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

Version 1.1 – August 2017

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KEY PROJECT INFORMATION

Title of Project:	Himalayan Rocket Stove Project in India
Brief description of Project:	The project activity involves installation of clean burning high efficiency wood combustion stoves for heating spaces and cooking in regions of India with varying dimensions. The Himalayan rocket stove allows individuals to reduce their firewood consumption significantly. The purpose of the project is to reduce greenhouse gas emissions by reducing the conventionally used firewood. In addition, these stoves address issues related to deforestation, health and air pollution.
Date of Implementation: Expected duration of Project:	02/07/2019 5 years renewable cycle
Project Developer:	Himalayan Rocket Stove
Project Representative:	Swiss Carbon Value Ltd.
Project Participants and any communities involved:	Himalayan Rocket Stove Swiss Carbon Value Ltd.
Version of PDD: Date of Version:	2 25/09/2020
Host Country / Location:	India
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– Life on Land (SDG 15) 2- Affordable and clean Energy (SDG 7) 3-Climate Action (SDG 13)
Estimated amount of SDG Impact Certified	SDG 13: 247,432 tCO_2e/year SDG 7: 138,598 households had access to affordable and clean energy SDG 15: Life on land: 124,498 tons/year biomass saved

SECTION A. Description of project

A.1. Purpose and general description of project

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The aim of the project is to provide a wide range of social, economic, and environmental benefits for families and communities in India by installation of Himalayan Rocket Stove. The stoves are available in varying capacities, the lowest being Eco1 followed by Eco2 and Eco3 respectively. The installation of the highly efficient stoves significantly reduces the firewood consumption of the households. This leads to a reduction of greenhouse gas emissions as a result of reduced firewood consumption. In addition, these stoves will reduce air pollution, environment, take the edge of deforestation, women's health and air pollution.

Project activity will also contribute towards sustainable development by reducing the firewood consumption.

Baseline Scenario:

A user survey was conducted to assess the usage of baseline fuel and its quantity. As per the survey, firewood was the main fuel used for heating spaces and/or cooking. Inefficient usage of firewood leads to indoor pollution along with decrease in forest land cover and increase in degraded land. Growing pressure from human and livestock population coupled with indiscriminate and illegal exploitation of forest resources are among factors that have further led to intensification of this problem. Prolonged degradation of country's forest land will eventually impact adversely on the productivity of the nation. Hence there is a dire need to maintain adequate forest cover in the country to mitigate the effects of climate change. The details of the baseline survey are given in section B.4 below.

Project Scenario:

Project activity involves adoption of Himalayan Rocket Stove by the households of India constructed and maintained by Himalayan Rocket stove. The reduced consumption of firewood will lead to GHG emission reduction. Hence, the project activity is a Greenfield project activity. It is imperative here to mention that HRS is not just a cookstove, in fact the stove performs a dual-purpose, saving fuel for both space heating and cooking. The project will also provide other social, economic and health benefits to its users.

Project activity will result in saving of 1,237,162 tCO_2e in first crediting period from 02/07/2019 to 02/07/2024 with an average saving of 247,432 tCO_2e/year

The dimensions of the stove vary, depending on the area of the installation and the number of people. The stove increases the room temperature steeply after an hour's heating. Beyond this point, the stove consumed far less firewood as compared to the initial feeding. As on year 2020, a total of 5,847 units will be installed in various parts of the country. A detailed breakdown of the plants with the respective dimensions of the stove in 2019-20 and the proposed biodigesters from 2020 to 2024 is given in table 1 below.

Table 1:Breakdown of the plants

	2019	2020	2021	2022	2023	2024	Total
Eco1	552	3,259	7,821	19,551	39,103	20,089	90,374
Eco2	217	1,281	3,074	7,686	15,372	8,335	35,965
Eco 3	78	460	1,105	2,763	55,25	2,327	12,259
Total	847	5,000	12,000	30,000	600,00	30,751	138,598

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 247,432 tCO_2e per year with the total installed energy output of 31 GWh/year. Hence, the project falls under large scale projects.

It is pertinent here to confirm that the project activity is not registered with under any other compliance, voluntary or any other scheme pertaining to emissions reductions and the benefits generated from the ERs as well as other SDG parameters.

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. However, the entitlement of the emission reductions generated by the project shall be transferred to the project owner from the end users through a signed covenant.

