong to the Project will be included with technology distribution/sale. The project uses warranty activated system through mobile phone where end user transfers the rights to the project through warranty activation.

A.4. Location of project

A.4.1. Host Country

>> The Republic of Kenya

A.4.2. Region/State/Province etc.

>> All the 47 counties of Kenya are covered by the project.

A.4.3. City/Town/Community etc.

>> Whole country of Kenya

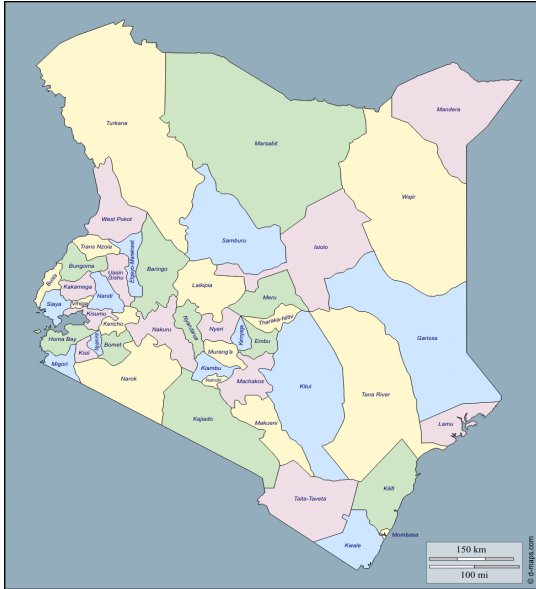
A.4.4. Physical/Geographical location

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The project is being implemented within the physical boundary of Kenya. The GPS coordinates of Burn Manufacturing factory at Ruiru are 1°08'52.5"S, 36°57'04.4"E.

The map of Kenya in which the project is being implemented is shown below:

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A.5. Technologies and/or measures

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

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

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

Household Stoves

Burn Charcoal Stove (Jikokoa)



Figure A.2: Photo: Burn Design Charcoal Stove

Testing Data¹

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.

A.6. Scale of the project

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The project is a large scale project. The technologies each have continuous useful energy outputs of less than 150kW per unit (defined as total energy delivered usefully from start to end of operation of a unit divided by time of operation).

A.7. Funding sources of project

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There is no public funding for the project.

¹ Kenya Industrial Research and Development Institute (K IRDI) Testing Report

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A.8. Assessment that project complies with 'gender sensitive' requirements

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STEP 1: BASIC CONTEXT

Question 1:

Does the project reflect the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy? Explain how.

Yes .

In ensuring gender sensitive design and implementation, the project shall address any gender inequalities and gender-related risks that may be identified in project gender analysis. Gender-sensitive approaches in stakeholder consultation will also be ensured by encouraging both men and women to participate equitably and meaningfully in project design and implementation. Doing this will ensure that the project does not increase gender inequality. This will also increase the project benefits for both men and women.

The project will also ensure that information is shared equitably amongst men and women in which information will both be available and presented in an accessible format across all stakeholder groups, including those more marginalized (e.g. women, youth, indigenous peoples, etc.). The approach also includes opportunities for stakeholders to share information in a two-way exchange, give regular feedback during implementation and ensure their views and priorities are incorporated in design and implementation.

Further, the project has provided quantifiable 'easy-to-measure' indicators potentially aligned to the related SDG goals that measure gender-related gaps and risks for the project.

The project will ensure that whenever an employment opportunity arises, all genders will be considered equally and there will be no discrimination based on gender when hiring.

Question 2:

Does the project align with existing country policies, strategies and best practices? Explain how.

Yes.

The project aligns with the existing policies, plans and best practices of Kenya as outlined below:

Host Party		National Policies and Strategies related to Gender Sensitivity
1.	The Republic of Kenya	The Government of Kenya adopted the National Policy on Gender and Development in 2000. The policy spells out a policy approach of Gender mainstreaming and empowerment of women and clearly states that it is the right of women, men, girls and boys to participate in and benefit equally from the development process. The overall goal of this Policy Framework is to mainstream gender concerns in the national development process in order to improve the social, legal/civic, economic and cultural conditionsof women, men, girls and boys in Kenya ² .

² <http://www1.uneca.org/Portals/ngm/Documents/GenderPolicy.pdf>

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		The project will provide job opportunities during its overall operation which will benefit both men and women. The job opportunities will be provided without any discrimination and all genders will be accorded an equal opportunity more especially when hiring.
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STEP 2: APPLY GOLD STANDARD SAFEGUARDING PRINCIPLES

Question 3:

Does the project address the questions raised in the Gold Standard Safeguarding Principles & Requirements document? Explain how.

Yes.

The project seeks to promote gender equality and the empowerment of women. The project shall neither contributes to discrimination against women nor shall it reinforce gender-based discrimination and/or inequalities. Both men and women will have indiscriminate access to the cookstoves without any form of bias based on gender, race, religion, sexual orientation or any other basis. Further, Cook stoves project will reduce the burden faced in search of charcoal on women and children and this will significantly reduce the cost and time spent on the fuel. Gender equality will also be attained by ensuring that both men and women will have equal opportunities to jobs created, trainings and decision making activities for the project including stakeholder consultations, training workshops and seminars. The project shall ensure that both men and women get equal pay for equal value of work. In addition, the project will not directly or indirectly lead to nor contribute to adverse impacts on gender equality and/or the situation of women, since the stoves project is design to help household access energy for cooking without impacting on their daily lifes negatively.

The project activity will distribute efficient cook stoves which will displace the use of the traditional cook stoves. This will consequently reduce the level of indoor air pollution in the households and all health impacts associated with indoor air pollution.

STEP 3: CONDUCT STAKEHOLDER CONSULTATION

Question 4:

Does the project apply the Gold Standard Stakeholder Consultation & Engagement Procedure, Requirements & Guidelines? Explain how.

This project was part of GS 966 which conducted stakeholder consultations that complied with the GS requirements. Based on the past implementation status of the proposed project and periodic verification process, the project proponent does not find a stakeholders consultation to be necessary during the transition. In addition, the project underwent successful renewal of its crediting period where stakeholders consultation was not necessary. As such, the consultation process will not take place.

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SECTION B. Application of selected approved Gold Standard methodology

B.1. Reference of approved methodology

>> The following approved Gold Standard baseline and monitoring methodology is applicable to the project activity:

- a.) Technologies and Practices to Displace Decentralized Thermal Energy Consumption; Version 3.1.³
- b.) Tool for the demonstration and assessment of additionality (Version 07.0).⁴
- c.) Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (Version 03.0.1)⁵

B.2. Applicability of methodology

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Justification of the choice of the methodology and why it is applicable to the project activity

Burn is implementing a project in Kenya which involves promotion and the sale of improved energy-saving charcoal stoves to both households. According to the GS VER Methodology:

"This methodology is applicable to programs or activities introducing technologies and/or practices that reduce or displace greenhouse gas (GHG) emissions from the thermal energy consumption of households and non-domestic premises. Examples of these technologies include the introduction of improved biomass or fossil fuel cook stoves, ovens, dryers, space and water heaters (solar and otherwise), heat retention cookers, solar cookers, bio-digesters, safe water supply and treatment technologies that displace water boiling, thermal insulation in cold climates, etc.

"Shifts in technology may occur in a gradual manner and adoption can increase over the project period. The project activity is implemented by a project proponent and potentially with additional project participants. The individual households do not act as project participants."

The Project adopts a phased approach to transitioning households towards cleaner kitchen regimes. As carbon financing is made available, the project intends to expand the availability of new technologies to include other types of improved stoves (e.g. for example pellet stoves, ethanol stoves or other suitable lower greenhouse gas technologies) which accomplish emissions reductions in accordance with the approved GS VER Methodology. When necessary the Project will monitor new baselines and will redefine clusters as new technologies and new customer groups are introduced to the project.

The methodology applicable to the project is "Technologies and Practices to Displace Decentralized Thermal Energy Consumption; Version 3.1".

