Gold Standard®

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

Version 1.1 – August 2017

Gold Standard

KEY PROJECT INFORMATION

Title of Project:	Nazava Water Filter project in Ethiopia
Brief description of Project:	The project activity aims to provide safe drinking water in rural and urban areas of Ethiopia by installing the affordable Nazava water filters. The applied technology is a ceramic water filter that produces water of safe drinking water. The project activity aims to reduce around 644,283 tCO_2e of GHG emissions every year by displacing the firewood used to boil water for purification by the less emission intensive Nazava ceramic water filters. The project also contributes towards sustainable development as it provides safe drinking water, enhances the economy and has a positive impact on the environment.
Date of Implementation: Expected duration of Project:	01/09/2019 5 years renewable cycle
Project Developer:	Nazava Trading PLC
Project Representative:	Swiss Carbon Value Ltd.
Project Participants and any communities involved:	Nazava Trading PLC Swiss Carbon Value Ltd.
Version of PDD: Date of Version:	1 31/08/2020
Host Country / Location:	Ethiopia
Certification Pathway (Project Certification/Impact Statements & Products	Impact Statements & Products
Activity Requirements applied: (mark GS4GG if nonrelevant)	GS4GG: Community Services Activity Requirements
Methodologies applied:	Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 3.1
Product Requirements applied:	GS VER
Regular/Retroactive:	Retroactive
SDG Impacts:	1 – SDG 6: Clean water and sanitation 2 – SDG 8: Decent work and economic growth 3 – SDG 13: Climate action
Estimated amount of SDG Impact Certified	SDG 13: 128,857 tCO_2e/year SDG 06: 7,360,00 people gain access to safe drinking water per year SDG 08: 100 jobs created

SECTION A. Description of project

A.1. Purpose and general description of project

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The project activity aims to provide safe drinking water in rural and urban areas of Ethiopia by installing the affordable Nazava water filters. The applied technology is a ceramic water filter that produces water of safe drinking water. Inadequate access to microbiologically safe drinking water continuously threatens the health and well-being of more than a billion people, primarily in developing countries. In many areas worldwide the central water infrastructure is not available at all, or not reliable, leading to unsafe water at the tap. In such cases, decentralized water treatment can be used. In Ethiopia, only 51% of the population has access to safe drinking water with 92.8% in urban and 41.6% in rural settings.[1] One of the widely used household water treatment method as promoted by Health Extension Workers and Health Development Army is boiling of water. Majority of the households resort to non-renewable sources of energy to boil water for drinking purpose. The project activity intends to improve the access of households and communities to safe drinking water, using a low greenhouse gas emitting water purification technology. The project activity reduces the use and demand of non-renewable biomass that would have been used to boil the water as a mean of water purification in the absence of the project activity. This directly leads to reduced greenhouse gas emissions. This project activity is thus primarily designed for the long-term improvement of the living conditions in rural areas of Ethiopia.

Baseline Scenario:

Precursory to the proposed project activity, the proposed project boundary had limited access to clean drinking water. In order to make the water suitable for drinking, it is boiled using some non-renewable biomass. Thus, the baseline scenario is the perpetuation of this technique to make the water suitable for drinking. Therefore, the scenario prior to the implementation of the project in the project boundary is the baseline scenario of the project activity.

Project Scenario:

In the project scenario, the proposed project activity will take the edge of the GHG emissions by the substitution of non-renewable biomass to purify water for drinking purposes with ceramic filters. Usage of non-renewable biomass for water purification is not only energy intensive but also causes significant amount of indoor air pollution which has perilous impacts on the health of the people. The project activity will result in an annual average CO_2 emission reduction of 128,857 tCO_2e and 644,283 tCO_2e over a 5-year crediting period.

The project activity is a voluntary initiative taken by the coordinating/managing entity (CME), Swiss Carbon Value Ltd., and implemented by Nazava Trading PLC

A.2. Eligibility of the project under Gold Standard

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The project falls under GG4GG Community Services Activity Requirements:

Eligible Project Types & Scope: The project leads to climate change mitigation by reducing the firewood consumption of the households. Types of project: The project falls under 'End-Use Energy Efficiency' type.

Project Area, Boundary and Scale: Project Area and Boundary is described under section A.4 below. Scale: The project falls under 'End-Use Energy Efficiency' type with emission reductions 128,857 tCO_2e

[1] https://www.globalfinancingfacility.org/sites/gff_new/files/Ethiopia-health-system-transformation-plan.pdf

per year with the total installed energy output of 86 GWh_{th}. This value is well below the threshold of small-scale projects i.e. 180 GWh_{th}. Therefore, it is a small-scale project.

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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Implementation of the proposed project doesn't involve any activity that causes alteration of any resource; therefore, acquiring any specific legal right to do so is not applicable.

A.4. Location of project

A.4.1. Host Country

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Ethiopia

A.4.2. Region/State/Province etc.

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The Nazava water filters will be installed throughout Ethiopia.

A.4.3. City/Town/Community etc.

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Addis Ababa, Amhara, Dese, Hawasa, Jima, Kolefe, Kombolcha, Oromia, Lideta, Southern Nations, Nationalities, and People's Region

A.4.4. Physical/Geographical location

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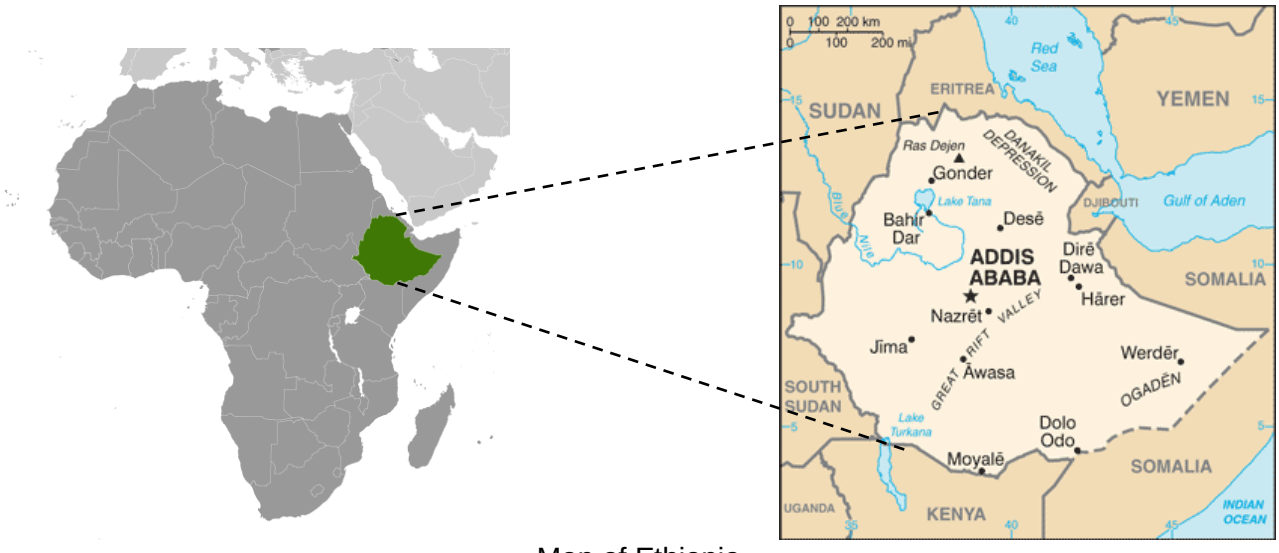
The project will be implements throughout Ethiopia. The details of geographical location are presented below.