A.4. Location of project

A.4.1. Host Country

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India

A.4.2. Region/State/Province etc.

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The Himalayan Rocket stoves under the proposed project activity will be installed throughout India wherever conditions are met.

A.4.3. City/Town/Community etc.

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The project activity is currently implemented in India. The project units are installed in the Himalayan states, the northern states, parts of eastern India and South India as well.

A.4.4. Physical/Geographical location

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PP has given unique identification number to each plant. The project will be implements throughout India. The details of geographical location are presented below.

	Coordinates
Latitude	20.5937° N

Longitude	78.9629° E

Figure 1: Map of India[1]

A.5. Technologies and/or measures

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As described above project activity involves installation of Himalayan Rocket Stoves in India There is no technology transfer involved in the project activity. Details of working of the plant are as follows.

Himalayan Rocket Stove is a finely designed technology which mixes air and burning gases together inside a vertical insulated combustion chamber that allows temperatures to rise to a point where near-complete combustion occurs. This causes to the smoke to be oxidized and converted to heat energy, which makes the stove both very efficient and clean burning. The hottest gases are carefully trapped inside the box in a way that maximises the efficiency of the heating aspect of the stoves which then transmits to the room through the metal casing. By the time, the hot gases exhaust from the flue pipe, there is little heat left in them. HRS is similar to the traditional bukhari heating style of heating stoves. However, Height is a primary factor in the design and this is where the main innovation occurs, as it is relatively easy to make an efficient rocket stove over 3 ft high, and much harder to make one less than 2 ft high. The Himalayan Rocket Stove achieves this through innovative use of various design tweaks to optimise performance in a smaller sized format. It is pertinent here to mention that the stove

[1] https://www.mapsofindia.com/

increases the room temperature steeply after an hour's heating after which it consumes far less firewood as compared to the initial feeding.

The innovative design of the Himalayan Rocket Stove makes it stand out from the simple rocket simple. Figure 1 below provides a detailed description of the design.