The methodology uses the term 'technology' which refers to single or multiple technologies and/or practices and shifts in technology may occur in a gradual manner and adoption can increase over

³ <http://www.cdmgoldstandard.org/project-certification/gs-methodologies>

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

⁵ <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf>

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the project period. This project, which is seeking renewal of the crediting period involves the introduction and use of technology of improved biomass and charcoal cookstoves, which are distributed to households for use for domestic activities. The stoves are being introduced in a gradual manner as the project expands to cover existing and new areas. The following table shows a summary of how the applicability conditions of the methodology are met:

Table 1: Eligibility criteria

Applicability Criteria	Project justification
This methodology is applicable to programmes or activities introducing technologies and/or practices that reduce or displace greenhouse gas (GHG) emissions from the thermal energy consumption of households and non-domestic premises	The proposed project activity introduces charcoal cooking technology that reduce GHG emissions from households applications
The project activity is implemented by a project proponent and can include additional project participants. The individual households and institutions do not act as project participants.	The project activity is implemented by Burn Manufacturing. The individual households do not act as project participants
The project boundary needs to be clearly identified, and the technologies counted in the project are not included in any other voluntary market or CDM project activity (i.e. no double counting takes place). In some cases there maybe another similar activity within the same target area.	The project location is defined as the country of Kenya, as described in PDD A.4. The geographic boundaries of Kenya are defined as administrative county boundaries set by government entities. The project applies sales only to the GS VER registry, and no CDM or alternative registry is used for Project stoves. Publicly available information on GS VER and CDM stove projects can confirm that technologies installed by the project are not used by other groups and that double counting has been avoided.
Project proponents must therefore have a survey mechanism in place together with appropriate mitigation measures so as to prevent any possibility of double counting.	Every stove has a serial number and a database of all stoves is retained by Burn for identification. During the monitoring period, the project will carry out sample surveys to identify their serials and cross check them with project database records and see if there are other stoves out there which likely to be double counted.
The technologies each have continuous useful energy outputs of less than 150kW per unit (defined as the total useful energy delivered from start to end of operation of a unit divided by time	The cook-stoves promoted by the project have a capacity of less than the maximum 150kW per unit. PDD Section A.3 technical specifications:

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of operation). For technologies or practices that do not deliver thermal energy in the project scenario but only displace thermal energy supplied in the baseline scenario, the 150kW threshold applies to the displaced baseline technology.	Household stoves = 1.175kW
Using the baseline technology as a backup or auxiliary technology in parallel with the improved technology introduced by the project activity is permitted as long as a mechanism is put into place to encourage the removal of the old technology (e.g. discounted price for the improved technology) and the definitive discontinuity of its use.	Project technology training encourages the discontinuation/dismantling of old technologies. Customers will be encourage to remove the old technology and the definitive discontinuity of its use. However, future surveys will determine if households still use those which are not removed. The initial measures to be taken are: - Annual Monitoring Surveys will track the continued use of baseline technologies - Project Fuel Tests will subsume the use of any traditional stove/fuel used. - The parameter, $P_{p,y}$, is based on subsumed Project Fuel Tests and thus use of traditional stove/fuel is accounted for in project emissions calculations. - Project participants will be incentivized to remove their old stoves, as the one year warranty of the project stove will not be valid if end-users have continued to use their baseline stove.
The project proponent must clearly communicate to all project participants the entity that is claiming ownership rights of and selling the emission reductions resulting from the project activity.	The project proponent will clearly communicate to all project participants that The Burn Manufacturing is claiming ownership rights and selling the emission reductions resulting from the distribution of project technologies through the following mechanisms: Transfer of carbon rights will be explained at local consultations and end-user technology trainings Manual and written messages in the stove packaging containing a written explanation that the rights associated with the environmental benefits of the technology belong to the Project will be included with technology distribution/sale/installation.

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	Stickers are placed on product packaging to inform end users that they cannot claim emissions reductions from the project.
Project activities making use of a new biomass feedstock in the project situation (e.g. shift from non-renewable to green charcoal, plant oil or renewable biomass briquettes) must comply with relevant Gold Standard specific requirements for biomass related project activities, as defined in the latest version of the Gold Standard rules. If the biomass feedstock is sourced from a dedicated plantation, the criteria must apply to both plantations established for the project activity and existing plantations that were established in the context of other activities but will supply biomass feedstock.	This project does not involve use of a new biomass feedstock. End users continue to use charcoal fuels in the project situation.
Adequate evidence is supplied to demonstrate that indoor air pollution (IAP) conditions are not worsened compared to the baseline, and greenhouse gases (as listed in section II.1) emitted by the project fuel/stove combination are estimated with adequate precision. The project fuel/stove combination may include instances in which the project stove is a baseline stove.	Qualitative Surveys are conducted every two to investigate air quality with the project stove. The indoor air pollutions are compared to the baseline, where the users are asked to give their comparisons and pollutants emitted by the project stove are estimated with adequate justifications.
Records of renewable fuel sales may not be used as sole parameters for emission reduction calculation, but may be used as data informing the equations in section II of this methodology. These records need to be correlated to data on distribution and results of field tests and surveys confirming (a) actual use of the renewable fuel and usage patterns (such as average fraction of non-renewable fuels used in mixed combustion or seasonal variation of fuel types), (b) GHG emissions, (c) evidence/justifications of CO levels not deteriorating (d) any further factors effecting emission reductions significantly.	The stove sales data in the sales database are used together with results of field tests and surveys confirming to estimate GHG emissions are reduced

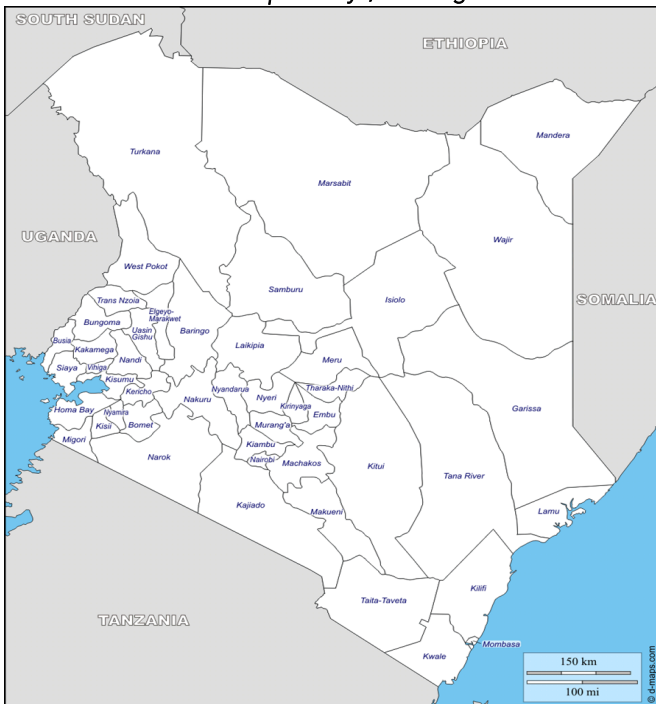
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B.3. Project boundary

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The physical/geographical boundary for the project is the physical geographic boundary of Kenya as identified on the map below

The Map of Kenya, including Counties



Source: <http://d-maps.com>

GHG mitigation/sequestration

Source		GHGs	Included ?	Justification/Explanation
Baseline Scenario	Heat delivery and production of fuel and transport of fuel	CO ₂	Yes	Main source of emission in the baseline
		CH ₄	No	Not included in the baseline for conservativeness purposes
		N ₂ O	No	Not included in the baseline for conservativeness purposes
Project Scenario	Heat delivery and production of fuel and transport of fuel	CO ₂	Yes	Main source of emission in the project activity
		CH ₄	No	Not included in the project for conservativeness purposes
		N ₂ O	No	Not included in the project for conservativeness purposes

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Flow diagram of project equipment, systems, and flows of mass and energy by project technology:
Improved cookstoves

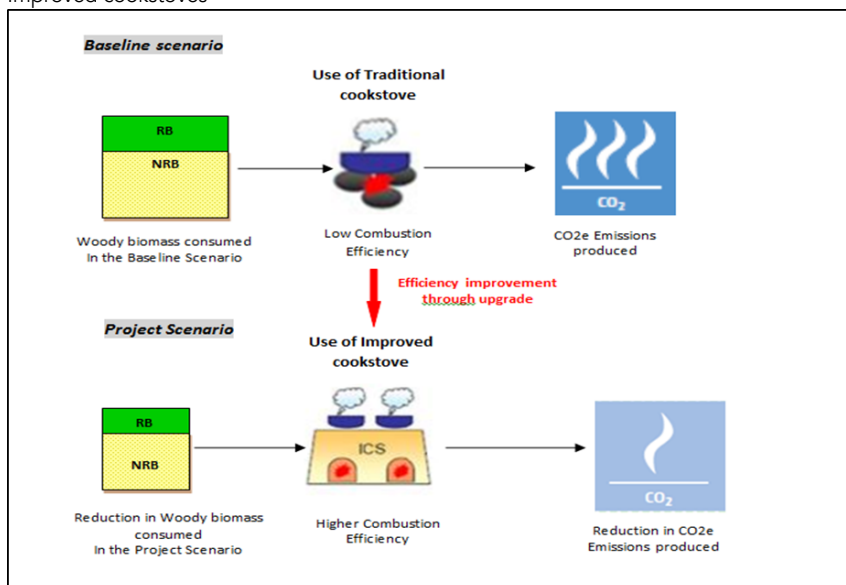


Figure2: Baseline Scenario Flow Chart

The project boundary covers the geographical boundary of the country of Kenya (See Section A.2 above). The project boundary is the physical, geographical sites where Burn stoves are used within Kenya. This boundary also hosts the baseline and project fuel collection and production. The target area is the whole country of Kenya where the considered baseline scenario is deemed to be uniform across political borders. The fuel production and collection area is the area within which this woody or new biomass is produced, collected and supplied and lies within the geographical boundary of Kenya.