	Coordinates
Latitude	9.1450° N
Longitude	40.4897° E



Map of Ethiopia

A.5. Technologies and/or measures

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A detailed description of the Nazava Water filters is as follows:

Nazava water filter is a 2 x 16 litre ceramic water filter and flow speed of 1 litre per hour. The Nazava ceramic filter candle has three main working components, functions of which are described below.

Ceramic:

The cone shaped ceramic filter has a pore size of 0.4 micron. This component of the water purifier is responsible for filtering the dirt and bacteria in the water. Tiny pores in the ceramic membrane block bacteria and most dirt particles. The filters are made of diatomaceous earth with pores of 0.4 micron (0.0004 millimetre) and remove micro-organisms: bacteria, cysts, parasites, fungi, sand, clay and other particles greater than 0.4 micron .

Nano silver:

The Nazava ceramic water filter is impregnated with nano silver particles. Once the water passing through the ceramic it reaches the nano silver component which further kills the bacteria and other microorganisms. The nano particles in the range of 1–10 nm stick to the cell membrane and drastically disturb its function, like permeability and respiration, this implies the bacteria cannot "eat" and "breath" anymore. The Silver nano particles get into the bacteria cell and cause further damage by binding with sulphur and phosphorus-containing compounds such as DNA (the molecules that store genetic information). The nano particles release silver ions which also bind to DNA make it impossible for the bacteria to replicate itself.

Activated Carbon:

The ceramic is filled with activated carbon which reduces the content of harmful chemicals such as pesticides and chlorine. It improves the taste and reduces smell.

The Nazava ceramic water filters purify your water in three steps:

1. Dirt and bacteria are filtered out by the ceramic.
2. Bacteria and other micro-organisms are killed by silver
3. Activated carbon in the filter improves taste and makes your water taste fresh

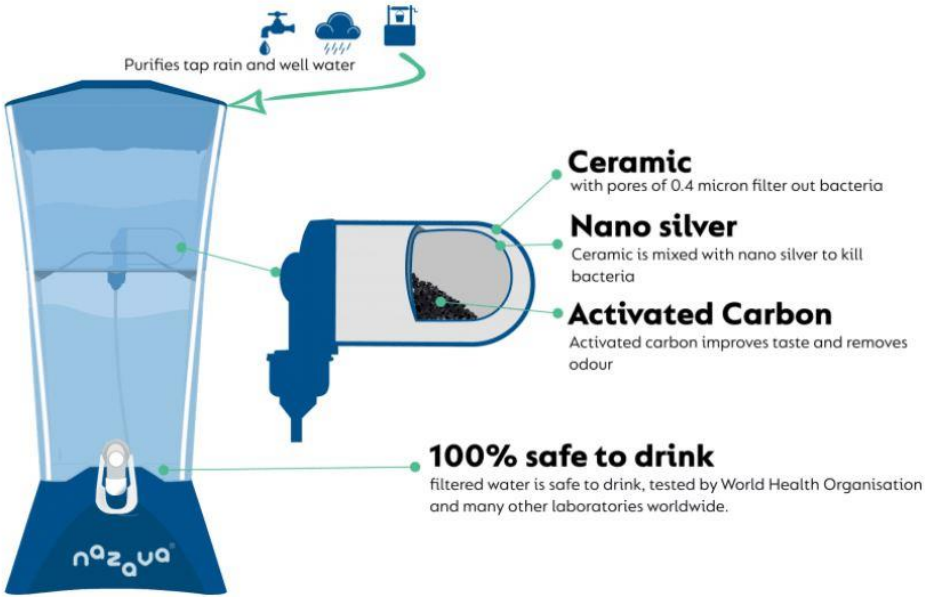

Figure 2: Nazava Water Filter

These are ceramic filters that remove microorganisms such as bacteria, fungi, sand, clay and other particles greater than 0.4 micron. The filter technologies conservatively purify 3

litres per hour, is certified to last for 7,000 litres. Figure 3 below provides an insight about the filter technology.

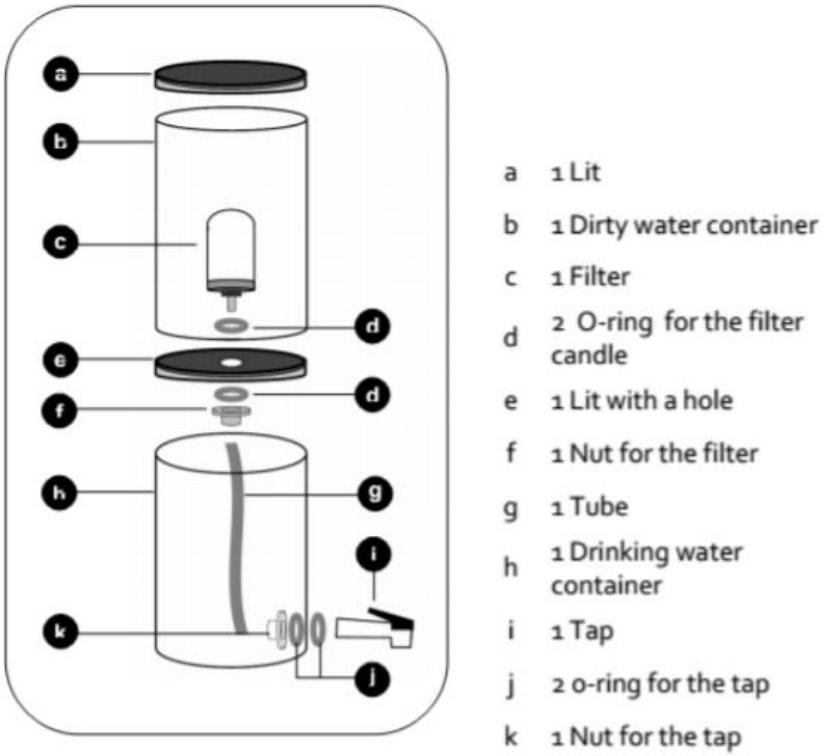

Figure 3: Nazava Water filter Technology

Using this technology, households can filter their own tap, well, river or rainwater. All of these filters come with a local language user manual with clear directions, an indicator for filter replacement, and a one-year warranty card. Tulip ceramic water filter has been one of the solutions for providing safe drinking water. They have been shown to effectively reduce diarrhoea diseases, with independent tests and assessments available.