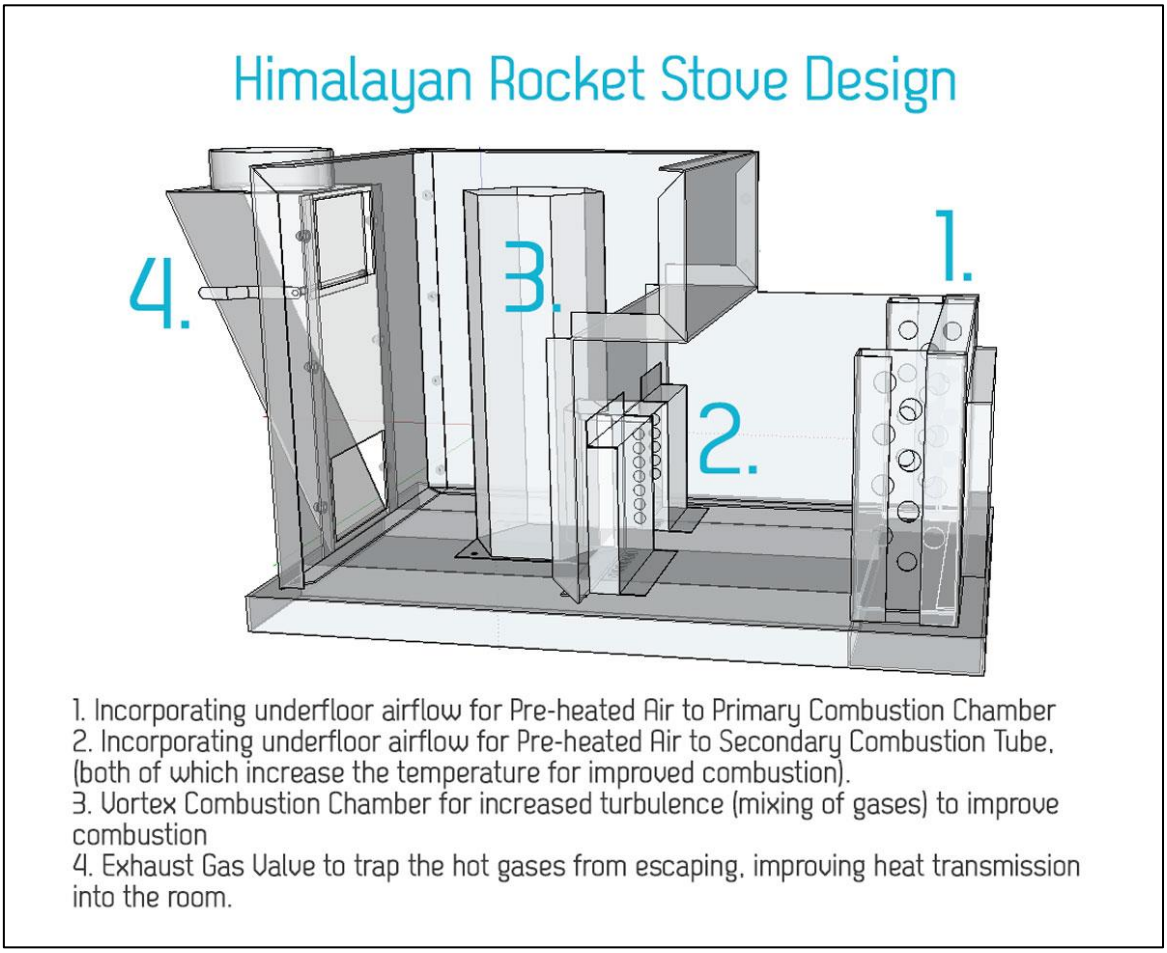

Figure 2: Himalayan Rocket Stove design

The project contributes directly in achieving the SDG 7 &15 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).
- It will lead to decrease in soil degradation due to reduction in deforestation.
- It will also lead to conservation of biomass. (SDG15)

Economic Benefits:

- The firewood cost is reduced.
- It leads to improve the economic level of the local community by employing local people.
- The project will reduce the cooking time, thus providing women to take up other activities.

Social Benefits

- The project will provide affordable and clean fuel compared to baseline scenario (SDG 7)
- It improves the overall health situation by reducing smoke in the kitchen, thus eliminating health hazards from indoor air pollution.

A.6. Scale of the project

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The project falls under 'End-Use Energy Efficiency' type with emission reductions 247,432 tCO_2e per year with the total installed energy output of 31 GWh/year. Hence, the project falls under large scale projects.

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 PP. Carbon waiver has been signed by the project owner and carbon rights are available with Himalayan Rocket Stove (local entity).

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 avail sustainable space heating and/or cooking devices for households. The project activity will result in cutting down the firewood consumption. Therefore, the project will support environmentally sustainable consumption of firewood.

An overwhelming majority of women in Indian households in are responsible for the household chores including sourcing of fuel. 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 them. This situation has led to enhanced exposure of women to unsafe areas (mainly deserted forests) for fuel sourcing. Since the project aims to reduce the firewood consumption, the primary beneficiary would be the women and children.

On the implementation side, the project seeks to empower women by appointing women distributors across their network. The PP has a dedicated dealership model specifically for women entrepreneurs. Project implementer opines that promotional activities are better addressed with women in the forefront and when women enter the marketplace as entrepreneurs, they have immense potential to spur economic growth. 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.

The project respects all the rights to the women conferred to them by the Republic of India. The constitution embraces the principle of "positive discrimination" to enhance women's participation in all state organs. Article 18 of the constitution rights the "right to equality", article 38 outlines the "rights of women", article 40 outlines "rights of Dalits", article 42 outlines "right to social justice", and article 43 outlines "rights to social security". All these articles embrace the gender equality and social inclusion principles in a way or other. Similarly, the project also respects the spirit of international convention on "women" to which India is a party.

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, following Gold Standard Stakeholder Consultation & Engagement Procedure, Requirements & Guidelines, a live local stakeholder consultation meeting will be held.

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://globalgoals.goldstandard.org/2166/

B.2. Applicability of methodology

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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 Himalayan Rocket Stoves located within India. The project is not registered with any other voluntary market thus, does not double count any of its emission reductions. Every unit sold has a unique ID attached to it. A carbon waiver is obtained from the users to restrict double counting of emissions.
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	The maximum energy output of the stoves implemented in the project activities is 47 kW_{th} per unit, below the indicated 150 kW_{th} limit per unit.

	time of operation). For technologies or practices that do not deliver thermal energy in the project scenario but only displace thermal energy supplied in the baseline scenario, the 150kW threshold applies to the displaced baseline technology.	
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 each stove will confirm that they transferred the ownership of VERs to the Project owner by signing a carbon right waiver.

