Sustainable Development Verified Impact Standard

INSTALLATION OF HIGH EFFICIENCY COOKSTOVES IN SUB SAHARAN AFRICA BY ECC

AGS Carbon Advisory

Document Prepared by AGS Carbon Advisory

Project Title	Installation of high efficiency cookstoves in Sub Saharan Africa by ECC
Version	1.1
Date of Issue	10th February 2023
Project Location	Kenya, Somalia, Democratic Republic of the Congo (DRC), Mozambique, Tanzania, Senegal, Ghana, Nigeria, and Ivory Coast.
Project Proponent(s)	ECOA Climate Capital
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Project Lifetime	21 years (19 May 2022 – 18 May 2043)
History of SD VISta Status	This is the first-time project is applying for SD Vista
Other Certification Programs	Verified Carbon Standard
Expected Future Assessment Schedule	To be updated

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1 SUMMARY OF SDG CONTRIBUTIONS

Table 1: Summary of Project SDG Contributions

Row number	Estimated Project Contribution by the End of Project Lifetime	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Section Reference	Claim, Asset or Label
1.	The proportion of households receiving efficient Cookstoves under the project activity will increase.	1.4	1.4.1 Proportion of population living in households with access to basic services	Increase	3.2#1	Claim
2.	Indoor air pollution from three stone fire will substantially reduce due to the project cookstove (ICS) thereby reducing the mortality and morbidity caused due to household air pollution.	3.9	3.9.1 Mortality rate attributed to household and ambient air pollution	Decrease	3.2 #2	Claim
3	Number of employees provided skill development training for carrying out activities associated with project implementation and monitoring (The number of employees (full-time, part-time, or temporary), by gender who received training services of any type via project during the reporting period.)	4.3	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex	Increase	3.2 #3	Claim
4	Women and girls will save time in collecting firewood for cooking and	5.4	5.4.1 Proportion of time spent on unpaid domestic	Decrease	3.2 #4	Claim

	could utilize that time for education, recreation, or economic activities etc.		and care work, by sex, age and location			
5	Approximately 7.5 million households will shift from dirty three stone fires to cleaner cookstoves for cooking.	7.1	7.1.2 Proportion of population with primary reliance on clean fuels and technology	Increase	3.2 #5	Claim
6	The project is likely to lead to formal job creation through growth of micro-, small- and medium-sized enterprises involved in manufacturing of improved cookstoves and permanent staff will be hired by ECOA.	8.3	8.3.1 Proportion of informal employment in total employment, by sector and sex	Increase	3.2 #6	Claim
7	Ratio of the average wage paid during the reporting period to female employees for a specified position, compared to the average wage paid to male employees of the organization for the same position.	8.5	8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities	Increase	3.2#7	Claim
8	Through using ICS, the quantity of firewood consumed is saved and lesser emissions are released. Approximately 186 Million ton CO_2 saved from releasing into atmosphere.	13	Tonnes of greenhouse gas emissions avoided or removed	Decrease	VCS validation report	SD VISta-labeled VCU
9	Project will help to halt deforestation across host countries by reducing the amount of firewood used for cooking. Around 115 million tonnes of non-renewable firewood conserved.	15.2	15.2.1 Progress towards sustainable forest management	Increase	4.2 #10	Claim

2 PROJECT DESIGN

2.1 Project Objectives, Context and Long-term Viability

2.1.1 Summary of Project Sustainable Development Objective(s)

ECOA clean cooking project is a voluntary Grouped Project ("GP") aimed at distributing fuel efficient improved cookstoves (ICS) to beneficiaries in households in 9 countries of sub-Saharan Africa namely Kenya, Somalia, DRC, Mozambique, Tanzania, Senegal, Ghana, Nigeria, and Ivory Coast. The geographical location of the project is the above mentioned 9 countries.

The Project proponent of the Grouped Project is ECOA Climate Capital The distribution of ICS is not mandated by the 9 host countries law and the GP is a voluntary initiative.

This program seeks to improve public health in the host countries. The program will distribute high efficiency ICS to end-users, addressing several critical public health challenges. Currently, many families cook their meals over unimproved stoves utilizing biomass. This is a leading cause of upper respiratory disease caused in part by Indoor air pollution from smoke released by the burning of biomass in these inefficient cookstoves.

The project technologies reduce the use and demand for, firewood/ charcoal for cooking.

BURN will assign a country manager to oversee each country after the products are distributed, to respond to user feedback and address maintenance concerns. The PP will also maintain a call- center so that households can notify ECOA when technologies need to be repaired or replaced. Households, local officials, will be provided with the call center number at the initial distribution. When maintenance concerns arise ECOA will repair the technology if possible, and will replace the technology if not. Technologies that cannot be repaired will be recycled or disposed of safely, such that they will not be burned or contribute to local pollution.

Ongoing education/monitoring will help in responding to user feedback and address any maintenance concerns. To the extent possible, distribution and ongoing monitoring will be conducted in collaboration with appropriate government agencies.

The project's primary Sustainable Development Objectives are –

SDG	Estimated Impact	SDG Target	SDG Indicator
SDG 1: No Poverty	7,503,102	1.4	1.4.1 Proportion of population living in households with access to basic services

SDG 3: Good Health and Well-being	90% of ECOA ICS users report an improvement in air quality	3.9	3.91 Mortality rate attributed to household and ambient air pollution
SDG 4: Quality Education	200 people to receive training	4.3	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex
SDG 5: Gender Equality	A 25-minute reduction in cooking time per ICS	5.4	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location
SDG 7: Affordable and Clean Energy	7.5 Million	7.1	7.1.2 Proportion of population with primary reliance on clean fuels and technology
SDG 8: Decent Work and Economic Growth	100 new jobs created	8.3	8.3.1 Proportion of informal employment in total employment, by sector and sex
SDG 13: Climate Action	186 Million Tonne tCO_2	13	13.2.2 Total greenhouse gas emissions per year
SDG 15: Life on Land	Average 14.54 Mn per annum	15.2	15.2.1 Progress towards sustainable forest management

2.1.2 Description of the Project Activity

This Grouped project deploys highly efficient Improved cook stove (ICS) models, known as 'Jikokoas' and 'Kuniokoas' reducing charcoal and woody biomass consumption for urban, semi-urban and rural households in the 9 countries. Only 18% of population in Sub Saharan Africa have access to clean cooking fuel technology[1]. The Improved (ICS) cookstove has a better combustion process due to which indoor air pollution along with GHG emissions is significantly reduced compared to traditional three stone cooking method. ECOA clean cooking project is a voluntary Grouped Project ("GP") aimed at distributing fuel efficient improved cookstoves (ICS)

[1] https://data.worldbank.org/indicator/EG.CFT.ACCS.ZS?locations=ZG

to beneficiaries in households in 9 countries of sub-Saharan Africa namely Kenya, Somalia, DRC, Mozambique, Tanzania, Senegal, Ghana, Nigeria, and Ivory Coast. The geographical location of the project is the above mentioned 9 countries.

The project distributes both Kuniokoa (firewood) and Jikokoa(charcoal) cookstoves:

Kuniokoa Specifications:

Stove Manufacturer	BURN
Stove Model	Kuniokoa
Stove Type	Natural draft, Side-Feed Semi-Gasifier Stove

Materials	*Kuni Value*
Stove Body	Stainless Steel
Pot Rest	Stainless Steel
Burning Chamber	Stainless Steel
Riser	Stainless Steel
Fuel Feeding Door	Stainless Steel
Stick Shelf	CRCA Wire
Backing plate	No backing plate
Side body handle	Carbon Steel Tubing
Legs	Galvalume

Measurements

Height	**Cm**	32.1 cm
Diameter (stove top)	**Cm**	28.2 cm
Fuel Feeding Door Opening	**Cm**	10.6 cm x 8.0cm
Weight	**Kg**	4 kg
Fuel Chamber Volume	**cm^3**	144.3 cm^3
Packaging Dimensions	**Cm**	30.0 L x 30.0 W x 32.5 H
Max. recommended pot diameter		350mm
Twigs		Corncobs
Briquettes (non-carbonized)		Other Bulky Biomass

WBT Results

Thermal Efficiency	%	51.3%

High power Output	kW	3.4
High power PM2.5	mg/MJd	277.4
High power CO	g/MJd	4.338
Lifetime		
Warranty	1 year	
Estimated Lifetime	7 years	
Ash tray	Removable	
Power Control	High power and low power settings	
Maximum load capacity	100kg	
Max. recommended pot diameter	350mm	