The project contributes directly in achieving the SDG 6 & 8 in addition to SDG 13 as required by Principle- 1 of GS4GG. The project will have following benefits:

- Environmental Benefits: Reduction in firewood consumption and emission of greenhouse gases, forest and biodiversity conservation (SDG 13).
- Economic Benefits: Employment creation and saving of health cost (SDG 8).
- Social Benefits: The project will increase the access to safe and clean drinking water to the communities (SDG 6)

A.6. Scale of the project

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The project falls under 'End-Use Energy Efficiency' type with emission reductions 128,857 tCO_2e per year with the total installed energy output of 86 GWh_{th}. This value is well below the threshold of small-scale projects i.e. 180 GWh_{th}. Therefore, it is a small-scale project.

A.7. Funding sources of project

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No public funding from parties included in Annex I to the UNFCCC, is available to the project. The project is implemented by the client. Carbon waiver has been signed by the project owner and carbon rights are available with Nazava Trading PLC.

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

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Proposed project is developed pursuant to the "gender sensitive" requirements outlined in the "Gold Standard Gender Equality Guidelines and Requirements". As required for the purpose of the PDD as specified in the guidance note to this section, the project participants present the assessment to questions included in step 1 to 3 in the respective guidelines and requirements.

1M) Does the project reflect the key issues and requirements of gender-sensitive design and implementation as outlined in the gender policy? Explain how.

The project respects the key gender issues and requirements of gender-sensitive design and implementation of the project. The project is aimed to substitute the non-renewable biomass used by the households to purify water via boiling. Therefore, the project will support environmentally sustainable consumption of firewood.

An overwhelming majority of the households in Ethiopia, the kitchen chores (including the sourcing of firewood for household chores and water boiling) are handled by women. While getting involved most of the time with the kitchen related activities, women are more exposed to the indoor air pollution and the associated hazard. Situation is more aggravated with a fact that the women are also responsible for taking care of the children and the children who normally need mother's support to perform their activities are bound to accompany their mother in kitchen. This situation has led to enhanced exposure of the women and children to kitchen smoke and associated health consequences. Since the project aims to displace the polluting firewood used to boil water with ceramic water filters. The project activity in a way reduces the burden of collecting fuelwood on the women.

Project implementer opines that promotional activities are better addressed with women in the forefront. During the life of the project, the project participant believes to create a conducive environment where women are ably capacitated to discuss the need of a technology, create awareness of the product and process, and in long run, to organize themselves and create business opportunities for themselves. This woman prioritized mode of project development and implementation helps address gender equality issues; in the meantime, addressing issues related to environmental sustainability and natural resource management.

2M. Does the project align with existing country policies, strategies and best practices? Explain how.

Article 25 outlines the "Right to equality.", Article 34 of the constitution highlights the "Martial, Personal and Family Rights". Article 35 of the Ethiopian constitution throws light on the rights of the women. Therefore, the project being in Ethiopia upholds the principles of accountability and the rule of law, participation and inclusion, and equality and non-discrimination. In addition, Ethiopia is also one of the 48 countries who voted for the 'Universal Declaration of Human Rights[2]'.

Ethiopia has signed 'Convention on the Political Rights of Women, 1953'. The country accessioned 'International Convention on the Elimination of All Forms of Racial Discrimination :1969' [3]'International Covenant on Civil and Political Rights :1976'[4], 'International Covenant on Economic, Social and Cultural

[2]See: https://web.archive.org/web/20130927221000/http://unyearbook.un.org/1948-49YUN/194849_P1_CH5.pdf

[3] See: https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-2&chapter=4&clang=_en

[4] https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-4&chapter=4&clang=_en

Rights :1976'[5], 'Convention on the Elimination of All Forms of Discrimination' against Women (1979)[6]. Ethiopia has adopted the National Action Plan for Gender Equality[7]. The project respects the spirit of all the mentioned conventions.

3M. Does the project address the questions raised in the Gold Standard Safeguarding Principles & Requirements document? Explain how.

The questions on Gender Aspects raised in the Gold Standard Safeguarding Principles and Requirements document are answered in the Safeguarding Principle Assessment. There are no risks perceived by Stakeholders and the project developer due to the strong focus of the project on women as main beneficiaries.

4M. Does the project apply the Gold Standard Stakeholder Consultation & Engagement Procedure, Requirements & Guidelines? Explain how

Yes; the project applies all the Gold Standard Stakeholder Consultation &Engagement Procedure, requirements & guidelines.

SECTION B. Application of selected approved Gold Standard methodology

B.1. Reference of approved methodology

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The relevant project type and category is: Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 3.1 Reference: https://www.goldstandard.org/project-developers/standard-documents

Applicability of methodology
Justification for the choice of methodology is given below table:

Sr.No.	Condition	Justification
1	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 may be another similar activity within the same target area. Project proponents must therefore have a survey mechanism in place together with appropriate mitigation measures so as to prevent any possibility of double counting.	The project boundary is the physical, geographical site of Nazava Water Filters installed within Ethiopia. The project is not registered with any other voluntary to compliance market thus, does not double count any of its emission reductions. A unique ID is given to every unit distributed.
2	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 of operation). For technologies or	The maximum energy output of the device implemented in the project activities is 0.37 kW_{th} per unit, below the indicated 150 kW_{th} limit per unit.

[5] See: https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-3&chapter=4&clang=_en

[6] See: https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-8&chapter=4&clang=_en

[7] See: http://extwprlegs1.fao.org/docs/pdf/eth149708.pdf

	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.	
3	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. The project documentation must provide a clear description of the approach chosen and the monitoring plan must allow for a good understanding of the extent to which the baseline technology is still in use after the introduction of the improved technology. For example, whether the existing baseline technology is not surrendered at the time of the introduction of the improved technology, or whether a new baseline technology is acquired and put to use by targeted end users during the project crediting period. The success of the mechanism put into place must therefore be monitored, and the approach must be adjusted if proven unsuccessful. If an old technology remains in use in parallel with the improved technology, the corresponding emissions must be accounted for as part of the project emissions	Monitoring of the baseline technology usage will be done periodically. Detailed surveys will be conducted to get a feedback on the operation of the new technology and to measure the extent to which the baseline technology is still used. Along with this, the internal survey would include questions related to the reason behind the continued usage of the baseline technology.
4	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. For technology producers and the retailers of the improved technology or the renewable fuel in use, this must be communicated by contract or clear written assertions in the transaction paperwork.	The end user of water filter will confirm that they transferred the ownership of VERs to the Project owner.

5	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.	The project activity does not involve the making of new biomass feedstock. Therefore, this condition is not applicable.
6	This methodology allows for project activities to include safe water supply technologies implemented in households, commercial premises e.g. shops and institutional premises e.g. schools, prisons, army camps, refugee camps, offices, etc.	The project technology involves installation of ceramic water filters in households and commercial premises. Therefore, this condition is applicable.
7	The water in its improved form should be available within 1 km walking / pedaling distance from the households. There is a two-year grace period (from date of registration) for any households falling outside of this distance, however once this period is over these households would not be included in the emission reduction calculation.	The filtered water is available in the households of the people thus there is no need of walking long distances to access water in its improved form.
8	Only end users that boil water or are currently using unsafe water are eligible for crediting. The baseline scenario is the existing practice of boiling water using high emission fuels including non-renewable biomass and fossil fuels to treat it for consumption.	The project targets users who boil water using nonrenewable sources to purify it and are currently using unsafe water for drinking in the baseline scenario.