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.

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. For example, efficient cooking, heating, lighting, etc.

Project Types and Eligibility criterion: -
Project activity falls under below project type-
Project Type: Improved distributed heating and cooking devices
Project activity involves installation of Himalayan Rocket Stoves thereby reducing firewood. Himalayan Rocket Stove has taken an undertaking from the purchasers stating transferring of rights of to Himalayan. Every stakeholder was aware of the arrangement and ownership of the credits. Hence meeting the GS criterion.

B.3. 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 Himalayan Rocket Stove throughout India.
Therefore, the project boundary incorporates all the physical geographical sites of the Himalayan Rocket Stove. In Year 1, a total of 5,847 plants will be installed by Himalayan Rocket Stove at various sites throughout the geographical boundary of India. Figure 3 below depicts the Himalayan Rocket stoves of various dimensions installed at various sites.

Figure 3: ECO1, ECO2 an ECO3

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

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Thermal Energy Need	CO_2	Yes	Important source of emissions
		CH_4	No	Insignificant source of emissions
		N_2O	No	Insignificant source of emissions
Project scenario	Thermal Energy Need	CO_2	Yes	Important source of emissions
		CH_4	No	Insignificant source of emissions
		N_2O	No	Insignificant source of emissions

B.4. Establishment and description of baseline scenario

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Nearly 85.29 million tonnes[2] of firewood in India is removed from the forests for domestic purposes. Therefore, the usage of non-renewable biomass leads to the accumulation of GHG emissions into the atmosphere. Thus, the baseline scenario is the usage of non-renewable biomass to meet the energy requirements in households of India.

The proposed project activity aims to lower the GHG emissions by reducing the amount of firewood used by giving the same amount of energy as in the baseline scenario. A baseline survey was conducted, majority of the households were found to be dependent on firewood to meet their space heating and cooking requirements.

The details of the survey from are given in table 2 as follows:

Table 2: Details of baseline survey

Stove Type	Firewood used in baseline scenario (kg/day)
Eco 1	36
Eco 2	62
Eco 3	79

[2] http://fsi.nic.in/isfr19/vol1/chapter10.pdf

B.5. 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 02/07/2019 and PP has submitted the initial project documents to GS on 01/07/2020. 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.6. Sustainable Development Goals (SDG) outcomes

B.6.1. 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 below targets: • Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
	The project will contribute towards below targets: • Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services • Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix
	The project will contribute towards below targets: • Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

B.6.2. Explanation of methodological choices/approaches for estimating the SDG outcome

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Methodological choices/approach for estimating SGD 13 outcomes:

As per "Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 3.1"

According to the methodology, When the baseline fuel and the project fuel are the same and the baseline emission factor and project emission are considered the same, the overall GHG reductions achieved by the project activity in year y are calculated as follows:

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

Where:

$\sum_{b,p}$	Sum over all relevant (baseline b/project p) couples
$N_{p,y}$	Cumulative number of project technology-days included in the project database for project scenario p against baseline scenario b in year y
$U_{p,y}$	Cumulative usage rate for technologies in project scenario p in year y, based on cumulative adoption rate and drop off rate revealed by usage surveys (fraction)
$P_{p,b,y}$	Specific fuel savings for an individual technology of project p against an individual technology of baseline b in year y, in tons/day
$f_{NRB,b,y}$	Fraction of biomass used in year y for baseline scenario b that can be established as non-renewable biomass. (91%) (Calculated based on TOOL 30)
$NCV_{b,fuel}$	Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)
$EF_{b,fuel,CO2}$	CO2 emission factor of the fuel that is substituted or reduced. 112 tCO_2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{b,fuel,nonCO2}$	Non-CO_2 emission factor of the fuel that is reduced
$LE_{p,y}$	Leakage for project scenario p in year y (tCO_2e/yr)

Leakage ($LE_{p,y}$): 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 doesn't involve any of the above activities. Therefore, $LE_{p,y}=0$