Figure 1 BURN Kuniokoa (Project Scenario)

Jikokoa Specifications:

Stove Manufacturer	BURN
Stove Model	**Jikokoa G3.5**
Stove Type	Charcoal Stove
Materials	
Stove Body	CRCA Carbon Steel painted high gloss black epoxy powder coat

Pot Rest	Stainless Steel		
Burning Chamber	Stainless Steel		
Ash Tray	Aluzinc		
Feet	Stainless Steel		
Measurements			
	Height	cm	24.4 cm
	Diameter (stove top)	cm	26.0 cm
	Weight	kg	4 kg
	Fuel Chamber Volume	cm^3	954 cm^3
	Packaging Dimensions	cm	29.0 L x 28.5 W x 25.1 H
WBT Results			
	Parameter	Unit	Value
	Thermal Efficiency (average of cold start and hot start)	%	48.1%
	Firepower	kW	2.05
	Boil Time	minutes	27.72
Lifetime			
	Warranty	2 years	
Estimated Lifetime	7 to 10 years		

	Stove Manufacturer	BURN
	Stove Model	Jikokoa Xtra (G4)
	Stove Type	Charcoal Stove
Materials		
	Stove Body	CRCA Carbon Steel painted high gloss black epoxy powder coat
	Pot Rest	Stainless Steel & Cast Iron

Burning Chamber	Stainless Steel	
Ash Tray	Aluzinc	
Feet	Aluzinc	

Measurements

Height	cm	27.0 cm
Diameter (stove top)	cm	30.2 cm
Weight	kg	5.5 kg
Fuel Chamber Volume	cm^3	1030 cm^3
Packaging Dimensions	cm	30.2 L x 30.5 W x 27.5 H

WBT Results

Parameter	**Unit**	**Value**
Thermal Efficiency (average of cold start and hot start)	%	44.6%
Firepower	kW	2.21
Boil Time	minutes	27.96

Lifetime

Warranty	2 years
EstimatedLifetime	7 to 10 years



Figure 2 Jikokoa Xtra 4

	Stove Manufacturer	BURN	
	Stove Model	**Ecoa Char MMJ**	
	Stove Type	Charcoal Stove	
Materials			
	Stove Body	CRCA Carbon Steel, painted hammertone black epoxy powder coat	
	Pot Rest	Stainless Steel	
	Burning Chamber	Stainless Steel	
	Ash Tray	Aluzinc	
	Feet	Aluzinc	
	Handles	Stainless Steel and Polypropylene plastic[4]	
Measurements			
	Height	cm	22.8 cm
	Diameter (stove top)	cm	26.7 cm
	Weight	kg	3.0 kg
	Fuel Chamber Volume	cm^3	1,152 cm^3
	Packaging Dimensions	cm	29.5 L x 29.5 W x 24.0 H[5]
WBT Results			

Parameter	Unit	Value

Thermal Efficiency (average of cold start and hot start)	%	49.29%	
Firepower	kW	2.2	
Boil Time	minutes	25.13	
Lifetime			
Warranty	1 year		
Estimated Lifetime	7 to 10 years		

The description of how the project activity will achieve net sustainable development benefits is given in the table below.

SDG	SDG INDICATOR	SUSTAINABLE DEVELOPMENT BENEFIT	JUSTIFICATION
SDG 1: No Poverty	1.4.1 Proportion of population living in households with access to basic services	Households will have access to clean basic services by receiving Improved cookstoves	The project activity households will have increased access to basic service of Improved cookstove requiring lesser firewood and charcoal.
SDG 3: Good Health and Well-being	3.91 Mortality rate attributed to household and ambient air pollution	Reduction in smoke as a result of reduced consumption of woody biomass will result in reduced Indoor Air Pollution (IAP)	The project introduces improved cookstoves therefore reducing the use of woody biomass for cooking. This will reduce/eliminate the smoke from the traditional devices used in the baseline therefore reducing the Indoor Air Pollution faced by the end-users within their household premises.
SDG 4: Quality Education	Number of individuals who received any	Number of individuals who received any informal training	The project will train people for the project activity or elsewhere.

	informal training to enable their employment in project activity or elsewhere.	to enable their employment in project activity or elsewhere.	
SDG 5: Gender Equality	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location	Reduction in fuel collection time will provide additional time to women (who are the primary collectors of wood)	The project stove will consume less wood and charcoal therefore resulting in less time spent by women to collect wood.
SDG 7: Affordable and Clean Energy	7.1.2 Proportion of population with primary reliance on clean fuels and technology	Provide access to clean energy technologies i.e. improved cookstoves.	The project will help provide clean technologies for basic services like cooking. Without the implementation of this project, the end-users would have continued using traditional stoves.
SDG 8: Decent Work and Economic Growth	8.3.1 Proportion of informal employment in non-agriculture employment, by sex	Proportion of informal employment in non-agriculture employment, by sex	People employed for the purpose of the project activity.
	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	Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws	Equal wages for men and women working in the project activity.

	work of equal value		
SDG 13: Climate Action	Tonnes of greenhouse gas emissions avoided or removed	Reduction in GHG emissions as a result of switching to efficient and/or clean technologies	Switching to improved stoves for cooking respectively will reduce the GHG emissions as opposed to the baseline scenario.
SDG 15: Life on Land	15.2.1 Progress towards sustainable forest management	Reduction in deforestation, felling of trees to collect wood	Lesser wood in the project scenario for cooking means that harvesting of wood will be reduced and therefore contribute to reducing the deforestation levels in the host country.

2.1.3 Implementation Schedule

Date	Milestone(s) in the Project's Development and Implementation
19 May 2022	Start date of the project i.e., distribution of the first device under this project.
18 May 2023	End of the first year of implementation of the project
20 May 2023 – 30 June 2022	Monitoring of devices disseminated in the first year of the project's implementation.
July 2023	The dates for assessment have not been finalized yet.

2.1.4 Project Proponent

Organization name	ECOA Climate Capital
Role in the Project	Project Proponent
Contact person	Mrs. Natasha Otolo
Title	Senior Carbon Manager
Address	C/o AXIS Fiduciary Ltd., 2nd Floor, The Axis, 26, Cybercity, Ebene, 72201, Mauritius
Telephone	+254 753 970717

Email	natasha.otolo@burnmfg.com

2.1.5 Other Entities Involved in the Project

Organization Name	NA
Role in the Project	
Contact Person	
Title	
Address	
Telephone	
Email	

2.1.6 Project Type

Sectoral Scope applicable to project: 03 – Energy Demand

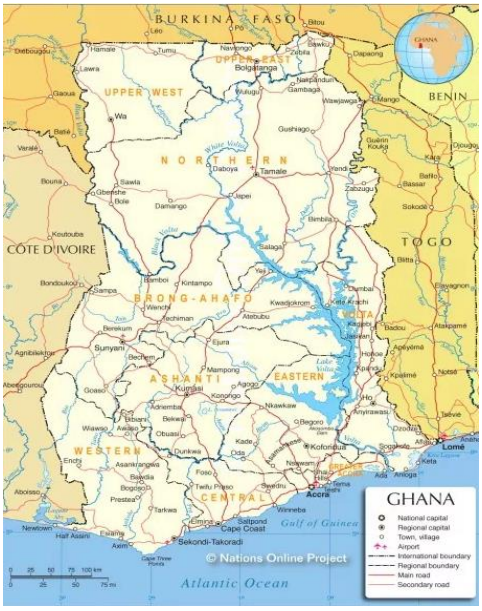
Project type: Type II – Energy efficiency improvement project

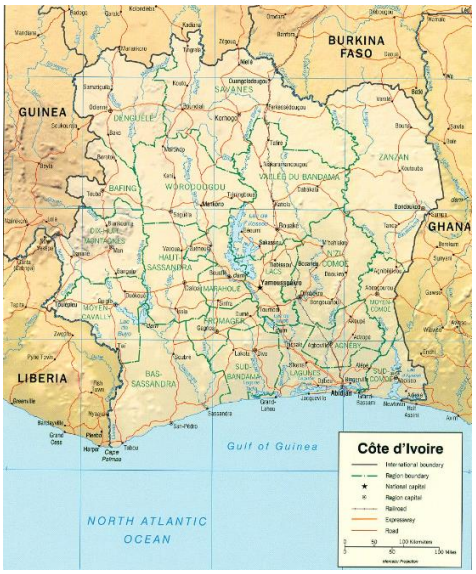
2.1.7 Project Location

S.no	*Country*	*Co-ordinates*	*Map*
1	*Kenya*	*0.0236° S, 37.9062° E*	

2	*Somalia*	*5.1521° N, 46.1996° E*	
3	*DRC*	*4.0383° S, 21.7587° E*	
4	*Mozambique*	*18.6657° S, 35.5296° E*	

5	*Tanzania*	*6.3690° S, 34.8888° E*	
6	*Senegal*	*14.4974° N, 14.4524° W*	

7	*Ghana*	*7.9465° N, 1.0232° W*	
8	*Nigeria*	*9.0820° N, 8.6753° E*	

9	*Ivory Coast*	*7.5400° N, 5.5471° W*	

2.1.8 Baseline Scenario

The project involves distribution of fuel-efficient improved cookstoves (ICS), Jikokoa using charcoal and kuniokoa using firewood to replace the baseline three stone cookstoves in the households. According to methodology VMR0006, the baseline 3-stone wood cookstove has an efficiency of 10% and charcoal stove has an efficiency of 20%[2].