Eligible Project Types:
End-Use Energy Efficiency Improvement -
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.

Project Types and Eligibility criterion: -
Project activity falls under below project type-
Project Type: End-Use Energy Efficiency Improvement:
Project activity involves installation ceramic water filters in households which use non-renewable sources to boil and make the water fit for drinking, thereby reducing or zeroing firewood consumption of the household. Nazava PLC has taken an undertaking from the purchasers stating transferring of carbon credits rights to them. Every stakeholder was aware of the arrangement and ownership of the credits. Hence meeting the GS criterion.

B.2. Project boundary
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As per "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" methodology the project boundary is:
The project boundary is the physical, geographical site of the use of Nazava ceramic water filters throughout Ethiopia.
Therefore, the project boundary incorporates all the physical geographical sites of Nazava Water Filters.

The emissions accounted from the various sources in the physical boundary of the project activity are as follows:

For the purpose of GHG mitigation/sequestration following table shall be completed (delete if not required)

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Thermal Energy Need	CO_2	Yes	The major source of emissions in the baseline due to burning of firewood
		CH_4	No	Excluded for simplification, this is conservative.
		N_2O	No	Not applicable for the project activity
Project scenario	Thermal Energy Need	CO_2	Yes	Included but is not very significant for the project activity
		CH_4	No	Not applicable for the project activity
		N_2O	No	Not applicable for the project activity

B.3. Establishment and description of baseline scenario

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As already stated in section A.1, only 51% of the population In Ethiopia has access to safe drinking water. Out of this 51%, only 41.6% of the rural population can gain access to clean water.[8] Boiling of water using fuelwood is one of the main practices followed to make the water fit for drinking. Therefore, the baseline scenario is the consumption of fuelwood to meet the energy requirements in households for the purification of water.

The proposed project activity aims to phase out the usage of non-renewable sources of energy to purify water and replace it with the zero GHG emitting ceramic water filters. The amount of fuelwood consumed to boil the water is directly proportional to the quantity of water which is purified. Nearly 68% of the energy is derived from fuel wood in the households of Ethiopia[9].

Therefore, quantity of fuelwood consumed during the baseline scenario is as follow:

Year	$B_{p,y}$ (ton)
Year 1	20,775
Year 2	57,130
Year 3	93,486
Year 4	129,841
Year 5	166,197

[8] https://www.globalfinancingfacility.org/sites/gff_new/files/Ethiopia-health-system-transformation-plan.pdf

[9] See Table 17: http://www.fao.org/3/a-ab582e.pdf

B.4. Demonstration of additionality

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As described in section A.2 above, the project falls under GG4GG Community Services Activity Requirements. As per Annex-B Positive list under 'GG4GG Community Services Activity Requirements' the project meets the criteria 3 because the project activity is solely composed of isolated units where the users of the technology/measure are households or communities or institutions and where each unit results in <= 600 MWh of energy savings per year or <=600 tonnes of emission reductions per year.

Prior Consideration:

As per GS4GG rule for retroactive projects, project documents need to submit to GS within one year of the project start date to meet prior consideration. In this case, the start date is 01/09/2020 and PP has submitted the initial project documents to GS on 31/08/2020. Therefore, the project meets the prior consideration requirements.

Ongoing financial Need:

Ongoing Financial Need shall be demonstrated at Design Certification Renewal (Refer clause 4.1.52 of GS4GG 'principle and requirements'

B.5. Sustainable Development Goals (SDG) outcomes

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

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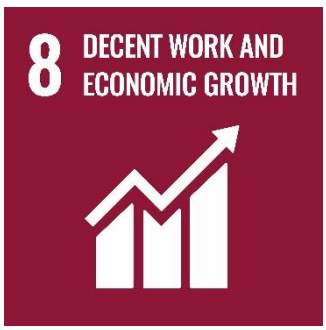
The table below discusses the relevant SDG target for each three SDGs addressed by the project.

SDGs	Targets
	The project will contribute to the SDG Goal 6: Clean water and sanitation, "Ensure availability and sustainable management of water and sanitation for all" achieving the following target. Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all" Project SDG Indicator: The number of persons provided safe drinking water.
	The project will contribute towards the SDG goal 8: Decent work and economic growth "Promote sustained, inclusive and sustainable economic growth, full and productive" acieving the following target. 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. Project SDG Indicator: The number of jobs created for local people by the project activity.

	The project will contribute towards below SGD goal 13: Climate action "Take urgent action to combat and its impacts" achieving the following target. Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning. Project SDG Indicator: GHG emissions reduced due to the installation of ceramic water filters.

B.5.2. Explanation of methodological choices/approaches for estimating the SDG outcome

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Methodological choices/approach for estimating SGD 13 outcomes:

Baseline emissions:

As per "Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 3.1", baseline emissions are calculation using equation (1) below.

$$BE_{b,y} = B_{b,y} * ((f_{NRB} * Ef_{b,fuel,CO2}) + Ef_{b,fuel,non-CO2}) * NCV_{b,fuel} \quad \text{Equation (1)}$$

Where:

$BE_{b,y}$	= Baseline emissions in year, y
$B_{b,y}$	= Quantity of fuel consumed in baseline scenario b during the year y in tons
$f_{NRB,b,y}$	= Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass
$Ef_{b,fuel,CO2}$	= 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
$Ef_{b,fuel,non-CO2}$	= Non-CO_2 emission factor of the fuel that is substituted or reduced
$NCV_{b,fuel}$	= Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)

Now, $B_{b,y}$ is calculated using equation (2) below:

$$B_{b,y} = (1-X_{boil}) * (1-C_j)*N_{j,y} * W_{b,y} * (Q_{p,y} + Q_{p,rawboil,y}) \quad \text{Equation (2)}$$

Where:

X_{boil}	= Percentage of premises that would have used other non-GHG emitting technologies like chlorine treatment techniques, if available, in the absence of the project activity. These premises must be located in the project boundary. This parameter can be determined ex-ante using a survey. This parameter is to be applied for premises that are under suppressed demand situation.
C_j	= Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it.
$N_{j,y}$	= Number of person days consuming water supplied by project scenario p through year y
$W_{b,y}$	= Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b during project year y, as per Baseline Water Boiling Test.
$Q_{p,y}$	= Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day

$Q_{p,rawboil,y}$ = Quantity of raw water boiled in the project scenario p per person per day

Project Emissions

Emission reduction in accordance with the "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" methodology using the following equation .