Methodological choices/approach for estimating SDG 3 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 15/Indicator 15.1.2	Life on Land	The Biomass saved is calculated using the following equation: $P_y = B_{b,y} * (1-\eta_b/\eta_{p,y})$.....(2) Where: $B_{b,y}$ Quantity of firewood consumed in baseline scenario during year y (tonnes per household per year) $\eta_{p,y}$ Efficiency of project cookstove in year y (fraction) η_b Efficiency of the baseline cookstove being replaced (fraction). A default value of 10% shall be used if the replaced cookstove is a three stone fire, or a conventional device without a grate or a chimney i.e. with no improved combustion air supply or flue gas ventilation The amount of biomass saved per HH per year is then multiplied by $N_{p,y}$ and the corresponding usage rate. Annual Biomass saved= $P_y * N_{Py} * U_{Py}$
SDG 7/Indicator 7.1.2	Number of Himalayan Rocket Stoves installed under the project activity	No specific calculations. No specific calculations are needed to be made for the parameter "Number of Himalayan Rocket stoves installed under the project activity".

B.6.3. 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	$fNRB_{,y}$
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	91%
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

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

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As per "Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 3.1", when the baseline fuel and the project fuel are the same and the baseline emission factor and project emission are considered the same, the overall GHG reductions achieved by the project activity in year y are calculated as follows:

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

Where:

$\sum_{b,p}$	Sum over all relevant (baseline b/project p) couples
$N_{p,y}$	Cumulative number of project technology-days included in the project database for project scenario p against baseline scenario b in year y
$U_{p,y}$	Cumulative usage rate for technologies in project scenario p in year y, based on cumulative adoption rate and drop off rate revealed by usage surveys (fraction)
$P_{p,b,y}$	Specific fuel savings for an individual technology of project p against an individual technology of baseline b in year y, in tons/day
$f_{NRB,b,y}$	Fraction of biomass used in year y for baseline scenario b that can be established as non-renewable biomass. 91% (Calculated based on TOOL 30)
$NCV_{b,fuel}$	Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)
$EF_{b,fuel,CO2}$	CO2 emission factor of the fuel that is substituted or reduced. 112 tCO_2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{b,fuel,nonCO2}$	Non-CO_2 emission factor of the fuel that is reduced
$LE_{p,y}$	Leakage for project scenario p in year y (tCO_2e/yr)

Emission reduction due to reduced firewood consumption is calculated based on the above equation taking the following parameters:

Parameter	Unit	Vaue	Source
$f_{NRB,b,y}$	Fraction	91%	Calculated using TOOL 30
$NCV_{b,fuel}$	TJ/ton	0.0156	IPCC 2006
$EF_{b,fuel,CO2}$	tCO2e/TJ	112 (for wood)	IPCC 2006
$EF_{b,fuel,nonCO2}$	tCO2e/TJ	0	IPCC 2006

Whereas, the value of $P_{p,b,y}$ i.e. the amount of fuel saved will be taken as follows for each type of Himalayan Rocket Stove.

Stove type	Unit	$P_{p,b,y}$
Eco 1	kg/day	22
Eco 2	kg/day	37
Eco 3	kg/day	45

Taking the cumulative number of units into consideration, $N_{P,y}$ (the number of project-technology days) will be as follows:

Stove type	Year 1	Year 2	Year 3	Year 4	Year 5

Eco 1	666925	2035600	5457025	12300050	15815625
Eco 2	262150	800100	2145150	4835250	6293875
Eco 3	94150	287525	771050	1737925	2145150

Therefore, based on the above values, the baseline emissions (in tCO_2e) were found to be as follows:

Stove type	Year 1	Year 2	Year 3	Year 4	Year 5
Eco 1	28630	87386	234263	528025	678944
Eco 2	19381	59154	158597	357483	465324
Eco 3	8869	27086	72637	163721	202083
Total	56881	173625	465496	1049229	1346351

While the project emissions (tCO_2e) were accounted as follows:

Stove type	Year 1	Year 2	Year 3	Year 4	Year 5
Eco 1	17496	53402	143161	322682	414910
Eco 2	11566	35301	94647	213337	277693
Eco 3	5052	15429	41375	93259	115111
Total	34115	104133	279182	629278	807714

Therefore, the overall emissions reductions are as follows:

Stove type	Year 1	Year 2	Year 3	Year 4	Year 5
Eco 1	11134	33983	91102	205343	264034
Eco 2	7815	23852	63950	144147	187630
Eco 3	3817	11657	31261	70462	86972
Total	22766	69493	186314	419952	538637

As stated in section B.6.2, there are no leakage emissions.