In this document, the project instances which are rural households using Kuniokoa cookstoves have been clubbed under Project Activity-K whereas the project instances in urban and semi urban households using Jikokoa stoves have been clubbed under Project Activity-J.



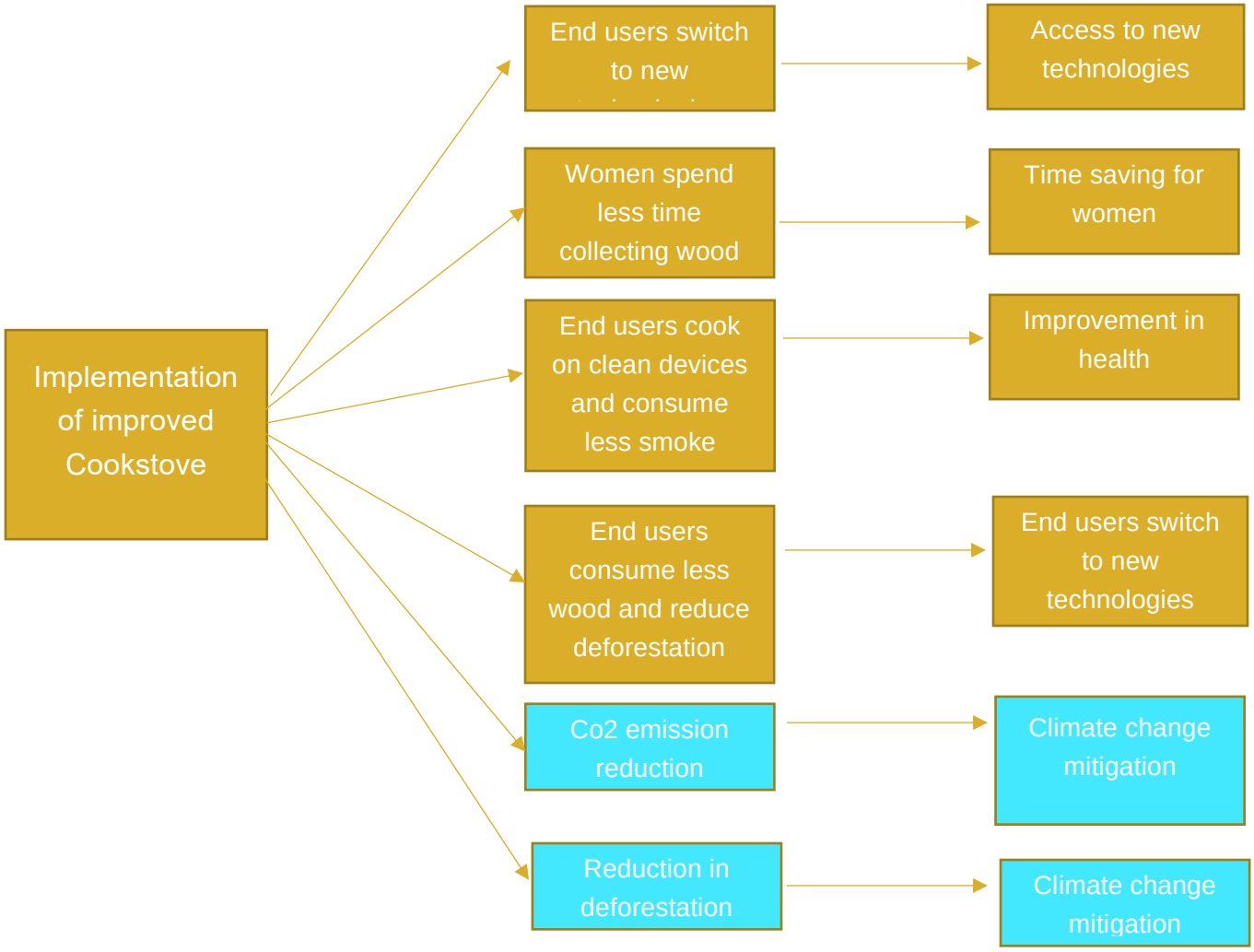
Figure 3 Baseline Stove

[2] https://verra.org/wp-content/uploads/imported/methodologies/VMR0006-Methodology-for-Installation-of-High-Efficiency-Firewood-Cookstoves-v1.1.pdf

The ICS to be deployed under the Grouped project substantially reduces fuel consumption and emissions for conducting cooking and water heating tasks in homes. The ICS improves the efficiency of combustion and thermal transfer to the pot compared with a traditional three-stone fire by incorporating a number of cutting-edge components, including a highly-insulated combustion chamber which provides a conducive environment for clean and efficient combustion of wood. It substantially reduces firewood and charcoal consumption compared with a three-stone fire. Improved cook stove (ICS) disseminated under the project will be the wood stove and charcoal stove. The wood stove is Kuniokoa while the charcoal is Jikokoa G3.5, Jikokoa G4 and Jikokoa Ecoa Char. The initial model of kunikoa has a specified thermal efficiency of 51.3% while the jikokoa G3.5 has an efficiency of 48.1%, Jikokoa G4 has an efficiency of 44.6% and Jikokoa Ecoa Char has an efficiency of 49.29%. The single burner design ensures high efficiency.

2.1.9 Causal Chain(s)

Improved Cookstoves



Causal chains in gold indicate impact related to people and their prosperity.

Causal chains in blue indicate impact related to the planet.

2.1.10 Threats to the Project

The potential threats to the proposed project can be classified under two categories, i.e., human induced threats and nature induced threats. This section describes the potential threats and the corresponding approach that will be adopted by the PP to mitigate these threats for ensuring smooth implementation of the project activity.

Human-Induced Threats

Threat: Stove users' lack of upkeep of stove resulting in either malfunctioning of the stove as designed or lack of stove use.

Solution: ECOA conducts routine spot audits early in the process of construction of stoves in each main geographic focus for mass stove installation to detect defects in stove construction, maintenance, and sub-optimal stove use. ECOA requires its Implementing Partners (IPs) to hire, train, and supervise stove builders and users, to visit each household to inspect their stoves, up to 2 times per year. This dramatically reduces the threat listed above. Additionally, ECOA contracts independent third-party auditors or local ECOA staff to perform spot checks or sample size reviewsto identify lapses in stove upkeep. Upon receiving these reports ECOA contracts sub-proponents to perform follow-up visits to households to provide additional education and encourage stove upkeep and use.

Where metal parts of ICS's commonly found on the market are made of low-grade steel, ECOA has upgraded the metal parts to higher-grade heat resistant steels.

Threat: Failure of Behaviour Change resulting in high levels of non-adoption

Solution: ECOA continuously researches the impacts of behavior change for successful adoption. Study outcomes, whether formal or informal, are included in future training and community sensitizations to continue to positively, shape knowledge, enhance positive peer-to-peer influence, and increase women's sense of empowerment feeding into social cognitive theory on identity and self-belief. Non-adopters and non-implementors are specifically engaged to understand the barriers to success, these outcomes and conclusions are included in future training, and disinformation is countered through community sensitization.

Nature-Induced Threats

Threat: Climate Crisis induced displacement/migration (shock-related drought or flood) causing households to change location

Solution: The metal cookstove is sturdy and made with quality steel components manufactured specifically for robust usage. This technology can travel easily with the household in their migration and can be placed at a new location. The end user is also provided with the knowledge and requisite training on using of the stove.