$PE_{p,y} = B_{p,y} * ((f_{NRB} * Ef_{p,fuel,CO2}) + Ef_{p,fuel,non-C2}) * NCV_{p,fuel}$ Equation (3)

Where:

$PE_{p,y}$	= Project emissions in year, y
$B_{p,y}$	= Quantity of fuel consumed in project scenario p during year y, in tons
f_{nrb}	= Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass
$NCV_{p,fuel}$	=Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)
$Ef_{p,fuel,CO2}$	= CO_2 emission factor of the fuel that is substituted or reduced. 112 tCO2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$Ef_{p,fuel,non-CO2}$	= Non-CO_2 emission factor of the fuel that is substituted or reduced

Now, $B_{p,y}$ is calculated using equation (4) below:

$B_{p,y} = (1-C_j)* N_{p,y} * W_{p,y} * (Q_{p,rawboil,y} + Q_{p,cleanboil,y})$ Equation (4)

Where:

C_j	= Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it.
$N_{p,y}$	= Number of person days consuming water supplied by project scenario p through year y
$W_{p,y}$	= Quantity of wood fuel or fossil fuel in tons required to treat 1 litre of water using technologies representative of the project scenario p during project year
$Q_{p,rawboil,y}$	= Quantity of raw water boiled in the project scenario p per person per day
$Q_{p,cleanboil,y}$	= Quantity of safe water boiled in the project scenario p per person per day

Leakage (LEy): As per applied GS TPDDTEC methodology version 3.1, leakage emissions are accounted for the following sources:

a) 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.
b) Non-project users who previously used lower emitting energy sources use the non-renewable biomass or fossil fuels saved under the project activity.
c) 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.
d) 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.
e) By virtue of promotion and marketing of a new technology with high efficiency, 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.

The project activity does not involve any of the above activities and hence leakage emissions have been taken as zero.

According to the methodology the overall emission reduction is calculated using equation (5) below:

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

Methodological choices/approach for estimating SDG 8 and SDG 7 outcomes:

The project outcomes of these SDG will be in accordance with the following approach:

SDG Indicator	Selected Parameter	Approach for estimation of the outcome
SDG 6/Indicator 6.1.1	The number of persons provided safe drinking water.	No of persons provided safe drinking water = Number of water filters distributed * Average household size Number of persons provided safe drinking water every year due to the implementation of project activity will be monitored based on the number of households in which filter are distributed.
SDG 8/Indicator 8.2.1	Number of jobs generated	No specific calculations. Number of jobs generated is can be monitored based on the HR records of the Nazava PLC

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

Relevant SDG Indicator	13 (Climate Action) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO2e
Data/parameter	C_J
Unit	%
Description	Portion of users of project safe water supply who were already in baseline using a non-boiling safe water supply
Source of data	Survey
Value(s) applied	9.45%
Purpose of data	Baseline emissions
Additional comment	NA

Relevant SDG Indicator	13 (Climate Action) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO2e
Data/parameter	X_{boil}
Unit	%
Description	Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary.
Source of data	Survey
Value(s) applied	13.12%
Purpose of data	Baseline emissions

Additional comment	NA

Relevant SDG Indicator	13 (Climate Action) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO2e
Data/parameter	$W_{b,y}$
Unit	Kilograms/Litre
Description	Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representative of baseline scenario b during project year y
Source of data	Baseline water boiling test BWBT based on Water Test Results of Various Types of Household Wood Stoves for Non-Injera Cooking[10]
Value(s) applied	0.1966
Purpose of data	Baseline emissions
Additional comment	NA

Relevant SDG Indicator	13 (Climate Action) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO2e
Data/parameter	$fNRB_{,y}$
Unit	%
Description	Fraction of biomass used in the absence of the project activity in year y that can be established as non-renewable biomass using nationally approved methods
Source of data	Calculated using TOOL 30: Calculation of the fraction of non-renewable biomass, Version 02.0
Value(s) applied	82%
Purpose of data	Baseline emissions
Additional comment	NA

Relevant SDG Indicator	13 (Climate Action) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data/parameter	$Ef_{b,fuel,CO2}$
Unit	tCO_2/TJ
Description	CO_2 emission factor of the fuel that is substituted or reduced

[10] See:https://energypedia.info/images/2/24/Water_Test_Results_of_Various_Types_of_Household_Wood_Stoves_for_Non-injera_cooking,_Ethio_Resource_Group_PLC._(for_GTZ-SUNE),_June,_2009..pdf

Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories
Value(s) applied	Wood= 112
Choice of data or Measurement methods and procedures	As per requirement of the methodology and Table 2.2 and 2.3, Chapter 2, Volume 2 of the 2006 IPCC Guidelines The IPCC is a standard, credible source of emissions factors.
Purpose of data	Baseline emissions
Additional comment	NA

Relevant SDG Indicator	13 (Climate Action) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data/parameter	$Ef_{b,fuel,non-CO2}$
Unit	tCO_2/TJ
Description	Non- CO_2 emission factor of the fuel that is substituted or reduced.
Source of data	NA
Value(s) applied	0, As no non-CO_2 emissions occur in the baseline scenario
Choice of data or Measurement methods and procedures	NA
Purpose of data	Baseline emissions
Additional comment	NA

Relevant SDG Indicator	13 (Climate Action) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data/parameter	$NCV_{b,fuel}$
Unit	TJ/tonne
Description	Net calorific value of fossil fuels used in the baseline scenario
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories
Value(s) applied	Wood= 0.015
Choice of data or Measurement methods and procedures	As per requirement of the methodology and Table 1.2 , Chapter 1, Volume 2 of the 2006 IPCC Guidelines. The IPCC is a standard, credible source of emissions factors.
Purpose of data	Baseline emissions

Additional comment	NA

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

>>

According to equation 2 above, quantity of fuelwood used in the baseline scenario is calculated as follows:

Year	$B_{p,y}$ (ton)
Year 1	20,775
Year 2	57,130
Year 3	93,486
Year 4	129,841
Year 5	166,197

Using this value in equation 1 and parameters in section B.5.3 above, the cumulative year wise baseline emissions were calculated to be as follows:

Year	**$BE_{b,y}$ (ton)**
Year 1	28,635
Year 2	78,746
Year 3	128,857
Year 4	178,967
Year 5	229,078
Total	**644,283**
Average	**128,857**

Therefore the total emission reduction during this crediting period will be 644,283 tCO_2e.

Since project emissions have been considered as zero in the PDD and will be monitored if any during the verification process.

Also, as none of the conditions of leakage are met leakage emissions are also zero.