B.6.5. Summary of ex ante estimates of each SDG outcome

Year	Baseline estimate	Project estimate	Net benefit
Year 1	56881	34115	22766
Year 2	173625	104133	69493
Year 3	465496	279182	186314
Year 4	1049229	629278	419952
Year 5	1346351	807714	538637
Total	3091583	1854421	1237162
Total number of crediting years	5		
Annual average over the crediting period	618317	370884	247432

B.7. Monitoring plan

B.7.1. 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	$P_{b,y}$
Unit	kg/household-day
Description	Quantity of fuel that is consumed in baseline scenario b during year y
Source of data	Survey
Value(s) applied	Stove: Value (kg/HH/day) Eco 1: 36 Eco 2: 62 Eco 3: 79
Measurement methods and procedures	NA
Monitoring frequency	Updated every two years, or more frequently (if applicable)
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 tCO2e
Data / Parameter	$P_{p,y}$
Unit	kg/household-day
Description	Quantity of fuel that is consumed in project scenario p during year y
Source of data	Survey
Value(s) applied	Stove: Value (kg/HH) Eco 1: 22 Eco 2: 37 Eco 3: 45
Measurement methods and procedures	NA
Monitoring frequency	Updated every two years, or more frequently (if applicable)
QA/QC procedures	The sample size for the annual survey would be estimated based on simple random sampling.[3]
Purpose of data	Project emissions
Additional comment	A single project fuel consumption parameter is weighted to be representative of the quantity of project technologies of each age being credited in each scenario.

3 Guideline on Sampling and surveys for CDM project activities and programmes of activities Version 4.0

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	$U_{p,y}$
Unit	%
Description	Usage rate in project scenario p during year y
Source of data	Based on https://globalgoals.goldstandard.org/407g-ee-ics-tpddtec-usage-guidelines/
Value(s) applied	75%
Measurement methods and procedures	NA
Monitoring frequency	Annually
QA/QC procedures	The sample size for the annual survey would be estimated based on simple random sampling[4] and as explained in section B.7.2.
Purpose of data	Baseline Emissions estimation
Additional comment	A single usage parameter is weighted to be representative of the quantity of project technologies of each age being credited in a given project scenario.

4 Guideline on Sampling and surveys for CDM project activities and programmes of activities Version 4.0

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	Project technology days
Description	Project technology-days in the project database for project scenario p through year y
Source of data	Internal Survey
Value(s) applied	Year 1: 36275225 Year 2: 14336525 Year 3: 5035800 Year 4: 55647550 Year 5: 36275225
Measurement methods and procedures	Monitoring consist of checking of representative sample, to ensure the stove's operating
Monitoring frequency	Continuous
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	Survey
Value(s) applied	0
Measurement methods and procedures	Every two years
Monitoring frequency	Biennial
QA/QC procedures	The sample size for the annual survey would be estimated based on simple random sampling.[5]
Purpose of data	Leakage emissions
Additional comment	NA

5 Guideline on Sampling and surveys for CDM project activities and programmes of activities Version 4.0

<table>
<tr><td>Relevant SDG Indicator</td><td>SDG: Good health and well-being (SDG 15)
Indicator: 15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type</td></tr>
<tr><td>Data / Parameter</td><td>Biomass saved</td></tr>
<tr><td>Unit</td><td>tons/year</td></tr>
<tr><td>Description</td><td>Amount of biomass saved in year y</td></tr>
<tr><td>Source of data</td><td>Sampling survey/annual usage survey/monitoring survey</td></tr>
<tr><td>Value(s) applied</td><td>
<table>
<tr><td>Stove type</td><td>Year 1</td><td>Year 2</td><td>Year 3</td><td>Year 4</td><td>Year 5</td></tr>
<tr><td>Total biomass saved</td><td>11455</td><td>34966</td><td>93746</td><td>211303</td><td>271020</td></tr>
</table>
</td></tr>
<tr><td>Measurement methods and procedures</td><td>$P_y = B_{b,y} * (1-\eta_b/\eta_{p,y})$……(2)

Where:
$B_{b,y}$ Quantity of firewood consumed in baseline scenario during year y (tonnes per household per year)
$\eta_{p,y}$ Efficiency of project cookstove in year y (fraction)
η_b Efficiency of the baseline cookstove being replaced (fraction). A default value of 10% shall be used if the replaced cookstove is a three stone fire, or a conventional device without a grate or a chimney i.e. with no improved combustion air supply or flue gas ventilation

The amount of biomass saved per HH per year is then multiplied by $N_{p,y}$ and the corresponding usage rate.