Threat: Continued deforestation and degradation making firewood an untenable source of biomass.

Solution: Although increased scarcity would support the use of the ICS, there is the potential that as the population continues to expand, particularly on the African Continent, there may be a point when firewood becomes an untenable source. Although access to modern fuels may not be physically or financially accessible to ICS households in the future, creating more dependenceon biomass cooking. ECOA trains on the use of small branches and twigs and use of crop residues such as maize cobs to ensure a close-to-home source of regenerative biomass.

2.1.11 Benefit Permanence

The project activity aims to change the cooking habits of households by introducing improved cookstoves, which will enable users to reduce their fuel requirements, reduce the cooking time, improve their health conditions and increase the employment opportunities available to them. It is estimated that post the project activity, rural households will continue to use improved cookstoves in future, due to the benefits associated with them, and thereby accrue significant environmental as well as socio-economic benefits.

To ensure the ICS project's long-term viability and the permanence of ICS and other program benefits, ECOA has committed to the following long-term aims:

1. Associating the project under the GHG mechanism, i.e., VCS and SD VISta to ensure that itis operational and yields carbon credits at least throughout the project lifetime.
2. Continuous check on end users to ensure the continued use of ICS: To guarantee this, Implementation and Spot Audit teams will be hired to conduct year-round audits. These teams will be provided with transportation that helps meet their physical mobility and remote connection requirements of them locally. Transportation provided includes bicycles,motorbikes, or motor vehicles, depending on the position. The allocated bicycles remain with staff members contributing to year-round physical mobility that reduces time spent traveling by foot, increases access to local markets to sell income-generating products, and provides reliable access to local health facilities; overall, acting as a catalyst for upward economic well-being. This is a long-term commitment.
3. ECOA has developed a continuous grievance redressal mechanism which continuously addresses the challenges associated with distributed cookstoves or any other concern associated with the project activity to impart trust and belongingness among the beneficiaries.
4. ECOA also provides technical trainings to the IPs and local staff to ensure effective implementation of the project and minimising non-adoption. This also includes knowledge dissemination regarding the benefits and co-benefits aligned with the adoption of ICS.

2.2 Stakeholder Engagement

2.2.1 Stakeholder Identification

The stakeholder identification is done based on the guidance given in the SD Vista Impact Standard v1.0[3] as per which "A stakeholder is any person who can potentially be affected by the project. In identification of stakeholders, it is permitted to consider significance of user populations and how deeply affected they may be by the project such that distant or intermittent user groups who will be affected in very limited ways by the project need not be defined as stakeholders".

2.2.2 Stakeholder Description

The following stakeholder groups are identified

1. End-users of the project stoves– These are the individuals/families that adopt and use the stove. Their feedback on the design of the products and comfort with its use is essential. These are also the most important stakeholder category with whom the impacts of the project are required to be discussed.
2. Village level heads and other decision makers – These are the decision makers within the village and will assist in providing support to the distribution. They will also act as energy champions that will help percolate the benefits of the devices within their communities.
3. Product demonstrators and distributors – These individuals provide demonstrations on how to use the devices and also bring the product to the end-users.
4. Manufacturers/retailers of the stoves – This stakeholder group provides the devices that are used in the project. They will receive feedback from the end-users on the performance and impact of the products.

2.2.3 Stakeholder Consultation

The Local Stakeholder Consultation was done in all the 9 countries of sub-Saharan Africa for both the Project Activity J and K.

ECOA's staff explained the project in detail to stakeholders and presented ECOAs' main goals of the program and its benefits to the local communities. The details of the ICS technology involved in the project was explained. They also took time to remind the stakeholders about climate change and its causes, and briefly explained the theory of the carbon credits, carbon markets and the development of carbon projects. Further it was explained to the stakeholders that the ownership of the carbon credits generated from the use of stoves would be transferred to ECOA as the Project Proponent. The carbon waiver was demonstrated to be on the strap that wraps the stove box, and the Paper Strip on the Opening of the Stove Box and by the end user

[3] https://verra.org/wp-content/uploads/2019/01/Sustainable-Development-Verified-Impact-Standard-v1.0.pdf

cutting this strap/strip, they would be waiving their claims to any Emission reductions generated using that stove.

The following methods were used to invite stakeholders:

- Stakeholders with access to email were emailed an invitation together with a non-technical summary of the project and meeting agenda.
- Advertisements were published in local newspaper pages in English.
- To reach social media users, invitations were posted on BURN's website. The advertisement included the invitation text and the non-technical summary.
- Oral/ Word of mouth, Personal Invitations were sent out equally done to the target Audience, across different regions.

Stakeholders who couldn't physically attend the meeting were provided the option to participate online through Zoom.

Common Questions and Answers from all 9 countries:

Gender of Stakeholder	**Stakeholder comment**	**Was comment taken into account (Yes/**No)?	**Explanation/Justification (Why? How?)**
M	How is BURN reaching to all the end users across the Country?	Yes	To reach across all the villages; Burn uses Radio and Television Advertisements, social media, Newspapers, Role Plays, Cooking Demonstrations and through Posters and Fliers and any other way applicable within the Project Boundary to reach to the target users.
M	What is the efficiency of the Burn Stoves as Compared to Other Traditional Stoves	Yes	Jikokoa has efficiency of 44-52% depending on the Model, while Kuniokoa's Efficiency is 51.3% Compared to the traditional cook stoves. This means that BURN Stoves are very efficient thus reducing the quantity of Biomass used for cooking hence saving on quantity used and the money spent to Purchase. In addition, BURN is in constant research on how to improve the efficiency of the stoves
F	What is the lifespan of a Jikokoa/ Kuniokoa? Can the Jikokoa/ Kuniokoa be cleaned easily?	Yes	The lifespan is between 3-4 years, but we have households that have been using them for more than 5-6 years in Kenya and even in Kenya without any problems, but it also depends on if the user respects the mode of use. Yes, you can clean the

			Jikokoa with a wet cloth. All the instructions are indicated in the user manual.
F	Do BURN MFG Partner with Other Organization in the Private and Public Sector in move to achieve its goals and reach a bigger audience	Yes	To Achieve its Goal, BURN has partnered with both the Private and Public Sector to achieve its distribution goals. Even for the Local Stakeholders Meetings Invitations were send across both sectors.
M	How are carbon credits calculated and generated?	Yes	In this project, a carbon credits represent the difference of CO2 emissions between a traditional cookstove and an improved cookstove like Jikokoa. One Jikokoa is estimated to avoid 4 tons of CO2 per year on average. Carbon credits are generated during the lifetime of the Jikokoa, and certified by the Gold Standard after several audits and verifications every year.
M	How do Burn Engage with Its Distributors	Yes	BURN is open to distributorships across the Country. To be become a distributor, one needs to enter a contract with BURN in-order to ensure adherence of the BURN's code of Conduct and safeguarding principles while distributing the stoves.
F	Why are the stove expensive	Yes	The stoves are expensive because materials used are premium quality. Also, the company is expanding and targeting carbon credits as an option that could make stoves more affordable.
F	Some years Back, BURN stove was quite expensive and durable, with the expected Subsidy will it affect the quality of the stove?	Yes	The quality of the stoves will not diminish for enabling a reduction of the end-user price. The subsidy will come from the revenue generated by the sales of carbon credits. The quality of the stove has been maintained over all the stoves over a period and our research and Development department is constantly researching on making the stoves better for the end user.
F	Large family size is dominant in their culture, therefore a larger stove was preferred.	Yes	It was explained that the stoves can work for a large family

2.2.4 Continued Consultation and Adaptive Management

Grievance Mechanism:

Kenya:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	**Justification of Choice (best practice)**
Continuous Input / Grievance Expressio Process Book (mandatory)	BURN Manufacturing New Horizons Industrial Park Go Downs 8-11, Ruiru KENYA	The stakeholders were pleased to have an input book opened at the head office of BURN. Complaints or any other concerns can be stated and will be filed directly at the head office.
Telephone access (optional)	+254 706 585629	The phone number of the head offices of BURN will be made known to all project beneficiaries.