B.5.5. Summary of ex ante estimates of each SDG outcome

Year	Baseline estimate	Project estimate	Net benefit
Year 1	28,635	0	28,635
Year 2	78,746	0	78,746
Year 3	128,857	0	128,857
Year 4	178,967	0	178,967
Year 5	229,078	0	229,078
Total	644,283	0	644,283
Total number of crediting years	*5*		
Annual average over the crediting period	128,857	0	128,857

B.6. Monitoring plan

B.6.1. Data and parameters to be monitored

Relevant SDG Indicator	13 (Climate Action) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data/parameter	$Q_{p,y}$
Unit	Litres per person per day
Description	Quantity of safe water supplied in the project scenario p during the year y, using the 'zero or low" emissions' clean water supply technology
Source of data	Default value as per methodology
Value(s) applied	4
Measurement methods and procedures	NA
Monitoring frequency	Annually
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Baseline emissions
Additional comment	NA

Relevant SDG Indicator	13 (Climate Action) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data/parameter	$Q_{p,rawboil,y}$
Unit	Litres per person per day
Description	The raw or unsafe water that is still boiled after installation of the water treatment technology.
Source of data	Annual usage survey
Value(s) applied	0
Measurement methods and procedures	NA
Monitoring frequency	Annually
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Baseline emissions
Additional comment	NA

Relevant SDG Indicator	Climate Action (SDG 13) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data / Parameter	$Q_{p,cleanboil,y}$
Unit	Litres per person per day
Description	Quantity of safe (treated, or from safe supply) water boiled in the project scenario p, after installation of project technology
Source of data	Annual usage survey
Value(s) applied	0
Measurement methods and procedures	NA
Monitoring frequency	Annually
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Baseline Emissions estimation
Additional comment	NA

Relevant SDG Indicator	Climate Action (SDG 13) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data / Parameter	Quality of the treated water
Unit	As appropriate in alignment with QA/QC procedures
Description	Performance of the treatment technology - less than 1 Colony Forming Unit (CFU) of E.Coli /100 ml of safe water
Source of data	Water quality test
Value(s) applied	Even after passing 7000 litres of water, filters still reduces E.coli bacteria by 99.99%
Measurement methods and procedures	NA
Monitoring frequency	Quarterly
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Baseline Emissions estimation
Additional comment	NA

Relevant SDG Indicator	13 (Climate Action) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data/parameter	$U_{p,y}$
Unit	%
Description	Usage rate in project scenario p during year y
Source of data	Annual usage survey
Value(s) applied	100%
Measurement methods and procedures	NA
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	Baseline emissions
Additional comment	NA

Relevant SDG Indicator	Climate Action (SDG 13) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data / Parameter	$N_{p,y}$
Unit	Person days
Description	Number of persons consuming water supplied by project scenario p through year y
Source of data	Annual usage survey
Value(s) applied	268640000
Measurement methods and procedures	This parameter will be monitored based on an internal survey conducted by the client on an annual basis for each monitoring period.
Monitoring frequency	Annually
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Baseline Emissions estimations
Additional comment	NA

Relevant SDG Indicator	Climate Action (SDG 13) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data / Parameter	$LE_{p,y}$
Unit	tCO_2e per year
Description	Leakage in project scenario p during year y
Source of data	Annual usage survey
Value(s) applied	0
Measurement methods and procedures	Monitoring consist of checking of representative samples.
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Baseline Emissions estimations
Additional comment	NA

Relevant SDG Indicator	Climate Action (SDG 13) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data / Parameter	Hygiene campaigns
Unit	NA
Description	Hygiene campaigns carried out among project technology users
Source of data	Annual hygiene campaigns results
Value(s) applied	NA
Measurement methods and procedures	Photos, recordings etc of the campaigns organised from time to time.
Monitoring frequency	Annually
QA/QC procedures	NA
Purpose of data	Hygiene campaign
Additional comment	NA

Relevant SDG Indicator	Climate Action (SDG 13) Target: 13.2: Integrate climate change measures into national policies, strategies and planning Indicated as Emission reduction in tCO_2e
Data / Parameter	Treatment capacity
Unit	Litre per day
Description	Treatment capacity of the project technology/improved sources
Source of data	Manufacturer specification/design specification
Value(s) applied	16
Measurement methods and procedures	NA
Monitoring frequency	Once at the time of registration or at inclusion of new technology
QA/QC procedures	NA
Purpose of data	NA
Additional comment	NA

Relevant SDG Indicator	SDG: Clean Water and Sanitation (SDG 6) Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all"
Data / Parameter	Number of people using ceramic water filters
Unit	Numbers
Description	Number of people getting access to clean drinking water
Source of data	Project Participant/Project proponent
Value(s) applied	736,000
Measurement methods and procedures	Number of people getting access to clean drinking water= Number of households to which the filters were distributed * Household size of Ethiopia.
Monitoring frequency	Annual
QA/QC procedures	NA
Purpose of data	Sustainable development assessment
Additional comment	NA

Relevant SDG Indicator	SDG: Decent work and economic growth (SDG 8) 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 Indicator 8.5.1: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities Indicator 8.5.2: Unemployment rate, by sex, age and persons with disabilities
Data / Parameter	Number of jobs generated by the project
Unit	Qualitative
Description	Employment generated by the project
Source of data	HR records
Value(s) applied	100
Measurement methods and procedures	NA
Monitoring frequency	Annual
QA/QC procedures	Transparent data and reporting
Purpose of data	Sustainable development assessment
Additional comment	NA

B.6.2. Monitoring plan

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The monitoring plan chalks out the relevant data to be monitored, collected, assessed and archived according to the methodology. Data from the monitoring procedures will be recorded through an internal survey and summarised in an annual Monitoring Report. Data collection will be in accordance with the Standard on "Sampling and surveys for CDM project activities and programme of activities (Version08)".

Objectives and reliability requirements

The objective of the sampling effort is to meet the monitoring requirements set forth in the methodology 'Technologies and Practices to Displace Decentralized Thermal Energy Consumption' (Version 3.1). An annual, monitoring system will be set up for most parameters. However, for parameters which can be tracked on a biennial basis will be monitored once every two years.

Target population

The monitoring procedure is targeted to be applied on the households, local communities and SMEs installed with Nazava Ceramic Water Filters., as identified through the Project Database managed by Nazava PLC.

Sampling method

A simple random sampling based on guidelines on "Sampling and surveys for CDM project activities and programme of activities Version 04" will be adopted for estimating the sample size for the monitoring surveys. Simple random sampling is suitable for homogenous populations.

Sample Size:

The minimum total sample size is 100, with at least 30 samples for project technologies of each age being credited. The majority of interviews in a usage survey must be conducted in person and include expert observation by the interviewer according to the ceramic water filter usage, while the remainder may be conducted via telephone by the same interviewers on condition

interviews are first concluded and analyzed such that typical circumstances are well understood by the telephone interviewers.

For rest of the monitoring parameters, the following simple random sampling equation will be used to get the sample size taking 90/10 confidence level.

$$n \geq \frac{1.645^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p(1-p)}$$

Equation(5)

Where:

n	= Sample Size
N	= Total number of Households
P	= Our expected proportion
1.645	= Represents the 90% confidence required
0.1	= Represents the 10% relative precision

Sampling frame: All the households with Nazava ceramic Water filters within the project will be the sampling frame.

Data to be monitored:
The necessary data as stated in section B.7.1 above will be collected and monitored by the project proponent as required.

Quality Assurance/Quality Control:
A survey questionnaire will be prepared to seek responses of operating status (yes or no) of water filters within the project activity. An internal survey will be performed for this purpose.
During the survey, in order to anticipate any low response rate and answers bias, 10% oversampling will be applied.
Analysis:
The survey data will then be analysed by the project developer to derive the working status of each water filter and the consumption of non-renewable biomass at the project site (if any). The analysis will form the basis of the monitoring report to be prepared by the developer.

Implementation:
Preparation and pre-testing of the survey questionnaire will be done. Field personnel will be trained to conduct the surveys so as to ensure the quality of data collected is high. The schedule for implementing the sampling effort shall be defined prior to the field activity.