Annual $P_y = P_y * N_{Py} * U_{Py}$</td></tr>
<tr><td>Monitoring frequency</td><td>Annual</td></tr>
<tr><td>QA/QC procedures</td><td>Sample number shall be determined using UNFCCC sample standard. Publicly available data may be referred.</td></tr>
<tr><td>Purpose of data</td><td>Sustainable development assessment</td></tr>
<tr><td>Additional comment</td><td>NA</td></tr>
</table>

Relevant SDG Indicator	SDG: Affordable and clean energy (SDG 7) Target 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services Indicator: 7.1.2: Proportion of population with primary reliance on clean fuels and technology
Data / Parameter	Access to affordable and clean energy services
Unit	Numbers
Description	Number of Himalayan rocket stoves operational under the project activity
Source of data	Project Participant/Project proponent
Value(s) applied	138,598
Measurement methods and procedures	Sample survey to confirm if HRS stoves are operational. Operational status will confirm that the users are accessed to affordable and clean energy and proportion of user's reliance on clean fuel and technology.
Monitoring frequency	Annual
QA/QC procedures	Required sample size shall be determined following UNFCCC sampling standard
Purpose of data	Sustainable development assessment
Additional comment	NA

B.7.2. Monitoring plan

>>

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 in the electronic project database 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 HRS stoves, as identified through the Project Database managed by Himalayan Rocket Stove

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. Most interviews in a usage survey will be conducted in person and include expert observation by the interviewer, while the remainder may be conducted via telephone.

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.

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

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 Himalayan Rocket stoves within the project boundary 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 will be conducted by the PP. In order to avoid the possibility of low response and answer bias 10% oversampling will be applies by the PP.

Analysis:
The survey data will then be analysed by the project developer to derive the working status of each stove and the consumption of firewood at the project site. 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.

At present the baseline scenario is based on an internal survey conducted by the PO. However, at the time of monitoring, a KPT will be conducted in accordance with the guidelines provided in GSTPDDTEC, version 3.1and in accordance with section B7.1. For this purpose, the baseline has not been fixed in the PDD and can be updated based on the KPT results at the time of monitoring.

Also, a usage survey will be carried out in accordance with "Requirements and Guidelines for carrying out usage surveys for projects implementing improved cooking devices."[6] The survey will be carried as per Level A, Mandatory Requirements.

[6] https://globalgoals.goldstandard.org/407g-ee-ics-tpddtec-usage-guidelines/

SECTION C. Duration and crediting period

C.1. Duration of project

C.1.1. Start date of project

>>

02/07/2019 is considered as start date of the project. The date represents first batch of HRS stoves installed within the project activity. PP has submitted initial documents for preliminary review on 01/07/2020. 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

>>

20 years

C.2. Crediting period of project

C.2.1. Start date of crediting period

>> 02/07/2019

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

>>

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 reduces the conventional firewood usage for domestic cooking and heating purpose. Therefore, it provides development opportunity to all section of people providing a better livelihood and empowering women especially in rural areas. 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 fulfilment of human rights.	India adopted 'The protection of human rights Act' 1993 and the project 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
(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.	The constitution of India Article 14 sates 'the government shall not deny to any person equality before law or the equal protection of the laws'; Article 15 declares that government shall not discriminate against any citizen on the ground of sex; Article 16 guarantees that no citizen shall be discriminated against in matters of public employment on the grounds of sex religion, caste, creed, sex, descent, place of birth, residence. Therefore, the project being in India upholds the principles of accountability and the rule of law, participation and	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
	inclusion, and equality and non-discrimination.		
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	India adopted 'The protection of human rights Act' 1993 and the project is bound to follow the rules and regulation of host country. In addition, India has ratified 'International Convention on the Elimination of All Forms of Racial Discrimination :1969' 'International Covenant on Civil and Political Rights :1976', 'International Covenant on Economic, Social and Cultural Rights :1976' 'Convention on the Elimination of All Forms of Discrimination against Women :1981'. Therefore, the project developer and the project do respect nationally and internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind.	No	Not Applicable
The Project shall not discriminate with regards to participation and inclusion.	India has ratified 'International Convention on the Elimination of All Forms of Racial Discrimination :1969', 'Convention on the Elimination of All Forms of Discrimination against Women :1981' in addition to its national human rights Act' 1993. Therefore, the project will not discriminate with regards to participation and inclusion.	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
Principle 2 - Gender Equality and Women's Rights			
(i) Promotes gender equality and the empowerment of women.	Ministry of women & child development, govt. of India has taken various measures for gender equality/socio-economic development/empowerment of women[7]. Out of these, the project positively contributes towards the national mission for empowerment of women through improvement of health and attaining vision for empowerment of women under national policy for women 2016 (Women participation will be ensured in the efficient use and spreading the use of solar energy, biogas, smokeless chulas and other technological applications to have positive influence on their life styles and a long term impact on meeting sustainable development goals)[8].	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 in section A.8 above.	No	Not Applicable
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	No. The project activity leads to reduction in firewood usage. Therefore,	No	Not Applicable