B.4. Establishment and description of baseline scenario

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In line with "Tool to assess the validity of the original/current baseline and to update the baseline at the renewal of a crediting period, Annex 47, EB 66, Version 3.0.1" it stipulates the following procedures to be used for the assessment of continued validity of the original baseline and its update.

Step 1: Assess the validity of the current baseline for the next crediting period

The "Procedures for the renewal of the crediting period of a registered CDM project activity" approved by the CDM Executive Board require assessing the impact of new relevant national and/or sectoral policies and circumstances on the baseline. The validity of the current baseline is assessed using the following Sub-steps:

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

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There are no mandatory laws requiring households to switch to use of efficient stoves and the household makes the switch voluntarily based on the information they receive from the promotional and marketing initiatives regarding the benefits of the stove. The project therefore it's being implemented as a voluntary action.

Even though there are other improved cook stove (ICS) players in the market, the penetration of ICS, access to these stoves across the country remains low and most of the population still use the traditional stoves for their cooking. Even though thought the ceramic jikos (charcoal) have achieved high levels of penetration in urban and peri-urban areas in Kenya, the quality of most of these stoves is poor and they don't last for long⁶.

Step 1.2: Assess the impact of circumstances

The project was validated and registered with a baseline scenario of thermal energy from charcoal used for cooking and water heating. The charcoal used is mostly from non-renewable biomass. The project was a voluntary investment by Burn manufacturing which was aimed at expanding access to improved stoves to Kenyan households in order to reduce their fuel consumption. So by households adopting the use of the stove, their fuel consumption is reduced since the stove is more efficient than the baseline stove, and this will lead to reduced forest degradation since the demand for charcoal for household needs will reduce. Therefore, the continued operation of the project activity would continue to reduce charcoal consumption, hence the same baseline as identified in the previous crediting period is still valid for the project. Therefore, the assessment of the changes in market characteristics is not required for the renewal of the project's crediting period.

Household practices in Kenya towards household energy have not changed over time. Charcoal use for cooking is the most dominant for most households. In addition, even for high income households, the use of charcoal for cooking is common, due to the fact that the food menu cooked requires or take long to cook and charcoal cooking provides the best alternative.

Although charcoal prices tend to increase over time, they price rise is mostly caused by inflation in the economy, changes in laws or regulations governing charcoal production and use, demand and supply and availability of alternative fuels such as LPG. The use of traditional stoves still persist and awareness and information is still required to change the trend.

Most households in the country still continue to use charcoal for household energy provision for cooking. According to Kenya Energy Policy⁷, there is a widening gap between supply and demand for wood-fuel, a challenge that requires dedicated policy interventions to redress. Wood-fuel supply does not match demand over various parts of the country. In spite of past efforts to promote wood fuel substitutes, the number of people relying on wood fuel is not decreasing. Consequently, wood fuel will continue to be the primary source of energy for the majority of the rural population and urban poor for as long as it takes to transform the rural economy from subsistence to a highly productive economy. Currently no new fuel availability has come to the market and use of electricity for cooking is prohibitive due to high electricity tariffs and also due to the fact that most rural households are not connected to the grid. Therefore, the old baseline conditions still are valid and apply.

⁶ <http://cleancookstoves.org/resources/166.html>

⁷ <http://www.energy.go.ke/index.php/resources/file/837-national-energy-policy-final-draft.html>

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Hence, the new circumstances do not have an impact on the baseline emission. The conditions used to determine the baseline emissions in the previous crediting period are still valid even now. In the absence of the project activity, the baseline scenario in the project boundary is the use of stoves with low efficiencies for cooking using charcoal.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

Use of the baseline stoves is imbedded in the Kenyan society and the mind-set of the people. Its determined by several factors ranging from type of food being cook, price and availability of alternative stoves, therefore most households continues to buy and use the baseline stoves technology. This trend is likely to continue for a long period of time. Although there are different efficient stoves in the market, there is still huge demand for it since most of the households have not been reached/covered due to several reason such affordability, availability, awareness etc.

There are several players in the market who are selling improved cook stoves, however, due to rising population and economic hardships, the number of households falling into using charcoal is on the increase. This has led to more households using biomass to rise and create more demand for charcoal and more emissions. T the penetration rate of ICS is more in urban areas only than rural areas. However, due to low affordability and accessibility to cleaner fuels, the traditional open fire, semi-improved stove or low quality ceramic stoves, cooking methods remain extremely popular within Kenyan, especially in rural areas, where more than 80% use them. Therefore the penetration rate of the market players will not affect the baseline since more households using biomass products are on the increase.

Step 1.4: Assessment of the validity of the data and parameters

This step stipulates to "assess whether data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period are still valid or whether they should be updated."

In order to ensure that the project ER are calculated using the most appropriate data, the data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period were examined in order to determine if they are still valid or they required updating. The data parameters were checked and the latest data parameters as per the applicable methodology and IPCC default values are applied.

The project activity was registered using the "Indicative Programme, Baseline, and Monitoring Methodology for Improved Cook-Stoves and Kitchen Regimes, Ver.01." methodology, and the project underwent a revision and by applying "Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC); Version 1.0". This renewal is being done using the methodology TPDDTEC latest version 3.1.

In accordance with the guidelines for crediting period or renewal, updates should be undertaken in the following cases:

Where IPCC default values are used, the values should be updated if any new default values have been adopted and published by the IPCC, for example, in guidelines for national GHG inventories, IPCC assessment report or special reports by the IPCC;

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The default values for net calorific value (NCV) and CO₂ emission factor (EF) for charcoal for fuel reduced is in the methodology has been adopted for emission reduction calculations.

Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity.

The emission factors have been updated for emission reduction calculations. The quantity of fuel savings by the project device has been recalculated and fraction of woody biomass used in the absence of the project activity that is non-renewable (f_{NRB}) has been updated.

Some new data sets have been introduced based on the methodology requirement and new values are applied for the current baseline in the new crediting period.

The following data were assessed as explained above:

1. NCV for charcoal at 0.029 TJ/tn respectively
2. CO₂ emission factor at 112 tCO₂/TJ
3. f_{NRB}
4. Quantity of woody biomass savings by the project device at 0.723 tonnes/year
5. F_{p, nonCO₂} remains the same although the project will not consider emissions from this source
6. EF_{b, nonCO₂} remains the same although the project will not consider emissions from this source

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Baseline Scenario

The predominant cooking fuel for families in urban and semi-urban Kenya is charcoal made from predominantly non-renewable wood using inefficient production and usage methods. The greenhouse gas emissions associated with the production and combustion of the charcoal is significant, in areas where the wood source is non-renewing, which is the case in Kenya. This is not only the existing scenario but also the energy baseline scenario.

As per the applicable methodology, the baseline scenario is defined by the typical baseline fuel consumption patterns in a population that is targeted for adopting the project technology. Hence, this “target population”, which in this case is the population in Kenya that uses charcoal, is a representative baseline for the project activity.

The project baseline scenario represents both urban and rural end users who predominantly use the inefficient charcoal stoves. This baseline is the same baseline that was applicable to the project during the first crediting period and has not changed for the second crediting period.

The project reduces the amount of greenhouse gases (GHGs) emitted through use of charcoal as the cooking fuel, by introducing widespread use of efficient charcoal stoves. Therefore, in the absence of the project activity, the baseline scenario would be continued use of less efficient charcoal cook stoves by households for meeting similar thermal energy needs.

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In order to re-evaluate the baseline scenario for the purposes of renewing the crediting period for the project, the fuel usage trends currently are evaluated to determine the household cooking trends which are applicable for use during the new crediting period.

In order to determine the baseline fuel consumption, the project has estimated the ex-ante calculation of ERs as per the guidance provided for in page 24 of the methodology to determine the estimated baseline fuel consumption.