Somalia:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	**Justification of Choice (best practice)**
Continuous Input / Grievance Expression Process Book (mandatory)	Continuous Input and Grievance Expression Process Book will be kept at the BURN offices in Somaliland	The stakeholders were pleased to have an input book opened at the BURN offices in Somaliland. Complaints or any other concerns c be stated and will be filed directly at the head office
Telephone access (optional)	Hargeisa Office: Burn Manufacturing-Al-Saadiq Iff iyo Akhira Rd(by Sahan TV), Xer Awr, Hargeisa Mogadishu Office: Burn Manufacturing Dabka-Bakaro St, Hodan District, Mogadishu BURN Kenya: +254 706 585629 BURN Somalia: 368	The phone number of the head offices of BURN will be made known to all project beneficiaries.

Senegal:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	**Justification of Choice (best practice)**
Continuous Input / Grievance Expression Process Book (mandatory)	Burn Senegal office Mamelles Cite Mbackiou Faye	The stakeholders were pleased to have an input book opened at the BURN offices in Senegal. Complaints or any other concerns can be stated and will be filed directly at the head office
Telephone access (optional)	BURN Senegal office: +221 765007878	The phone number of the head offices of BURN will be made known to all project beneficiaries.

DRC:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	**Justification of Choice (best practice)**
Continuous Input / Grievance Expression Process Book (mandatory)	Input book at Altech head office	The stakeholders were pleased to have an input book opened at the BURN offices in DRC. Complaints or any other concerns can be stated and will be filed directly at the head office
Telephone access (optional)	BURN: +254 706 585629 Altech: +243 822 230 188	The phone number of the head offices of BURN will be made known to all project beneficiaries.

Mozambique:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	**Justification of Choice (best practice)**
Continuous Input / Grievance Expression Process Book (mandatory)	Burn Mozambique office Avenida Paulo Samuel Kankhomba nº 1063, Maputo – Mozambique	The stakeholders were pleased to have an input book opened at the BURN offices in Mozambique. Complaints or any other concerns can be stated and will be filed directly at the head office
Telephone access	BURN Mozambique office:	The phone number of the head offices of

(optional)	+258 870 193 311	BURN will be made known to all project beneficiaries.

Tanzania:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	**Justification of Choice (best practice)**
Continuous Input / Grievance Expression Process Book (mandatory)	Gilbert Solar Energy Arusha	The stakeholders were pleased to have an input book opened at the BURN offices in Tanzania. Complaints or any other concerns can be stated and will be filed directly at the head office
Telephone access (optional)	BURN: +255 743 931 870	The phone number of the head offices of BURN will be made known to all project beneficiaries.

Ivory Coast:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	**Justification of Choice (best practice)**
Continuous Input / Grievance Expression Process Book (mandatory)	Expression Process Book will be placed in BURN's importation partners' office in Abidjan: Entrepôt RH Logistique, Route de Bassam, Yopougon, Abidjan	The stakeholders were pleased to have an input book opened at the BURN offices in Ivory Coast. Complaints or any other concerns can be stated and will be filed directly at the head office
Telephone access (optional)	BURN Cote d'Ivoire: +225 07 69 27 53 76 BURN Kenya: +254 706 585 629	The phone number of the head offices of BURN will be made known to all project beneficiaries.

Ghana:

	Method Chosen (include all known details e.g. location of book, phone, number,	**Justification of Choice (best practice)**

	identity of mediator)	
Continuous Input / Grievance Expression Process Book (mandatory)	Burn Ghana office Ogbojo, ARS roundabout (Ghana Clean cooking Alliance office)	The stakeholders were pleased to have an input book opened at the BURN offices in Ghana. Complaints or any other concerns can be stated and will be filed directly at the head office
Telephone access (optional)	BURN Ghana office: +233547007077	The phone number of the head offices of BURN will be made known to all project beneficiaries.

Nigeria:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	Justification of Choice (best practice)
Continuous Input / Grievance Expression Process Book (mandatory)	BURN STOVES NIGERIA LIMITED, Suite 10B JBS Plaza No. 375 Civic Centre Road, Opp. Yan Siminti, Kano State, Nigeria.	The stakeholders were pleased to have an input book opened at the BURN offices in Nigeria. Complaints or any other concerns can be stated and will be filed directly at the head office
Telephone access (optional)	Burn Nigeria Customer Care rLine +2347025006000	The phone number of the head offices of BURN will be made known to all project beneficiaries.

Detailed LSC minutes of meeting, means of invitation proof, grievance mechanism established will be shared with VVB for all countries.

The stakeholder consultation was conducted as shown above and all the sections of people were present with each of them allowed to participate in discussion. Overall, the project received very warm reception and people were able to relate to the advantages from the Improved cookstove (ICS) and harmful effects of the baseline scenario. There were no negative comments from any section of the people to the project activity.

The detailed LSC documents for each country will be submitted to VVB.

2.2.5 Anti-Discrimination

The PP BURN has policies in place to ensure that there is no discrimination based on gender, race, religion, sexual orientation etc. Further, the PP has policies with respect to sexual harassment in the workplace.

Please also note that host countries Kenya[4], Somalia[5], DRC[6], Mozambique[7], Senegal[8], Ghana[9], Nigeria[10], Ivory Coast[11], Tanzania[12] are signatory to ILO C111.

2.2.6 Worker Training

Design and implementation of project activities will include measures to minimize risks to worker safety. In all cases, workers will be informed of risks and trained in best work practices to reduce them. Capacity building and worker training will be essential elements in the project operation. Training and capacity building efforts will be designed in collaboration with the communities to ensure that they address current community concerns and prioritize community needs. Training will be provided to the employees involved in assembling, distribution and maintenance operation of ICS. These trainings will be accessible to all levels of project employees, with emphasis on employees recruited from stakeholder villages.

2.2.7 Equal Work Opportunities

Job announcements for the local villages will be distributed one month before the hiring of our permanent field staff and a series of interviews will be conducted in the villages where these crews are to be located. The project proponent will advertise applicable employment opportunities by contacting village heads and posting announcements on local notice boards. It will be ensured that members of local communities be given preference for all project-related positions. As training for the staff is budgeted, lack of prior technical knowledge will not be a hindrance.
The project will also encourage women in the local communities to take up employment as per their skills, and will provide training to all staff regardless of gender. The company as per its human resource policy ensures fair opportunity and equal pay to both men and women. Furthermore, the project activity will provide more opportunities to women through self-help groups, thus helping in overall women empowerment.

2.2.8 Workers' Rights

Each of BURN employee has a contract that states his/her rights and obligations.

All the host countries (except Kenya (87) and Somalia(100) have pledged for all core labour conventions Forced Labour Convention, 1930 (No. 29), Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87), Right to Organise and Collective Bargaining

[4] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103315

[5] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103244

[6] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102981

[7] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102964

[8] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103013

[9] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103231

[10] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103259

[11] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103023

[12] https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11200:0::NO::P11200_COUNTRY_ID:103476

Convention, 1949 (No. 98), Equal Remuneration Convention, 1951 (No. 100), Abolition of Forced Labour Convention, 1957 (No. 105), Discrimination (Employment and Occupation) Convention, 1958 (No. 111), Minimum Age Convention, 1973 (No. 138) and the Worst Forms of Child Labour Convention, 1999 (No. 182).[13]

2.2.9 Occupational Safety Assessment

The project activity will not entail any extraordinary risks. Risks could stem from road accidents, or minor social disputes during delivery and demonstration activities. Risks will be minimized by informing the workers about them, and by properly training workers with best practices and providing adequate tools/equipment. The worker training, orientation and training refreshment courses will consist of verbally informing them of these risks and about how to minimize them. Additionally, Standard Operating Procedures (SOPs) have been composed for occupational safety and health, proper use of personal protective equipment. The SOPs will be provided to all workers in local languages. First aid and medical kits will be provided to carry into the field when conducting field operations and larger ones will be placed in each of the permanent field offices.

2.2.10 Feedback and Grievance Redress Procedure

The project participant has already established grievance mechanism in place, and the same has been explained to the stakeholders during consultation process. The users of ICS can register any complain through local representative involved in distribution and responsible for operation and maintenance of ICS. In case no resolution they can also write to project in-charge for their feedback or complain by email or over telephone.

2.2.11 Feedback and Grievance Redress Procedure Accessibility

The details on procedure for grievance/feedback will be made public on website of the project participant and local representative in the host countries language as well, which will be accessible to all project stakeholders. It will also be socialized and publicized to communities throughout the project zone on local notice boards.