SECTION C. Duration and crediting period

C.1. Duration of project

C.1.1. Start date of project

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01/09/2020 is considered as start date of the project. The date represents first batch of ceramic water filters distributed within the project activity. PP has submitted initial documents for preliminary review on 31/08/2020. Therefore, as per clause 3.4.7 under principle and requirement one year prior to first submission date is taken as start date of the project activity.

C.1.2. Expected operational lifetime of project

>>

15 years[11]

C.2. Crediting period of project

C.2.1. Start date of crediting period

>> 01/09/2019

C.2.2. Total length of crediting period

>>

5 years renewable

SECTION D. Safeguarding principles assessment

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

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Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
SOCIAL & ECONOMIC SAFEGUARDING PRINCIPLES			
Principle 1 - Human Rights			
a) Recognises the centrality of human rights to sustainable development, poverty alleviation and ensuring fair distribution of development opportunities and benefits; and supports "universal respect for, and observance of, human rights and fundamental freedoms for all".	The project replaces the conventional practice using firewood to boil water in order to purify it with ceramic water filters which release zero GHG emissions during operation. Therefore, it provides development opportunity to all section of people proving clean and safe drinking water, better livelihood and empowering especially rural women who have to walk mile to fetch clean water. Hence, the project positively recognizes human rights to sustainable development.	No	Not Applicable
(b) Does not recognise or support Projects that contribute to violations of a state's human rights obligations and the core international human rights treaties and seeks to support the protection and	The project is in accordance with constitution of Ethiopia and is bound to follow the rules and regulation of host country. Hence, the project does violate human rights obligations adopted by the host country.	No	Not Applicable

11 Based on internal testing by Sistema.bio

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
fulfilment of human rights.			
(c) Upholds the principles of accountability and the rule of law, participation and inclusion, and equality and non-discrimination, noting that prohibited grounds of discrimination include race, ethnicity, gender, age, language, disability, sexual orientation, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority.	Article 25 outlines the "Right to equality.", Article 34 of the constitution highlights the "Martial, Personal and Family Rights". Article 35 of the Ethiopian constitution throws light on the rights of the women. Therefore, the project being in Ethiopia upholds the principles of accountability and the rule of law, participation and inclusion, and equality and non-discrimination.	No	Not Applicable
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	The constitution of Ethiopia upholds the protection of Human rights thus, the project is bound to follow the rules and regulation of host country. In addition, Ethiopia is also one of the 48 countries who voted for the 'Universal Declaration of Human Rights', 'Convention on the Elimination of All Forms of Discrimination' against Women (1979) and 'Convention of rights of all persons with disabilities. Ethiopia has signed the 'African Charter On Human And People's Rights' and the 'Protocol on the Rights of Women in Africa (2005)'. Therefore, the project developer and the project do respect nationally and internationally proclaimed human rights and shall not be complicit in violence or	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
	human rights abuses of any kind.		
The Project shall not discriminate with regards to participation and inclusion.	Article 25 'Right to Equality, Article 35 'Right of Women' and Article 38 'Right to Vote and to be Elected' makes sure that there is no activity in the country which supports of causes discrimination in any form. Therefore, the project will not discriminate with regards to participation and inclusion.	No	Not Applicable
Principle 2 - Gender Equality and Women's Rights			
(i) Promotes gender equality and the empowerment of women.	Apart from being a member of the above-mentioned conventions, The constitution of Ethiopia makes sure that it promotes gender equality and empowerment of women. The project positively contributes towards the vision of the constitution.	No	Not Applicable
(ii) Does not recognise Projects that contribute to discrimination against women or reinforce gender-based discrimination and/or inequalities.	As explained above the project does not contribute to discrimination against women or reinforce gender-based discrimination and/or inequalities.	No	Not Applicable
(iii) Recognises and seeks to contribute to SDG 5, (Achieve gender equality and empower all women and girls).	Project compliance to SDG 5 is explained above.	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
Mandatory requirements:			
1. The Project shall complete the following gender assessment questions			
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 uses ceramic water filters which in a way reduce the burden on women as nearly 62% of the households in Ethiopia adult women and school going girls in Ethiopia bear the burden of collecting drinking water.[12]Therefore, it does not put any risk to women's access or control of resources, entitlements and benefits.	No	Not Applicable
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 project will be implemented in households where users depend on firewood to boil water in order to purify it. The project only replaces the practice of boiling water with ceramic water filters which have zero emission when in operation. Hence, the project does not affect any marginalized or vulnerable communities.	No	Not Applicable
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 project actually takes care the upliftment of women and men who otherwise spent a lot of time to fetch water from clean water sources like community wells, which in the project case not needed, This provides more time to the users. Also ceramic water filters are clean technique of water purification and does not lead to any smoke resulting in health benefits to end users.	No	Not Applicable