The baseline fuel consumption has been estimated ex-ante using guidance provided for in footnote 24 using the efficiency difference of baseline and project stoves and baseline fuel consumption.

$$\text{Fuel}_{\text{baseline}} = \eta_{\text{project}} / \eta_{\text{baseline}} * \text{Fuel}_{\text{project}}$$

The key baseline data is presented in the table below.

Parameters	Description	Value	Comments
Fuel _{baseline}	Estimated baseline fuel consumption by baseline stoves being replaced by project stoves following guidance of footnote 24 of the methodology	3.3652 tonnes/HH/yr	The value is estimated using footnote 24 because the PP has not carried out the baseline performance field test (BFT).
η_{old}	Efficiency of the old stove	0.2	A default value
η_{old}	Efficiency of the new stove	0.449	WBT testing
Fuel _{project}	Fuel consumption by project stoves as determined by the KT	1.59 kg of charcoal/day/HH	The values was determined by KT carried out for project stoves only i.e. single test sample.

Quantity of fuel that is saved

Section 5: baseline methodology on, Project Studies paragraph 4 requires the project proponent conduct Project Performance Field Test (BFT) of fuel consumption (e.g. kitchen performance test (KPT) in case of cook stoves). It goes further and states "Findings of the PFT can be submitted post-registration, on time for the verification and prior to the request for issuance. In such cases, the project documentation submitted for validation and registration review must provide a project estimation of expected project emissions, supported by appropriate and credible sources of information".

Following guidance from the methodology, the PP therefore will submit the findings of the performance field tests post-registration. The data therefore applied are estimations and has been calculated as above. However, before the next verification, the PP will carry out a KPT to determine the actual fuel saving. The KT will determine both the baseline fuel consumption and the prevailing project fuel using a paired sample test and additional non-paired sampled for baseline stoves.

The project conducted KT where only project stoves tested. The KT results established that the project stoves uses 1.59 Kg of charcoal per day. This value has been used to estimate the baseline fuel consumption as guided by footnote 24 of the methodology.

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Baseline Non-renewable Biomass Assessment

The project activity utilises biomass sourced from forest areas. The biomass utilised is converted into charcoal first and due to this, the fractional non-renewability of biomass is identified in this PDD. The project aim is to reduce use charcoal which is the main contributing factor for deforestation in Kenya.

According to the 37th CDM-Small-scale Working group Meeting⁸, the NRB for Kenya which was calculated and approved by the EB has expired and the default value no longer applies. The use of the default values has expired and a new approved value is yet to be approved by the local DNA. The project has therefore calculated the NRB for Kenya following UNFCCC tool for determination of NRB. The calculated value is fixed for this crediting period.

Step 2: Update the current baseline and the data and parameters

This step is only applicable if any of the Steps 1.1, 1.2, 1.3 and/or 1.4 showed that the current baseline needs to be updated.

Step 2.1: Update the current baseline

The steps in 1 showed that the baseline scenario remains the same with regard to fuel usage trends. However, having reconsidered some of the default values applicable to the project and the emission sources by considered by the project, the baseline emissions for the subsequent crediting period have been updated using new updated values by applying the latest methodology applicable and formula provided relevant to the project activity.

Step 2.2: Update the data and parameters

Most of the data parameter considered in previous crediting period have been updated to reflect the latest baseline fuel consumption trends. Some of the parameters updated are:

1. Quantity of fuel savings by the project device at 0.723 tonnes/year
2. Fp_{nonCO_2} remains the same although the project will not consider emissions from this source
3. EFb_{nonCO_2} remains the same although the project will not consider emissions from this source

Since the review of the project in accordance with step one of Tool to assess the validity of the original/current baseline and to update the baseline at the renewal of a crediting period has shown that the current baseline is same and is applicable in the next renewed crediting period, therefore the current baseline does not require to be updated.

In conclusion, the current baseline is still valid.

B.5. Demonstration of additionality

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The project reduces the amount of greenhouse gases (GHGs) emitted through production and use of charcoal as cooking fuels, by introducing widespread use of efficient charcoal which replace existing inefficient stoves.

⁸ See <https://cdm.unfccc.int/DNA/fNRB/index.html> accessed 10/02/2017

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The project was registered with the Gold Standard and has been utilising Carbon finance to run the project and improve on the sales and up-scaling dissemination of the Burn stoves. The project has received carbon support for the past 7 years (first crediting period) and it has continued to expand considerably in its distribution scale. All the conditions which under which the project operates has not changed overtime and they still remain the same.

In line with Annex Z of Gold Standard procedures for the renewal of a crediting period, part II of the procedures i.e. Preparation of the revised project documentation states "project participants shall update all sections of the project documentation which are related to the baseline, the evaluation of emission reductions and the monitoring plan, using an approved baseline and monitoring methodology.

The project has therefore demonstrated that the current baseline as registered PDD is still valid and additionality of the project therefore is not to be demonstrated.

B.5. Sustainable Development Goals (SDG) outcomes

B.5.1. Relevant target for each of the three SDGs

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Indicator	Mitigation measure	Relevance to achieving SDG Target	Chosen Monitoring Indicator and explanation
1.4.1 Proportion of population living in households with access to basic services (efficient cook stoves)	No mitigation measure	Goal 1. End poverty in all its forms everywhere Target 1.4: 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 Introduction of the efficient cook stoves will lead to time and money savings due to reduced fuel consumption. This saved income can be used by households to engage in other income generating activities that can lead to improved livelihoods of the households.	<u>Equivalent monetary savings</u> <u>Kitchen Test Survey Results</u> Kitchen test surveys will be conducted to determine fuel savings achieved by using the efficient stoves as compared to baseline stoves. The results will be used to indicate the fuel savings achieved by using the efficient stoves and this will be used to derive the equivalent monetary savings achieved. The number of stoves distributed will be recorded to show the proportion of households with access to efficient cook

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			stoves. In addition, survey results will be utilised to determine the proportion of stoves in use (usage rate) from time to time.
3.9.1 Illnesses and Mortality rate attributed to household and ambient air pollution	No mitigation measure	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 Indoor air pollution caused by combustion of charcoal fuel will be reduced since the households will be using energy efficient jikos which require less charcoal and produce less soot.	<u>Measurement of user perceptions between the baseline and project scenario: smoke levels, incidence of coughing, incidence of respiratory illness, and incidence of itchy eyes.</u> The project shall survey and report the perceived changes in smoke levels and related emission when using project stove when compared with baseline stove.
8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities	No mitigation measures	Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all 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. This project will create jobs for the people who will be involved in manufacturing, sales and distribution, maintenance as well as conducting the monitoring survey exercise. Jobs opportunities will be open to both interested men and women without any form of bias or discrimination.	Number of local jobs created in manufacturing and retail The project activity shall provide job opportunities to locals during manufacturing ,sale and distribution of the stoves. The project shall keep records of the employees and also ensure equal pay for both men and women for equivalent skills sets and job levels..
13.3.2 Number of households/ individuals that have communicated the	No mitigation measures	Goal 13. Take urgent action to combat climate change and its impact Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change	<u>Number of people/households with access to the energy efficient cook stoves</u> <u>Sales Records</u>

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strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions		mitigation, adaptation, impact reduction and early warning Efficient cook stoves leads to reduced usage of fuel which in return lead to reduced emissions and indoor air pollution. Reduced emissions significantly contribute towards averting climate change and lead to environmental sustainability.	The project shall monitor the number of people/households with access to the efficient cook stoves and this will be indicated based on the sales records. In addition, the usage rates of the stoves will be surveyed in order to determine the proportion of active stoves.
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B.5.2. Explanation of methodological choices/approaches for estimating the SDG outcome

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The Project follows the methodological steps for estimating emission reduction as outlined in the Gold Standard Methodology, "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" (version 3.1).

The project distributes charcoal stoves which replaces charcoal. The baseline fuel and the project fuel are the same and the baseline emission factor and project emission are considered the same.