2.2.12 Stakeholder Access to Project Documentation

[13] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103315

https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103244

https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102981

https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102964

https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103013

https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103231

https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103259

https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103023

https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11200:0::NO::P11200_COUNTRY_ID:103476

The project details were explained and stakeholders were requested to give their feedback on any concern related to project. The project documentation will be uploaded on VERRA website and the same has been informed to stakeholders. The details on project have also been shared with them during stakeholder consultation. Notices will be also placed on the village notice boards within all villages about the availability of any summary or important project documentation and announcements will be included within local newspapers wherever possible.

2.2.13 Information to Stakeholders on Assessment Process

During stakeholder consultations, all the project details including SD Vista program process, carbon offset through projects was shared among participants. Considering that many project documents are very technical, a comprehensible non-technical summary detailing the project activities and outcomes were also distributed during the stakeholder meetings. Verbal information is also provided during the distribution phase, together with the phone and email contact to reach field staff implementors for further clarification. Auditors will visit sites to which families will be notified several days in advance either via telephone, or in-person to the stakeholders. All the project details are available either at the centralized level and at the local office in the host country.

As the SD VISta program progresses, we have already announced our participation in SD VISta's project on our website. All the LSC related supporting documents shall be provided to VVB.

2.3 Project Management

2.3.1 Avoidance of Corruption

PP has policies in place to inform management and employees about the avoidance of corruption, code of conduct, and business ethics. These policies are applied by all project staff, including company management to ensure that the organization is run in accordance with all legal requirements and is held to the highest standards of operation.

2.3.2 Statutory and Customary Rights

N/A as distributed technologies do not result in land displacement or disputes.

2.3.3 Recognition of Property Rights

N/A as distributed technologies do not result in land displacement or disputes.

2.3.4 Free, Prior and Informed Consent

N/A as distributed technologies do not result in land displacement or disputes.

2.3.5 Restitution and/or Compensation for Affected Resources

No negative effects to resources due to the project is possible. However, the grievance mechanism will ensure that any unlikely events are documented and mitigated.

2.3.6 Property Rights Removal/Relocation of Property Rights Holders

N/A as distributed technologies do not result in land displacement or disputes.

2.3.7 Identification of Illegal Activities

No illegal activities are envisaged. The distribution of project devices is managed by the PP and will be based on the needs of the end-user and willingness to adopt.

2.3.8 Ongoing Conflicts or Disputes

N/A as distributed technologies do not result in land displacement or disputes.

2.3.9 National and Local Laws and Regulations

Host countries EIA requirements does not include the need to carry out EIA for improved cookstoves.

Further, no licenses to distribute or operate are required

2.3.10 Project Ownership

This is a voluntary initiative and does not require special permission or demonstration of ownership per say. Though ECOA Climate Capital shall have an End user Agreement with each of the end user who willingly will transfer its rights to carbon credits and SDGs to ECOA. A sample end user Agreement shall also be shared with the VVB.

2.3.11 Grouped Projects

The project is a grouped projects and pursuant to requirements stated in Appendix 1 of the SD Vista Standard v1.0, the following eligibility criteria are defined –

Project Instance 1 – Improved cookstoves

S No	Criterion	How the new project activity instances comply	Evidence
1	Adopt and implement the project activities in the same manner as specified in the project description.	PIs will involve dissemination of improved cookstoves.	1. Manufacturer specifications of the individual models distributed 2. Sales database
2	Applicability conditions of the SD Vista asset methodology	N/A, as no SD Vista assets are applied.	N/A
3	Scenario with respect to stakeholders' well-being	The PI will be required to demonstrate the same impact	1. Stakeholder consultations 2. Assessment of the project's causal chain

		causal chains as mentioned in the project design – 1. Impact related to people and their prosperity 2. Impact related to the planet	
4	Processes for stakeholder engagement	Each PI will be required to identify, communicate with and carry out stakeholder consultations in line with the requirements listed in the SD Vista Standard	PDDs can be used to verify that the SD Vista requirements on stakeholder consultations are met
5	Processes for respect for rights to lands, territories and resources – including free, prior and informed consent	Each PI will be required to discuss this with the end-users as part of the stakeholder consultations	PDD can be used to verify that this discussion has been done.
6	Have similar monitoring elements to those set out in the project description.	Each PI will required to have the same monitoring elements as set out in the project description	The monitoring elements will be provided in the PI level PDD/MR and can be verified for compliance with project description

3 BENEFITS FOR PEOPLE AND PROSPERITY

3.1 Condition of Stakeholders at Project Start

End user:

Approximately, 3.2 million people die every year prematurely from illness attributable to the household air pollution caused by the inefficient use of fuels for cooking[14].

Only 18% of population in Sub Saharan Africa have access to clean cooking fuel technology. [15]The Improved (ICS) cookstoves has a better combustion process due to which indoor air pollution along with GHG emissions is significantly reduced compared to traditional three stone cooking method. The beneficiaries will be the households in 9 countries of sub-Saharan Africa namely Kenya, Somalia, DRC, Mozambique, Tanzania, Senegal, Ghana, Nigeria, and Ivory Coast. The geographical location of the project is the above mentioned 9 countries.

The baseline scenario is continued use of traditional method of open fire or three stone cookstoves using firewood as fuel in rural areas and charcoal as fuel in urban, semi-urban areas to meet the energy demand for cooking purposes.

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

This Grouped project deploys highly efficient Improved cook stove (ICS) models, known as 'Jikokoas' and 'Kuniokoas' reducing charcoal and woody biomass consumption for urban, semi-urban and rural households in the 9 countries.

Kenya:

Biomass remains the predominant fuel for cooking in Kenya. Nationwide 54.6% and 14.6% of Kenya's household population utilize firewood and charcoal for cooking respectively thereby exerting enormous pressure on the environment. 84.3% of rural and 16.1% of urban population uses firewood for cooking. On the other hand, 8.9% of rural and 21.9 % of urban population uses charcoal for cooking[16].

[14] https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health

[15] https://data.worldbank.org/indicator/EG.CFT.ACCS.ZS?locations=ZG

[16] Table 3.18 Basic Report Based on 2015/16 Kenya Integrated Household Budget Survey

Somalia:

Biomass remains the predominant fuel for cooking in Somalia as it is used by 85% of the population. 64% and 22% of the population utilize firewood and charcoal for cooking respectively thereby exerting enormous pressure on the environment. 84% of rural and 29% of urban population uses firewood for cooking. On the other hand, 8% of rural and 44% of urban population uses charcoal for cooking.[17]

DRC:

Biomass remains the predominant fuel for cooking in DRC as it is used by 95% of the population. 64% and 35% of the population utilize solid biomass and charcoal for cooking respectively thereby exerting enormous pressure on the environment[18].

Mozambique:

Biomass remains the predominant fuel for cooking in Mozambique as it is used by 85% of the population. 64% and 22% of the population utilize firewood and charcoal for cooking respectively thereby exerting enormous pressure on the environment. 84% of rural and 29% of urban population uses firewood for cooking. On the other hand, 8% of rural and 44 % of urban population uses charcoal for cooking.[19]

Senegal:

Senegal is a country prone to drought due to geographical location and continued deforestation caused by wood cutting and charcoal production, thus resulting in scarcity of traditional fuels. Total charcoal consumption by households in Senegal was 186 thousand MT in 201920. Firewood is predominantly used by the rural and urban households as the main fuel for cooking. Senegal has a population of 17 million of which more than 10 million people do not have access to clean cooking fuels21.

Tanzania:

Biomass remains the predominant fuel for cooking in Tanzania. Nationwide 66% and 27% of Tanzania's household population utilize firewood and charcoal for cooking respectively thereby exerting enormous pressure on the environment22. Only 1% of total rural population have clean

[17] https://www.undp.org/sites/g/files/zskgke326/files/publications/UNDP-UNCDF-Mozambique-Energy-and-the-Poor.pdf

[18] https://www.iea.org/data-and-statistics/charts/democratic-republic-of-the-congo-fuels-and-technologies-used-for-cooking-by-scenario-2018-2030

[19] https://www.undp.org/sites/g/files/zskgke326/files/publications/UNDP-UNCDF-Mozambique-Energy-and-the-Poor.pdf

[20] https://data.un.org/Data.aspx?d=EDATA&f=cmID%3ACH%3BtrID%3ANA

[21] https://ourworldindata.org/grapher/number-without-clean-cooking-fuel?tab=chart&region=Africa&country=~SEN

[22] https://www.iea.org/data-and-statistics/charts/tanzania-use-of-fuels-and-technologies-for-cooking-by-scenario-2018-2030

cooking fuel[23] while 10.7% of total urban population have access to clean cooking fuel as of 2020[24], leading to a huge environmental risk.