[12] https://dhsprogram.com/pubs/pdf/FR255/FR255.pdf

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
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)?	Yes, the project takes care the role of women in cooking. In presence of the project activity, women who generally who in most cases are responsible for cooking, spend less time in sourcing firewood. This time can be utilized for other productive work. Also due to clean nature of the fuel, smoke related health issues are reduced due to the project activity.	No	Not Applicable
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 takes care of the role of women in cooking. Due to the project women (generally the caretaker of cooking) spend less time in fetching clean water from nearby wells and can utilize the saved time in other productive works. Also, due to less usage of fuelwood, there would be health benefits due to less smoke.	No	Not Applicable
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 have any scope which may result to discrimination against women. The project contributes positively to uplift women in its work culture.	No	Not Applicable
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 helps in protecting NRB. Thus, it does not limit women's ability to use or protecting natural resources.	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?	No, the project replaces conventional practice of boiling water using fuelwood to purify it with ceramic water filters which have zero emission while in operation. Also, it provides health benefits due to reduction of indoor air pollution. Hence, project does not lead to more hazardous conditions.	No	Not Applicable
2. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. Specifically, this shall include (not exhaustive):			
Sexual harassment and/or any forms of violence against women - address the multiple risks of gender-based violence, including sexual exploitation or human trafficking	The project happens in individual households. It does not involve any women workforce which may lead to sexual harassment.		Not Applicable
Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.	No, the project happens in individual households. It does not involve any women workforce which may lead to sexual harassment.	No	Not Applicable
Restriction of women's rights or access to resources (natural or economic).	No, the project actually takes care the upliftment of women and men who otherwise spent more time in sourcing firewood which in the project case not needed, this provides more time to the users. Also, biogas being clean fuel, leads to low smoke generation resulting health benefits to end users.	No	Not Applicable
Recognise women's ownership rights regardless of marital status - adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources	Yes, the project does not have any scope which needs to recognise the women's ownership rights. The project replaces conventional practice of boiling water using fuelwood to purify it with ceramic water filters which have zero emission while in operation. This helps women to have access to cleaner water purification techniques.	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
3. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work, specifically			
Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities	Yes, the project involves the installation of Nazava ceramic water filters. Trained labours are used for the same. Local people are engaged for the same. No discrimination either in gender or any other form is followed to engage local people.	No	Not Applicable
Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status	This is not applicable. The project does not have any scope of men and women participation where project developer has to ensure condition of benefits related to pregnancy, maternity/paternity leave, or marital status.	No	Not Applicable
Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits	Not applicable. Project happens at individual households where household people operate the biogas system as per their requirements.	No	Not Applicable
4. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks	The project does not have any scope to apply gender strategy as such. Although the project positively abides to the various articles mentioned in relation to gender equality in the constitution of Ethiopia.	No	Not Applicable
Principle 3 - Community Health, Safety and Working Conditions			
(a) Requires Projects to anticipate and avoid adverse impacts on the health and safety of affected communities during the Project's life cycle from both routine and non-routine circumstances	The project leads to safe working condition and improvement in health as it will replaces conventional practice of boiling water using fuelwood to purify it with ceramic water filters which have zero emission while in operation.	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
b) Requires Projects to provide workers with safe and healthy working conditions and to prevent accidents, injuries, and disease.	The project leads to safe working condition and improvement in health as it will replace the conventional practice of boiling water using fuelwood to purify it with ceramic water filters which have zero emission while in operation. Further, periodic maintenance by implementing agency ensure prevention of any unsafe working condition.	No	Not Applicable
Principle 4 - Cultural Heritage, Indigenous Peoples, Displacement and Resettlement			
Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or practices)?	The project area covers households which does not have any structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture. Hence, not applicable.	No	Not Applicable
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	The project area covers households which does not require relocation of peoples; hence not applicable.	No	Not Applicable
Does the Project require any change to land tenure arrangements and/or other rights?	No, the project does not require any change to land tenure arrangements and/or other rights?	No	Not Applicable
For Projects involving land-use tenure, are there any uncertainties with regards land tenure, access rights, usage rights or land ownership?	No, the project does not involve any land use which will have issues related to land tenure or access right.	No	Not Applicable
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 replacing the conventional practice of boiling water using fuelwood to purify it with ceramic water filters which have zero emission while in operation. Therefore, it does not	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
	involve any influence towards indigenous people.		
Principle 5 – Corruption			
The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	The project benefits households with clean and safe water purification technology. There is no corruption provision in the project activity.	No	Not Applicable
Principle 6 - Economic Impacts			
Labour Rights: The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. Where these are contradictory and a breach of one or other cannot be avoided, then guidance shall be sought from Gold Standard	The project does not require labour force for implementation of the project. Trained technicians are involved in construction and operation and maintenance of plants. Therefore, no forced labour is involved in the project. No child labour is involved.	No	Not Applicable
ENVIRONMENTAL & ECOLOGICAL SAFEGUARDING PRINCIPLES			
Principle 1 - Climate and Energy			
Emissions: Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No, the project will replace the conventional practice of boiling water using fuelwood to purify water with ceramic water filters which emit zero GHGs while in operation. Hence, it will reduce greenhouse gas emissions over the Baseline Scenario.	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
Energy Supply: 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 project involves the usage of ceramic water filters which do not require any energy.	No	Not Applicable
Principle 2 – Water			
Will the Project affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity	The project will not affect the natural or pre-existing pattern of watercourses, groundwater. In fact, it will further preserve these resources as the project deals with water purification.	No	Not Applicable
Erosion and/or Water Body Instability: 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.	The project only deals with purification of water using ceramic eater filters and there is no question of Erosion and/or Water Body Instability.	No	Not Applicable
Principle 3 – Environment, ecology and land use			
Landscape Modification and Soil			
Does the Project involve the use of land and soil for production of crops or other products?	No, the project does not involve any crop production.	No	Not Applicable
Vulnerability to Natural Disaster			
Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other	No, the project activity takes place at individual households. There is no activity which can affect adversely the natural system to cause earthquake, landslides, erosion, flooding, draught or other extreme climatic conditions.	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
extreme climatic conditions?			
Genetic Resources			
Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?	Not applicable. The project does not involve any crop production or cultivation.	No	Not Applicable
Release of pollutants			
Could the Project potentially result in the release of pollutants to the environment?	No, the project does not release any pollutants to the environment.	No	Not Applicable
Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	Not applicable. The project does not involve any production process.	No	Not Applicable
Pesticides & Fertilisers			
Will the Project involve the application of pesticides and/or fertilisers?	Not applicable. The project does not involve any crop production or cultivation.	No	Not Applicable
Harvesting of Forests			
Will the Project involve the harvesting of forests?	Not applicable. The project happens at individual households.	No	Not Applicable
Food: Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	Not applicable	No	Not Applicable
Animal husbandry: Will the Project involve animal husbandry?	No	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
High Conservation Value Areas and Critical Habitats			
Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	Not Applicable	No	Not Applicable
Endangered Species: Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)?	Not Applicable	No	Not Applicable

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from stakeholders

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To be filled later

E.2. Summary of comments received

>>

To be filled later

E.3. Report on consideration of comments received

>>

NA

Appendix 1. Contact information of project participants

Organization name	Nazava Trading PLC
Registration number with relevant authority	
Street/P.O. Box	NA
Building	NA
City	Bahir Dar
State/Region	Amhara
Postcode	NA
Country	Ethiopia
Telephone	+251 91 321 6735
Fax	NA
E-mail	joep@resiliencebv.com
Website	NA
Contact person	Joep van den Broek
Title	General Manager
Salutation	NA
Last name	Broek
Middle name	van den
First name	Joep
Department	NA
Mobile	NA
Direct fax	NA
Direct tel.	NA
Personal e-mail	NA

Organization name	Swiss Carbon Value Ltd.
Registration number with relevant authority	
Street/P.O. Box	Technoparkstrasse 1
Building	NA
City	Zurich
State/Region	Switzerland
Postcode	NA
Country	Switzerland
Telephone	NA
Fax	NA
E-mail	registration@southpole.com
Website	www.southpole.com
Contact person	Renat Heuberger
Title	CEO
Salutation	Mr.
Last name	Heuberger
Middle name	NA
First name	Renat
Department	NA
Mobile	NA
Direct fax	NA

Direct tel.	NA
Personal e-mail	NA

Appendix 2. Summary of post registration design changes

Not Applicable

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

Appendix 3. Calculation of Installed energy output for the proposed project at plant and project level.

Parameter	Value	unit
Total baseline fuel consumption	166196721	kg
Total Heat released	311	TJ
Total Heat released	311120261	MJ
Energy output	86429209	KWh
Energy output	86	GWh
Energy output	59198	KW
Per unit	0.37	KW

Here, the following conditions were considered.

Heat of combustion per unit ton of Wood	0.0000156	TJ/kg (IPCC, 2006)
Assumed efficiency of cookstove	12%[13]	Percentage
No of operational days	365	days
Duration in one day	4	hr/day
Time considered	1460	hours

[13] See:https://energypedia.info/images/2/24/Water_Test_Results_of_Various_Types_of_Household_Wood_Stoves_for_Non-injera_cooking,_Ethio_Resource_Group_PLC._(for_GTZ-SUNE),_June,_2009..pdf

Appendix 4. Evidence for Start Date of the Project