As per the methodology, the emission reductions are verified and credited by comparing the emissions for a given project scenario to the emissions for the applicable baseline scenario. In the project case, the baseline fuel type and the project fuel type are the same and the baseline fuel emission factor and project fuel emission factor are also considered to be the same. The overall GHG reductions achieved by the project activity in year y are calculated as follows:

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

Where:

$\sum_{b,p}$	=	Sum over all relevant (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
$NCV_{b,fuel}$	=	Net calorific value of the fuel that is substituted or reduced (IPCC default for charcoal fuel, 0.029s TJ/ton)

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$EF_{b,fuel,CO_2}$	=	CO ₂ emission factor of the fuel that is reduced. 112 tCO ₂ /TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{b,fuel,nonCO_2}$	=	Non-CO ₂ emission factor of the fuel that is reduced
$LE_{p,y}$	=	Leakage for project scenario p in year y (tCO ₂ e/yr)

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Baseline Emission estimation are conducted as follows:

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

Where:

$BE_{b,y}$	3.7866	Emissions for baseline scenario b during the year y in tCO ₂ e
$B_{b,y}$	1.3029	Quantity of fuel consumed in baseline scenario b during year y, in tons, as per by-default factors ²⁴ (cases with project performance field test only)
$f_{NRB,y}$	0.97	Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario)
$NCV_{b,fuel}$	0.029	$NCV_{b,fuel}$ Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)
$EF_{b,fuel,CO2}$	112	$EF_{b,fuel,CO2}$ 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
$EF_{b,fuel,nonCO2}$	0.00	$EF_{b,fuel,nonCO2}$ Non-CO ₂ emission factor of the fuel that is substituted or reduced

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Project emission estimations are conducted as follows:

$$PE_{p,y} = B_{p,y} * ((f_{NRB,y} * EF_{p,fuel, CO2}) + EF_{p,fuel, nonCO2}) * NCV_{p, fuel} \quad (5)$$

Where:

$PE_{p,y}$	1.6867	Emissions for project scenario p during year y in tCO ₂ e
$B_{p,y}$	0.5804	Quantity of fuel consumed in project scenario p during year y, in tons, and as derived from the statistical analysis conducted on the data collected during the project performance field tests (cases when no baseline performance field test are performed, e.g. by-default baseline factors)
$f_{NRB,y}$	0.97	Fraction of biomass used during year y that can be established as non-renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario)
$NCV_{p,fuel}$	0.029	Net calorific value of the project fuel (IPCC default for wood fuel, 0.015 TJ/ton). This is equal to the baseline fuel NCV in projects which use the same fuel.
$EF_{p,fuel,CO2}$	112	CO ₂ emission factor of the project fuel. This is equal to the baseline fuel EF in projects which use the same fuel, 112 tCO ₂ /TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{p,fuel,nonCO2}$	0.00	Non-CO ₂ emission factor of the project fuel. This is equal to the baseline fuel EF in projects which use the same fuel.

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Therefore, the overall GHG reductions² achieved by the project activity are then estimates as follows:

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$$ER_y = \sum BE_{b,y} - \sum PE_{p,y} - \sum LE_{p,y} \quad (7)$$

Where:

ER _y	2.05	Emission reduction for total project activity in year y (tCO ₂ e/yr)
BE _{p,y}	3.69	Baseline emissions for baseline scenario b in year y (tCO ₂ e/yr)
PE _{b,y}	1.65	Project emissions for project scenario p in year y (tCO ₂ e/yr)
LE _{p,y}	0.00	Leakage for project scenario p in year y (tCO ₂ e/yr)

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B.5.3. Data and parameters fixed ex ante for monitoring contribution to each of the three SDGs

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 comment	Term can include a combination of emission factors from fuel production, transport, and use.

⁹ This still takes into account an usage rate of 90%.

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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,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 comment	Term 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 comment	Term 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.

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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 _{p, nonCO2}
Unit	tCO ₂ /TJl
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 comment	Term 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.

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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	NCV _b
Unit	TJ/ton
Description	Net calorific value of charcoal fuel used in the baseline
Source of data	IPCC 2006 defaults values, project-relevant measurement reports, or project-specific testing
Value(s) applied	0.029 for charcoal
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 comment	If EF is in units of tCO ₂ /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, project-relevant measurement reports, or project-specific testing
Value(s) applied	0.029 for charcoal
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 comment	This has same value as NCV _{baseline} in projects which reduce use of the same fuel.

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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	$f_{NRB,i,y}$
Unit	Fractional non-renewability
Description	Non-renewability status of woody biomass fuel in scenario i during year y
Source of data	C4EcoSolutions 3 rd party report
Value(s) applied	0.97
Choice of data or Measurement methods and procedures	fNRB analysis
Purpose of data	To calculate the quantity of non-renewable biomass being consumed in the baseline scenario and the project scenario
Additional comment	As applicable, NRB assessment may be used for multiple scenarios

B.5.4. Ex ante estimation of outcomes linked to each of the three SDGs

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Emission reductions are to be calculated per an appliance and based on the number of days the stove is in use within the specified period of monitoring.

The usage rate of the stoves will be determined through usage surveys and the usage rate is being calculated as weighted average rate over all age groups. As per the manufacturer's specifications the lifetime of the Jikokoa stove is between 7 to 10 years. Depending on the usage rate of the stoves to be determined at the time of usage surveys, stoves will be either removed from the database during the lifetime or 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.

The project uses calculated NRB for Kenya.

The ex-post calculations of emission reductions are calculated based on the fuel saving by the project stoves compared with the baseline stove. Each stove type has a different value of fuel saving based on the KT findings. The overall GHG reductions achieved by the project activity in year y are calculated as follows:

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

Where:

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Deleted: During the re-validation of the renewal of the crediting period, the number of stoves which have not reached 3 year life will be applied in calculating the ER and they will be assumed to operate for 365 days in a year. However, during the subsequent monitoring, the actual days those stoves will be in operation will be determined and a post-ante calculation for the ER be done.

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JikoKoa Stove

ER_y	2.05	Emission reduction per stove per year (tCO ₂ e/year)
$\sum_{b,p}$	1	Sum over all relevant (project p) couples
$N_{p,y}$	365	Cumulative number of project technology-days included in the project database for project scenario p against baseline scenario b in year y
$U_{p,y}$	90%	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)
$P_{p,b,y}$	0.0020	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
$f_{NRB,b,y}$	0.97	Fraction of biomass used in year y for baseline scenario b that can be established as non-renewable biomass
$NCV_{b,fuel}$	0.029	Net calorific value of the fuel that is substituted or reduced. (IPCC default for charcoal fuel, 0.029 TJ/ton)
$EF_{b,fuel,CO_2}$	112	CO ₂ emission factor of the fuel that is reduced. (IPCC default for charcoal fuel, 112 tCO ₂ /TJ)
$EF_{b,fuel,nonCO_2}$	0.00	Non-CO ₂ emission factor of the fuel that is reduced
$LE_{p,y}$	0	Leakage for project scenario p in year y (tCO ₂ e/yr)

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Baseline Emission estimation are conducted as follows:

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

Where:

$BE_{b,y}$	3.69	Emissions for baseline scenario b during the year y in tCO ₂ e
$B_{b,y}$	1.3029	Quantity of fuel consumed in baseline scenario b during year y, in tons, as per by-default factors ²⁴ (cases with project performance field test only)
$f_{NRB,y}$	0.97	Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario)
$NCV_{b,fuel}$	0.029	$NCV_{b,fuel}$ Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)
$EF_{b,fuel,CO2}$	112	$EF_{b,fuel,CO2}$ 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
$EF_{b,fuel,nonCO2}$	0.00	$EF_{b,fuel,nonCO2}$ Non-CO ₂ emission factor of the fuel that is substituted or reduced

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Project emission estimations are conducted as follows:

$$PE_{p,y} = B_{p,y} * ((f_{NRB,y} * EF_{p,fuel, CO2}) + EF_{p,fuel, nonCO2}) * NCV_{p, fuel} \quad (5)$$

Where:

$PE_{p,y}$	1.65	Emissions for project scenario p during year y in tCO ₂ e
$B_{p,y}$	0.5804	Quantity of fuel consumed in project scenario p during year y, in tons, and as derived from the statistical analysis conducted on the data collected during the project performance field tests (cases when no baseline performance field test are performed, e.g. by-default baseline factors)
$f_{NRB,y}$	0.97	Fraction of biomass used during year y that can be established as non-renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario)
$NCV_{p,fuel}$	0.029	Net calorific value of the project fuel (IPCC default for wood fuel, 0.015 TJ/ton). This is equal to the baseline fuel NCV in projects which use the same fuel.
$EF_{p,fuel,CO2}$	112	CO ₂ emission factor of the project fuel. This is equal to the baseline fuel EF in projects which use the same fuel, 112 tCO ₂ /TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{p,fuel,nonCO2}$	0.00	Non-CO ₂ emission factor of the project fuel. This is equal to the baseline fuel EF in projects which use the same fuel.