Nigeria:

Nigeria uses solid fuel for cooking purposes. Firewood is predominantly used by the rural and urban households as the main fuel for cooking. 83.0% of rural household use firewood while 3.0% use charcoal and 42.1% of urban household use firewood and 11.8% of use charcoal for cooking[25].

Ghana:

Ghana is a country prone to drought due to geographical location and continued deforestation caused by wood cutting and charcoal production, thus resulting in scarcity of traditional fuels. Total charcoal consumption by households in Ghana was 1845 thousand MT in 2020[26]. Ghana has a population of 31 million of which around 78% people do not have access to clean cooking fuels[27].

Ivory Coast:

Access to clean cooking is around 32% in Ivory coast and the remaining population resort unhealthy methods of cooking using solid fuel for cooking.[28]

Local Vendors:

Various local businesses supply wood in the project area. Local vendors interact with current and potential beneficiaries daily. Their work is dependent on business from local community members.

The assessment of net community benefits in the Project area are derived from a comparison between the 'pre' and 'post' project scenarios. The baseline scenario offers an overview of the situation prior to the installation of improved cookstoves. The installation of improved cookstoves in all households generates a net positive impact with respect to all stakeholders, especially women, who are the primary users of cookstoves.

3.2 Expected Impacts on Stakeholders

[23] https://data.worldbank.org/indicator/EG.CFT.ACCS.RU.ZS?locations=TZ

[24] https://data.worldbank.org/indicator/EG.CFT.ACCS.UR.ZS?locations=TZ

[25] Nigeria Multiple Indicator Cluster Survey 2016-17, National Indicator Finding Report, October 2017, Table CH.12 Solid Fuel Use, page 81

[26] http://data.un.org/Data.aspx?q=charcoal&d=EDATA&f=cmID%3aCH

[27] https://data.worldbank.org/indicator/EG.CFT.ACCS.ZS?end=2020&locations=ML-GH&start=2000&view=chart

[28] https://data.worldbank.org/indicator/EG.CFT.ACCS.ZS?locations=CI

Impact #1	Increased access to basic services
Type of Impact	Impact is positive, actual and direct.
Affected Stakeholder Group(s)	Beneficiaries
Resulting Change in Well-being	Increased access to basic service of getting Improved cookstove resulting in reduction in indoor air pollution and less consumption of non-renewable woody biomass

Impact #2	Decrease in mortality and morbidity attributable to household and ambient air pollution
Type of Impact	Impact is positive, predicted and indirect.
Affected Stakeholder Group(s)	Beneficiaries
Resulting Change in Well-being	Indoor air pollution from three stone fires will substantially reduce due to the project thereby reducing the mortality and morbidity caused due to household air pollution.

Impact #3	Number of individuals who received any informal training to enable their employment in project activity or elsewhere.
Type of Impact	Impact is positive, predicted and direct.
Affected Stakeholder Group(s)	Beneficiaries
Resulting Change in Well-being	The people who work on the project though their jobs will receive training which will help them in project activity or elsewhere.

Impact #4	Decrease in proportion of time spent on unpaid domestic and care work by women and children
Type of Impact	Impact is positive, predicted and direct.

Affected Stakeholder Group(s)	Beneficiaries
Resulting Change in Well-being	Women and children will save time in collecting firewood for cooking and would be able to utilize that time for education, recreation or economic activities.

Impact #5	Proportion of population with primary reliance on clean fuels and technology
Type of Impact	Impact is positive, predicted and direct.
Affected Stakeholder Group(s)	Employable workforce
Resulting Change in Well-being	Approximately 7.5 million households will shift from dirty three stone fires to cleaner cookstoves for cooking.

Impact #6	Proportion of informal employment in non-agriculture employment, by sex
Type of Impact	Impact is positive, predicted and direct.
Affected Stakeholder Group(s)	Employable workforce
Resulting Change in Well-being	The project is likely to lead to formal job creation through growth of micro-, small- and medium-sized enterprises involved in manufacturing of improved cookstoves.

Impact #7	Ratio of the average wage paid during the reporting period to female employees for a specified position, compared to the average wage paid to male employees of the organization for the same position.
Type of Impact	Impact is positive, actual and direct.
Affected Stakeholder Group(s)	Beneficiaries

Resulting Change in Well-being	The project activity ensures equal rights to men and women in economic and financial resources.

3.3 Stakeholder Monitoring Plan

Data / Parameter	Increased access to basic service
Data unit	Number of households
Description	Proportion of population living in households with access to basic services
Relevant SDG Target	SDG Target 1.4
Stakeholder group impacted	Beneficiaries
Source of data	Internal records/Sales Database
Description of measurement methods and procedures to be applied	Number of households using Improved cookstoves shall be monitored
Frequency of monitoring/recording	Once at time of distribution of project devices
Value applied	(for ex-ante estimation only)
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of data	Demonstrate Impacts #1 defined in section 3.2 above.
Calculation method	N/A
Comments	1. The ex-ante value will be cross checked with actual values during monitoring 2. Improved cookstoves shall be marked for clear, unique identification to associate them with VERRA project.

Data / Parameter	% of households monitored who perceive an improvement in air quality
Data unit	Number
Description	Number of households reporting cleaner indoor air
Relevant SDG Target	SDG Target 3.9
Stakeholder group impacted	Beneficiaries
Source of data	Monitoring surveys
Description of measurement methods and procedures to be applied	Health surveys will be conducted along with cookstove usage surveys. These surveys will be designed to capture household perception on improvement in indoor air quality and associated health benefits they feel have been accrued. Simple random sampling approach will be used in sampling surveys. Minimum sample size will be determined as per the following guidelines: – Project target population < 300: Minimum sample size 30 – Project target population 300 – 1000: Minimum sample size 10% of group size – Project target population > 1000: Minimum sample size 100
Frequency of monitoring/recording	At-least once every two years
Value applied	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of data	Demonstrate Impact #2 defined in section 3.2 above.
Calculation method	N/A
Comments	N/A

Data / Parameter	Average time saving associated with cooking time and fuel collection

Data unit	Hours
Description	Reduced time/ effort spent in collecting fuel
Relevant SDG Target	SDG Target 5.4
Stakeholder group impacted	Beneficiaries
Source of data	Monitoring surveys
Description of measurement methods and procedures to be applied	Time surveys will be conducted along with cookstove usage surveys. These surveys will be designed to capture data on hours saved by women and children in collecting firewood. Information will also be captured on how women and children are utilizing this spare time. Simple random sampling approach will be used in sampling surveys. Minimum sample size will be determined as per the following guidelines: – Project target population < 300: Minimum sample size 30 – Project target population 300 – 1000: Minimum sample size 10% of group size – Project target population > 1000: Minimum sample size 100
Frequency of monitoring/recording	At-least once every two years
Value applied	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of data	Demonstrate Impact #4 defined in section 3.2 above.
Calculation method	N/A
Comments	N/A

Data / Parameter	Number of employees provided skill development training
Data unit	Number

Description	Number of employees provided skill development training (The number of employees (full-time, part-time, or temporary), by gender who received training services of any type via project during the reporting period.)
Relevant SDG Target	SDG Target 4.3 and 8.3
Stakeholder group impacted	Employable workforce
Source of data	Job records from cookstove manufacturers and PP
Description of measurement methods and procedures to be applied	Cookstove manufacturers will be contacted to gather information on number of people formally employed.
Frequency of monitoring/recording	Atleast once every two years
Value applied	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of data	Demonstrate Impact #3 and #6 defined in section 3.2 above.
Calculation method	N/A
Comments	The project due to its scale, will likely lead to creation and sustenance of jobs in micro-, small- and medium-sized enterprises involved in manufacturing improved. The number of people receiving training and jobs in the host countries will be captured.