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Therefore, the overall GHG reductions achieved by the project activity are then estimates as follows:

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$$ER_y = \sum BE_{b,y} - \sum PE_{p,y} - \sum LE_{p,y} \quad (7)$$

Where:

ER _y	2.05	Emission reduction for total project activity in year y (tCO ₂ e/yr)
BE _{p,y}	3.69	Baseline emissions for baseline scenario b in year y (tCO ₂ e/yr)
PE _{b,y}	1.65	Project emissions for project scenario p in year y (tCO ₂ e/yr)
LE _{p,y}	0.00	Leakage for project scenario p in year y (tCO ₂ e/yr)

B.5.5. Summary of ex ante estimates of emission reductions

Year	Baseline emissions (t CO ₂ e)	Project emissions (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions (t CO ₂ e)
2017	98.100	0.00	0.00	98.100
2018	385.888	0.00	0.00	385.888
2019	753.136	0.00	0.00	753.136
2020	1.056.024	0.00	0.00	1.056.024
2021	1.185.288	0.00	0.00	1.185.288
2022	1.219.254	0.00	0.00	1.219.254
2023	1.219.480	0.00	0.00	1.219.480
2024	394.718	0.00	0.00	394.718
Total	6.311.889	0.00	0.00	6.311.889
Total number of crediting years	7			
Annual average over the crediting period	901.698	0.00	0.00	901.698

For the purposes of the PDD, the project estimates sales and emission reductions based stoves sold by Burn Manufacturing's charcoal stove models which were introduced through the Project's Design Change submission and on going sales during this second crediting period. With assistance from carbon revenues, the project hopes that expanded R&D, social marketing, and increased awareness of improved stoves will increase sales. As new technologies are phased into the project activity, the project will adjust sales projections based on the types of technologies and locations being credited during appropriate future verification periods.

B.6. Monitoring plan

B.6.1. Data and parameters to be 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	$P_{b,y}$
Unit	Kg/household-day
Description	Quantity of fuel that is consumed in baseline scenario b during year y
Source of data	Baseline FT or default baseline fuelwood consumption, baseline FT updates, and any applicable adjustment factors
Value(s) applied	3.652
Measurement methods and procedures	KT measurements
Monitoring frequency	Updated every two years
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculation of baseline emissions
Additional comment	A single baseline fuel consumption parameter is weighted to be representative of baseline technologies being compared for project crediting. A default value for fuelwood consumption i.e., 0.5 tonnes/capita/year is applied as discussed in section C option 1 of the methodology.

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
Source of data	Total sales record, Project FT, project FT updates, and any applicable adjustment factors
Value(s) applied	To be determined ex-post and prevailing value to be applied
Measurement methods and procedures	KT measurements
Monitoring frequency	Updated every two years
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Calculation of project emission reductions
Additional comment	A single project fuel consumption parameter is weighted to be representative of the quantity of project technologies of each age being credited in a given project scenario

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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
Source of data	Annual Usage Survey
Value(s) applied	90
Measurement methods and procedures	KT Measurements
Monitoring frequency	Annual or more frequently, in all cases on time for any request for issuance
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To calculate the Usage rate in project scenario p during year y.
Additional comment	A single usage parameter is weighted to be representative of the quantity of project technologies of each age being credited in a given project scenario. <u>The Good Practice level as per the 'GS Requirements and Guidelines: Usage rate Monitoring' is being followed. The project may follow the best practice later on during the crediting period provided that a continuous use monitoring can be implemented. A user is defined as a household which uses the project stove for at least 7 meals per week and who indicated the last usage within a week. Usage will be confirmed during monitoring/usage surveys. As per the manufacturer's specifications the lifetime of the Jikoko stove is between 7 to 10 years. Depending on the usage rate of the stoves to be determined at the time of usage surveys, stoves will be either removed from the database during the lifetime or 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.</u>

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Deleted: Exact usage values will be determined ex-post¹⁾

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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
Source of data	Total sales record
Value(s) applied	1,576,150
Measurement methods and procedures	Project database records
Monitoring frequency	Continuous
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To calculate the number project scenario P through year y.
Additional comment	The total sales record is divided based on project scenario to create the project database. The numbers of active stoves will be determined based on the day they started operation. 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.

Deleted: The numbers shown above are for the operational stoves which have not reached the end of their 3 year life.

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 ₂ e per year
Description	Leakage in project scenario p during year y
Source of data	Baseline and monitoring surveys
Value(s) applied	0
Measurement methods and procedures	KT measurements
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To determine leakage in project scenario p during year y
Additional comment	Aggregate leakage can be assessed for multiple project scenarios, if appropriate

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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
Source of data	Survey
Value(s) applied	-
Measurement methods and procedures	Carrying out survey through either site visit of sampled households or telephone surveys.
Monitoring frequency	Biennial
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 comment	This parameter can be reported based on responded comments and is not measured directly

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
Source of data	Surveys
Value(s) applied	-
Measurement methods and procedures	Direct calculation based on results from the KT
Monitoring frequency	Annual
QA/QC procedures	The survey questions should be evaluated so that they bring out clear picture of the gains of the stove
Purpose of data	Reporting on sustainable development of the project
Additional comment	The monetary equivalent will be based on the prevailing fuel costs at the time of preparing the report

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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
Source of data	Project records
Value(s) applied	To be reported
Measurement methods and procedures	Direct measurement based on employment numbers of those employed directly by the project
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	Reporting on sustainable development of the project
Additional comment	-

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
Source of data	Stove database records and surveys
Value(s) applied	To be reported
Measurement methods and procedures	Calculated
Monitoring frequency	Annual
QA/QC procedures	Check of database to ensure consistency of reported data
Purpose of data	Reporting on sustainable development of the project
Additional comment	-

B.6.2. Sampling plan

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During the course of monitoring project parameters, the project proponent will conduct project survey of target population characteristics and carry out project Performance Field Test (PFT) of fuel consumption. The project survey and PFT will be conducted with end users through representative of the project scenario target population who are currently using the project technology.

Representativeness

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All field tests must include a sample of potential end users that are typical of end users in the project activity. The surveys and field test will be conducted concurrently with the same subjects.

When project surveys will be carried out, a sample will be drawn from the project database for the “active” stoves population. The project will employ use of random sampling to draw samples.

Sample Sizing and Statistical Estimate of the Fuel or Emission Savings

All surveys to be carried out by the project proponent for fuel usage trends will involve paired samples.

Since the project database has thousands of stoves in operation, the minimum sample size should be 100.

Sample sizes drawn will need to be larger since there is a likelihood of a lot of variations in the amounts of fuel used and saved. The project proponent assumes a Coefficient of Variation (COV) of 1.8, thereby giving a sample size of 101 respondents. However, in order to ensure that drop-out cases are taken into consideration, the samples to be drawn will be slightly more by 10% to take care of those who drop out and any outliers.

Table 1: Sample sizes in cases of PAIRED samples (households sampled in the baseline and the project situation are the same).

COV	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2
90/30 precision	45	53	61	70	80	90	101	112	124

The baseline and project field test data must be analysed in combination to estimate the average annual emission reductions or average fuel savings per unit. There are two valid options for the statistical analysis:

- 90/30 rule. When the sample size is large enough to satisfy the “90/30 rule,” i.e. the endpoints of the 90% confidence interval lie within +/- 30% of the estimated mean, overall emission reductions can be calculated on the basis of the estimated MEAN annual emission reduction per unit or MEAN fuel annual savings per unit.
- 90% confidence rule. When the sample sizes are such that the “90/30 rule” is not complied with, the emission or fuel saving result is not the mean (or average) test result, but a lower value, i.e. the LOWER BOUND of the one-sided 90% confidence interval.

The project proponent will employ either of the above option depending on the results from the samples.

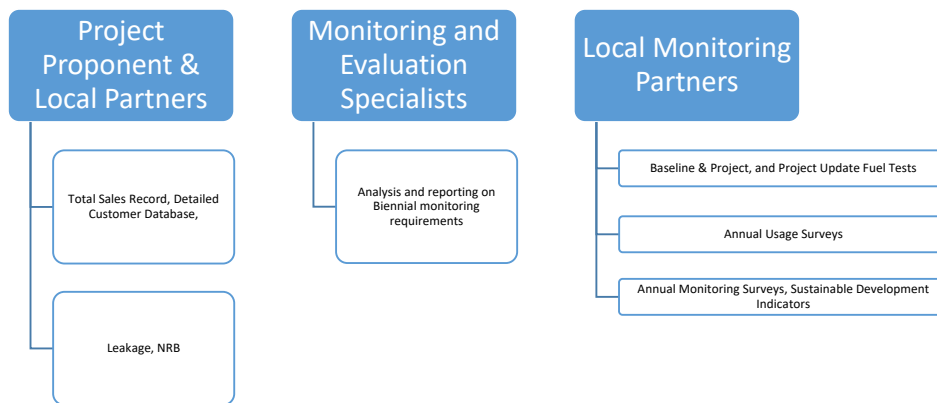
B.6.3. Other elements of monitoring plan

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Organisational structure

The completion of all monitoring tasks will be carried out by Burn and overseen by ClimateCare. Implementation of monitoring tasks will be performed according to the following diagram:

Figure 1: Monitoring Organization



Management

A senior member of staff at Burn will be appointed Carbon Manager who will manage all monitoring requirements for the project. All documentation will be consolidated within the auspices of ClimateCare, Burn is also responsible for organising and maintaining the Detailed Customer Database (DCD), Total Sales Record/Installation Record (TSR/IR) 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.