Data / Parameter	Number of verified operational ICSs
Data unit	Number
Description	Proportion of population with primary reliance on clean fuels and technology

Relevant SDG Target	SDG Target 7.1
Stakeholder group impacted	Beneficiaries
Source of data	Internal records
Description of measurement methods and procedures to be applied	Recorded during distribution of each device.
Frequency of monitoring/recording	Once at time of distribution of project devices
Value applied	7.5 million
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of data	Demonstrate Impact #6 defined in section 3.2 above.
Calculation method	N/A
Comments	1. Internal records will unambiguously identify each recipient of improved cookstove. 2. Improved cookstoves shall be marked for clear, unique identification to associate them with VERRA project

Data / Parameter	Equal pay for men and women in project activity
Data unit	Number
Description	Ratio of the average wage paid during the reporting period to female employees for a specified position, compared to the average wage paid to male employees of the organization for the same position.
Relevant SDG Target	SDG Target 8.5
Stakeholder group impacted	Employed Men and Women
Source of data	Internal records

Description of measurement methods and procedures to be applied	Record sheet of jobs provided in host countries
Frequency of monitoring/recording	Once in every two year
Value applied	To show the record of jobs provided with pay details for both men and women.
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of data	Demonstrate Impact #7 defined in section 3.2 above.
Calculation method	N/A
Comments	NA

3.4 Net Positive Stakeholder Well-being Impacts

The implementation of the grouped project does not impose any severe impacts on the ecological system in the surrounding areas. This project activity will help in reducing the consumption of fuel wood and charcoal by efficient fuel combustion thereby reducing deforestation and reducing indoor air pollution. The use of efficient Cook Stove technology will reduce adverse environmental and social impacts associated with the use of non-renewable biomass. The reduced consumption of the stated baseline fuel will have sustainable benefit for all households/communities/Small and Medium Enterprises (SMEs) traditional cook stoves users included in the project activity. The implementation of the project will reduce workloads involved in fuel collection, and by reducing indoor air pollution, will reduce the risk of respiratory diseases, especially for women and children. Efficient or improved Cookstoves will also contribute to environment protection by reducing biomass consumption and hence greenhouse gas emissions, mainly CO_2, when the combusted biomass originates from non-renewable stocks.

4 BENEFITS FOR THE PLANET

4.1 Condition of Natural Capital and Ecosystem Services at Project Start

As in most developing countries, the beneficiaries in the 9 countries rely upon fuel wood for heating and cooking. The problem is compounded by rapid population growth. Loss of so much forest cover has had severe environmental consequences.

In addition to tremendous loss of biodiversity, the region experiences soil erosion and degradation and landslides in Kenya. Kenyan households consumed around 7400,000m^3 of firewood in 2019.[29] In 2010, Kenya had 3.18Mha of natural forest, extending over 5.7% of its land area. From 2000 to 2020, Kenya experienced a net change of -285kha (-6.0%) in tree cover. In 2021, it lost 7.23kha of natural forest, equivalent to 3.23Mt of CO_2 emissions[30].

Somalian households consumed around 7,400,000m^3 of firewood in 2019.[31] In 2010, Somalia had 146kha of tree cover, extending over 0.23% of its land area. From 2000 to 2020, Somalia experienced a net change of -3.60kha (-2.0%) in tree cover. In 2021, it lost 169ha of tree cover, equivalent to 33.9kt of CO_2 emissions.[32]

DRC households consumed around 65,720,000m3 of firewood in 2019[33]. In 2010, Democratic Republic of the Congo had 198Mha of natural forest, extending over 85% of its land area. In 2021, it lost 1.25Mha of natural forest, equivalent to 822Mt of CO_2 emissions. From 2000 to 2020, Democratic Republic of the Congo experienced a net change of -6.00Mha (-3.6%) in tree cover.[34]

Mozambique households consumed around 17,654,000 m^3 of firewood in 2019[35]. In 2010, Mozambique had 27.0Mha of natural forest, extending over 34% of its land area. In 2021, it lost 278kha of natural forest, equivalent to 109Mt of CO_2 emissions. From 2000 to 2020, Mozambique experienced a net change of -4.31Mha (-10%) in tree cover.

Tanzania households consumed around 32,415,000 m^3 of firewood in 2019[36]. In 2010, Tanzania had 24.7Mha of natural forest, extending over 26% of its land area. In 2021, it

[29] http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231

[30] shorturl.at/klyZ8

[31] http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231

[32] shorturl.at/efjk3

[33] http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231

[34] shorturl.at/nNSX0

[35] http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231.

[36] http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231.

lost 165kha of natural forest, equivalent to 63.1Mt of CO_2 emissions. From 2000 to 2020, Tanzania experienced a net change of -3.82Mha (-11%) in tree cover.[37]

Senegal households consumed around 3,608,000 m^3 of firewood in 2019[38]. In 2010, Senegal had 47.9kha of tree cover, extending over 0.24% of its land area. In 2021, it lost 177ha of tree cover, equivalent to 65.5kt of CO_2 emissions. From 2000 to 2020, Senegal experienced a net change of -31.1kha (-0.76%) in tree cover.[39]

Ghana households consumed around 4,968,000 m^3 of firewood in 2019[40]. In 2010, Ghana had 7.00Mha of natural forest, extending over 30% of its land area. In 2021, it lost 101kha of natural forest, equivalent to 63.8Mt of CO_2 emissions. From 2000 to 2020, Ghana experienced a net change of -573kha (-5.1%) in tree cover.[41]

Nigerian households consumed around 172,451,000 m^3 of firewood in 2019[42]. In 2010, Nigeria had 10.9Mha of natural forest, extending over 12% of its land area. In 2021, it lost 96.5kha of natural forest, equivalent to 65.3Mt of CO_2 emissions. From 2000 to 2020, Nigeria experienced a net change of -1.47Mha (-6.1%) in tree cover.[43]

Ivory coast households consumed around 14,072,000 m^3 of firewood in 2019[44]. In 2010, Côte d'Ivoire had 13.9Mha of natural forest, extending over 43% of its land area. In 2021, it lost 182kha of natural forest, equivalent to 110Mt of CO_2 emissions. From 2000 to 2020, Côte d'Ivoire experienced a net change of -1.65Mha (-6.9%) in tree cover.[45]

4.2 Expected Impacts on Natural Capital and Ecosystem Services

Impact #9	Tonnes of greenhouse gas emission avoided or removed
Type of Impact	Impact is positive, actual and indirect.
Affected Natural Capital and/or Ecosystem Service(s)	GHG emission reduction for the planet

[37] shorturl.at/fkNYZ
[38] http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231.
[39] shorturl.at/jHKUW
[40] http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231
[41] shorturl.at/ovAC3
[42] http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231
[43] shorturl.at/nAJQY
[44] http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231
[45] shorturl.at/BGHOS

Resulting Change in Condition	Reduction of emission reduction as estimated in VCS PD. Throughout the project lifetime an estimated 186 Million tCO_2 will be offset.

Impact #10	Increase in progress towards sustainable forest management
Type of Impact	Impact is positive, actual and indirect.
Affected Natural Capital and/or Ecosystem Service(s)	Natural forests of host countries.
Resulting Change in Condition	Project will help to halt deforestation across entire host countries by reducing the amount of firewood used for cooking

4.3 Natural Capital and Ecosystem Services Monitoring Plan

Data / Parameter	Total non-renewable wood fuel saved
Data unit	Tons
Description	Reduced deforestation attributed to wood fuel savings
Relevant SDG Target	SDG Target 15
Stakeholder group impacted	Natural forests / Planets
Source of data	GHG emission reduction calculations from VCS monitoring report for this project
Description of measurement methods and procedures to be applied	This data will be derived from Equation (3) of the VCS PDD for this project, which calculates the emissions offset and the respective fNRB value of host country.
Frequency of monitoring/recording	Once in two year
Value applied	N/A

Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of data	Demonstrate Impact #10 defined in section 4.2 above.
Calculation method	N/A
Comments	N/A

Data / Parameter	Tonnes of greenhouse gas emission avoided or removed
Data unit	tCO_2
Description	GHG emission reduction for the planet
Relevant SDG Target	SDG Target 13
Stakeholder group impacted	Natural forests / Planets
Source of data	GHG emission reduction calculations from VCS monitoring report for this project
Description of measurement methods and procedures to be applied	This data will be derived from Equation (2) of the VCS PDD for this project, which calculates the emissions offset.
Frequency of monitoring/recording	Once a year
Value applied	N/A
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of data	Demonstrate Impact #9 defined in section 4.2 above.
Calculation method	N/A
Comments	N/A

PO will be responsible for collecting survey data and the Program Development team will be responsible for revising the data, completing, and reporting all relevant calculations.

4.4 Net Positive Natural Capital and Ecosystem Services Impacts

By replacing open cooking fires with ICS technology and performing energy efficiency improvements in existing biomass-fired cookstoves, the project reduces energy demand in the form of wood fuel use, thus generating net GHG reductions. Overall emission reduction from the project activity is 185 Million tCO_2.

No negative ecological impacts have been identified for the project, therefore net impacts of the project activities are positive.