The monitoring plan to be followed is outlined as follows:

1. Monitoring Procedure:

The project maintains sales record database consisting of SMS based customer activated warranties. The database is electronic and it has key parameters i.e. the serial number of the stove, the contact details of the customer and date of purchase. The project maintains a total sales records and project databases forms the basis for which all the previous verifications are based. This is the same database which will be utilised in future verifications. Continuous monitoring surveys and usage surveys will be conducted annually while a leakage assessment is to be conducted every two years to update monitoring parameters over time.

The leakage assessment will involve establishing if the project has in any way lead to increase in emissions outside the project boundary and if the increase will be directly be attributed to the project activity. The leakage assessment is done below:

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Source	Risk	justification
The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project	Very low	The displaced baseline technology is the most common and easily available cooking method in the project area and most of households usually sale off the old stove as scrap metal upon purchase of new efficient stove. It is highly unlikely that displaced baseline technology is reused outside the project boundary.
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	As per the baseline survey, most household rely either on charcoal for cooking and those who have LPG use it in the morning to warm water of make tea even in the baseline scenario and project scenario. Therefore the LPG user will not switch back to charcoal due to the project activity, since they still use baseline stoves as the main cooking device and use LPG as convenient stove in the morning.
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	Demand for charcoal in the country is rising and due to rising demand. Other alternative forms of cleaner fuels are also becoming out of reach for ordinary people, due to rise of international oil price. As more people get urbanised, the demand for wood and charcoal will keep rising and this will impact the NRB factor of the country. Therefore the share of NRB will still be high and the project will not significantly impact it leading to other projects to account for it.
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	The climate conditions and weather in Kenya does not allow for space or room heating. In highland areas where space heating might be required, the project will establish this during its annual surveys.
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	The Burn stove project target group is households using charcoal. It is highly unlikely that households using LPG or electricity for cooking would use project technology. Thus, there is no risk for this form of leakage.

Thus, leakage risks deemed very low and it has been ignored. Therefore $LE_{p,y} = 0$.

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The following parameters will be assessed under leakage during KT to confirm if the above risk assumptions are valid or the project has created a leakage situation:

1. Increasing consumption of fuel savings associated with higher efficiency stoves
2. Use of a high emission fuel for cooking outside the project boundary
3. Substitution of a cooking stove type with relatively high emissions stove by households who commonly use a cooking fuel or stove type with relatively lower emissions
4. Respond to the loss of space heating effect of inefficient cook-stoves by adopting some other form of heating or by retaining some use of inefficient stoves
5. The traditional stoves displaced may be re-used outside the boundary

A. Total Sales Record/Project database

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

B. Project Database

The project database is derived from the total sales record with project technologies differentiated by different project warranty activated serial numbers. The differentiation of the project database into sections is based on the results of the applicable monitoring studies for each project scenario, in order that ER calculations can be conducted appropriately section by section. Technologies aged beyond their useful lifetime, as established from the date of their sale in the project database will be removed from the project database and will no longer be credited.

The following on-going monitoring studies are conducted for each project scenario following the verification of the associated initial project studies. These monitoring studies investigate and define parameters that could not be determined at the time of the initial project studies or that change with time.

a) Monitoring Survey

The project will keep carrying out an on-going monitoring studies to investigate and define parameters that could not be determined at the time of the re-validation of the project. The surveys will investigate the following:

- a) Monitoring Survey to be done annually, to provide information on year-to-year trends in end user characteristics such as technology use, fuel consumption and seasonal

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variations. The survey will be done by applying appropriate statistical sampling method, to identify households to be investigated.

- b) Usage Survey to be done biennially, or more frequently to identify the usage parameter that is weighted based on drop off-rates that are representative of the age distribution for project stoves in the total sales record. A usage parameter will be established to account for drop off rates as project technologies age and are replaced. This parameter will be applied when calculating the quantity of fuel consumed in project scenario p during year y ($B_{p,y}$).
- c) Project FT update to be done biennially to collect data on fuel consumption assessment representative of project technologies currently in use every two years.
- d) Baseline FT update to be completed biennially to provide data on fuel consumption assessment representative of project technologies currently in use every two years.
- e) Leakage Assessment will be carried out biennially in time for first verification
- f) The non-renewable biomass fraction for this crediting period is fixed based on the results of the NRB assessment. The NRB assessment for the project applied is calculated.

2. Economic Gain of Fuel savings

At every period when the KT is carried out, the project will determine the fuel savings associated with use of the stove. The project will also determine the prevailing fuel prices and using the fuel savings values determined, the project will calculate the equivalent monetary gain associated with fuel saved for use of the stove by a household. This will give an indication of the project contribution to household effort in resilience towards poverty.

3. Adding a New Baseline or Project Scenario

The project proponent will continue to monitor the project and should it be established that a new baseline or project scenario has emerged, the project proponent will consider adding it to the project. The addition of the new baseline or project scenario will follow Gold Standard approval process.

4. Quality Assurance and Quality Control

The project proponent is responsible for accurate and transparent record keeping, monitoring and evaluation. All supporting documentation and records for the project are maintained by Burn Manufacturing and are easily accessible for spot checking and cross referencing.

Contact information in the total sales record allows a project auditor to easily contact and visit end users

The quality assurance and control also covers the project device, which the project proponent ensures that the devices being produced are of the same or comparable quality. The stoves are produced in a factory owned by Burn Manufacturing following well laid down manufacturing to ensure that all products are of the same quality.

5. Data Storage and Archiving

Each stove sold has a unique serial number and a customised manual which shows simple steps of activating the stove warranty by SMS. When a customer activates the stove warranty, his/her details are captured in Burn Manufacturing system and this is what constitutes the project database. All the data will be archived for the entire crediting period and two years after the end of crediting period.

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SECTION C. Duration and crediting period

C.1. Duration of project

C.1.1. Start date of project

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01/11/2007.

C.1.2. Expected operational lifetime of project

>>

7 years 0 Months

C.2. Crediting period of project

C.2.1. Start date of crediting period

>>

The Second Crediting Period starts 26th April 2017

Type of crediting period: Renewable

C.2.2. Total length of crediting period

>>

7 year 0 Months

SECTION D. Safeguarding principles assessment

D.1. Analysis of social, economic and environmental impacts

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Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
3.1 Human Rights	1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights	No	Improved cookstoves respect the dignity, cultural property and indigenous qualities of local communities. The project will improve local health through reduced indoor air pollution from reduced use of high emission stoves. ¹¹	No mitigation measure required

¹¹ Kenya is signatory to African Charter on Peoples and Human Rights (ACPHR).

http://lib.ohchr.org/HRBodies/UPR/Documents/Session8/KE/KSC_UPR_KEN_S08_2010_KenyaStakeholdersCoalitionforUPR_Annex3.pdf

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	2. The Project shall not discriminate with regards to participation and inclusion.	No	Improved cookstoves project does not discriminate anyone. Stakeholders are involved in project planning and implementation.	No mitigation measure required.
3.2 Gender Equality and Women's Rights	1. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits?	No	The project seeks to promotes gender equality and the empowerment of women. Women will have access to the cookstoves and they are the ones who make household decisions on which stove to use and buy. During project surveys, they will be interviewed and their comments will be used during research development of the stove. There is no discrimination against women.	There is no mitigation selected for this safeguarding principle.
	2. Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)?	No	The cook stove project will help in reducing the burden faced by women in search of fuelwood and charcoal for household use.	No mitigation measure is required.
	3. Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, child care duties, low literacy or educational levels, or societal discrimination)?	No	The cook stoves provide an easy way of cooking. They require less fuel and also save money spent on fuel and cooking. The women will therefore get more time to engage in other activities child care.	No mitigation measure is required.
		Yes	Both men and women will have equal opportunities	No mitigation

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	4. Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)?	No	to participate in decisions when it comes to buying the efficient stove. In addition, the use of project stoves will not alter the gender roles in households.	measure is required.
	5. Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities?	No	The project does not increase women's workload but rather reduces their workload by reducing the amount of time and money spent on fuel and cooking. Time saved can be spent on other activities.	No mitigation measure is required.
	6. Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits?	No	The project does not discriminate against women, instead they empower them in decision making in households since they choose their stoves. Also they will have access to job opportunities that will be created by the project.	No mitigation measure is required.
	7. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services?	No	The project aims to reduce the amount of fuel used for providing household energy. Since most users of the stoves are women and reducing fuel consumption saves forests, then the women will play a big role in protecting forests.	No mitigation measure is required.
	8. Is there a likelihood that the proposed Project would expose		The project activity will distribute energy efficient cook stoves which will	No mitigation measure is required.

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	women and girls to further risks or hazards?		displace the traditional cookstoves used in the households. This will consequently reduce the level of indoor air pollution in the households and all health impacts associated with indoor air pollution.	
3.4.2 Forced Eviction and Displacement	1. Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	Project participants are self-selecting in that they choose whether or not to purchase a subsidized stove. The sale and distribution of cookstoves will not cause involuntary resettlement. ¹²	No mitigation measure is required.
3.4.4 Indigenous Peoples	1. Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	The project involves cook stoves which are individual units and they are purchased by individual households. Their use will not involve resettlement or intrusion into indigenous people's way of life. ¹³	No mitigation measure is required.
3.5 Corruption	1. The project does not involve and is not complicit in corruption.	No	The project is not involved or complicit in corruption. ¹⁴	No mitigation measure is required.
3.6.1 Labour Rights	1. The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights	Yes No	The project respects all employees' freedom of association and does not restrict these rights. ¹⁵ All employees have right to join trade union. Participation in the project is voluntary; no forced or compulsory labour is	No mitigation measure is required.

¹² Kenya has authored a Convention on the Status of Refugees (CSR) which provides certain rights to displaced persons.
http://lib.ohchr.org/HRBodies/UPR/Documents/Session8/KE/KSC_UPR_KEN_S08_2010_KenyaStakeholdersCoalitionforUPR_Annex3.pdf

¹³ Kenya signed International Covenant on Economic, Social and Cultural Rights (ICESCR).
http://lib.ohchr.org/HRBodies/UPR/Documents/Session8/KE/KSC_UPR_KEN_S08_2010_KenyaStakeholdersCoalitionforUPR_Annex3.pdf

¹⁴ Kenya has recognizes the Rome Statute of the International Criminal Court that can address issues of corruption.
http://lib.ohchr.org/HRBodies/UPR/Documents/Session8/KE/KSC_UPR_KEN_S08_2010_KenyaStakeholdersCoalitionforUPR_Annex3.pdf

¹⁵ Kenya has signed Covenant on Economic, Social and Cultural rights

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	2. The project does not involve and is not complicit in any form of forced or compulsory labour.		employed by the project.. all employees of the project sign employment contracts. <i>*See footnote for indicator 4 for related national agreements.</i>	No mitigation measure is required.
	3. The project does not employ and is not complicit in any form of child labour.	No	The project does not employ and is not complicit in child labor. ¹⁶ The project employs staff who are above the legal age of 18 years.	No mitigation measure is required.
	4. The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.	No	The project does not involve any form of discrimination based on gender, race, religion, sexual orientation, or any other basis. <i>*See footnote for indicator 4 for related national agreements</i>	No mitigation measure is required.
	5. The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments	Yes	The manufacture of cookstoves involves light factory work. ¹⁷ Employees are provided with protective clothing for use. The project has in place health and safety procedure to be followed by all employees.	No mitigation measure is required.
3.6.2 Negative Economic Consequences	1. Is the project financial sustainability.	Yes		
	2. Will the Projects lead to negative economic impacts to the local economy during project design, implementation,	No	The cookstove project is being implemented with aim of being financially sustainable and the carbon funds will help in meeting its financial operating costs.	No mitigation measure is required. No mitigation

¹⁶ Kenya signed ILO Convention No. 182 Concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour
http://lib.ohchr.org/HRBodies/UPR/Documents/Session8/KE/KSC_UPR_KEN_S08_2010_KenyaStakeholdersCoalitionforUPR_Annex3.pdf

¹⁷ Kenya has established the Protocol to the African Charter on Human and Peoples' Rights on the Establishment of an African Court on Human and Peoples' Rights. Weblink as previous footnote.

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	operation and after the project.		This cook stove project generates employment through the manufacture, sales, distribution of the cook stoves. Additionally, jobs are created during annual monitoring surveys of the cookstoves.	measure is required.
4.1.1 Emissions	1. Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	There project will reduce GHG emission given that the project introduces energy efficient cook stoves which uses less fuel compared with baseline toves. By reducing the consumption charcoal and the smoke levels, GHG emissions are reduced.	No mitigation measure is required.
4.1.2 Energy Supply	1. Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The cook stoves use charcoal sourced from the local vendors which does not involve use of energy supply from the local grid.	No mitigation measure is required.
4.2.1 Impact on natural water patterns and flow	1. Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project activity consists of cook stoves that does not impact on natural water patterns and flow.	No mitigation measure is required.
4.2.1 Erosion and/or water body stability	1. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? If 'Yes' or 'Potentially' proceed to question 2.	No	Use of energy efficient sook stoves will minimise deforestation in the project boundary since they require less fuel. This inturn will lead to reduction in the occurrence and severity of soil erosion.	No mitigation measure is required.

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	2. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	The project area is not susceptible to excessive erosion or water body instability and the proposed project activity shall not negatively affect soil conditions in the project scenario.	No mitigation measure is required.
4.3.1 Landscape modification and soil	1. Does the Project involve the use of land and soil for production of crops or other products?	No	The project is a cook stove project and It therefore does not involve production of crops neither will it lead to soil degradation.	No mitigation measure is required.
4.3.2 Vulnerability to Natural Disaster	1. Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The project does not create nor increase vulnerability to natural disasters or other extreme climatic conditions.	No mitigation measure is required.
4.3.3 Genetic Resources	1. Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?	No	The project activity is a cook stove project and does not involve the use of GMOs in its operations.	No mitigation measure is required.
4.3.4 Release of pollutants	1. Could the Project potentially result in the release of pollutants to the environment?	No	The project activity is a cook stove project which is aimed at reducing the amount of fuel used in the households as well as reduce indoor air pollution. The project has therefore no potential of releasing pollutants to the environment.	No mitigation measure is required.
4.3.5 Hazardous and Non-hazardous Waste	1. Will the Project involve the manufacture, trade, release, and/ or use of hazardous and	No	The construction of the and distribution of the cook stoves will not lead to release or use of hazardous and non-	No mitigation measure is required.

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

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from stakeholders

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Based on the past implementation status of the proposed project and periodic verification process, the project proponent does not find a stakeholders consultation to be necessary during the revalidation and renewal of the crediting period for this project. As such, the consultation process will not take place during this transition process.

E.2. Summary of comments received

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From the previous stakeholders comments received regarding artisan training and indoor air pollution education, the PP has addressed the two issues as discussed below. During this transition process, this section was addressed in the earlier process.

E.3. Report on consideration of comments received

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The PP has trained selected artisan who have received training on how to repair stoves. These artisans are located across the country and they are the first contacts to address any malfunction issues raised by any customer who may encounter problems with the stove.

The stove is being marketed to people across the country and the PP has developed a manual which shows the benefits of the stove and how it reduces fuel and indoor (smoke) emissions. The

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PP is also running a commercial adverts which also informs people about the benefit of adopting the stove and through this forum, customers are being educated about the benefits of the stove.

Therefore, during this transition process, this section was addressed in the earlier process.

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Appendix 1. Contact information of project participants

Organization name	Burn Manufacturing
Registration number with relevant authority	-
P.O. Box	1921
Building	New Horizons Industrial Park
City	Nairobi
State/Region	Nairobi
Postcode	00232
Country	Kenya
Telephone	+254 706 585 629
Fax	-
E-mail	peter@burnmanufacturing.com
Website	www.burnmanufacturing.com
Contact person	
Title	Chief Executive Officer
Salutation	Mr.
Last name	Scott
Middle name	-
First name	Peter
Department	Management
Mobile	+254 718 125 639
Direct fax	-
Direct tel.	+254718 125 639
Personal e-mail	peter@burnmanufacturing.com

Appendix 2. Summary of post registration design changes

N/A

Revision History

Version	Date	Remarks
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1	10 July 2017	Initial adoption

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