[7] http://pib.nic.in/newsite/PrintRelease.aspx?relid=132945

[8] http://wcd.nic.in/sites/default/files/women%20empowerment%20poliy_Final_17May.pdf

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
women's access to or control of resources, entitlements and benefits?	it does not put any risk to women's access or control of resources, entitlements and benefits.		
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 stoves are installed in households where users were dependent firewood for heating spaces and cooking. The project reduces the usage of the non-renewable biomass. 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 more time in sourcing firewood which in the project case not reduced. This provides more time to the users. Also, HRS adopts a low smoke technique resulting health benefits to end users.	No	Not Applicable
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, 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 sourcing firewood and can utilize the saved time in other productive works. Also, smoke related health issues are reduced due to the project activity.	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
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
Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?	No, the project only reduced the firewood consumption, thereby reducing the time spent to collect wood. Reduced time spent on this activity lessens the vulnerability of the women to get subjected to dangers while collecting wood which is generally found in unsafe forest areas. It also reduces the exposure to smoke during cooking system. 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

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
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 is reduced, This provides more time to the users. Also, smoke related health issues are reduced due to the project activity.	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 reduces the firewood consumption of the household.	No	Not Applicable
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 installation of HRS stoves. Trained labours are used for installation and manufacturing. 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	Not applicable. Project happens at individual households where household	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
men, as the case may be, to Project participation and benefits	people operate the biogas system as per their requirements.		
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 contributes towards the national mission for empowerment of women through improvement of health and attaining vision for empowerment of women under national policy for women 2016.	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 reduce the firewood and produces less smoke.	No	Not Applicable
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 reduce firewood usage. 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	The project area covers households which does not require relocation of	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
(temporary or permanent, full or partial)?	peoples; hence 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 household biogas digesters. Therefore, it does not involve any influence towards indigenous people.	No	Not Applicable
Principle 5 – Corruption			
The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	The project benefits reduction in firewood usage. 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	The project does not require labour force for implementation of the project. Trained technicians are involved in production and installation of HRS stoves. Therefore, no forced labour is involved in the project. No child labour is involved.	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
other cannot be avoided, then guidance shall be sought from Gold Standard			
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 reduce firewood usage. Hence, it will reduce greenhouse gas emissions over the baseline scenario.	No	Not Applicable
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, there is no provision for usage of energy from the local grid or power supply in the HRS stove. So, this condition is not applicable.	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	No, Water in huge quantity is not required for the project which can impact the ground water level or any seasonal flow.	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.	No, Water in huge quantity is not required for the project which can impact the ground water level or any seasonal flow.	No	Not Applicable

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
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 extreme climatic conditions?	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
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

Safeguarding principle	Description of relevance to the project	Assessment (Yes/Potentially/No)	Mitigation Measures
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
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 included later.

Summary of comments received

>>

To be included later

E.2. Report on consideration of comments received

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To be included later

Appendix 1. Contact information of project participants

Organization name	Himalayan RocketStove
Registration number with relevant authority	
Street/P.O. Box	Sector 8C
Building	#181-182
City	Chandigarh
State/Region	Chandigarh
Postcode	160009
Country	India
Telephone	+91-9805432176
Fax	NA
E-mail	russell@himalayanrocketstove.com
Website	NA
Contact person	Russell Collins
Title	Founder & Director
Salutation	Mr.
Last name	Collins
Middle name	NA
First name	Russell
Department	NA
Mobile	+91-9805432176
Direct fax	NA
Direct tel.	NA
Personal e-mail	NA

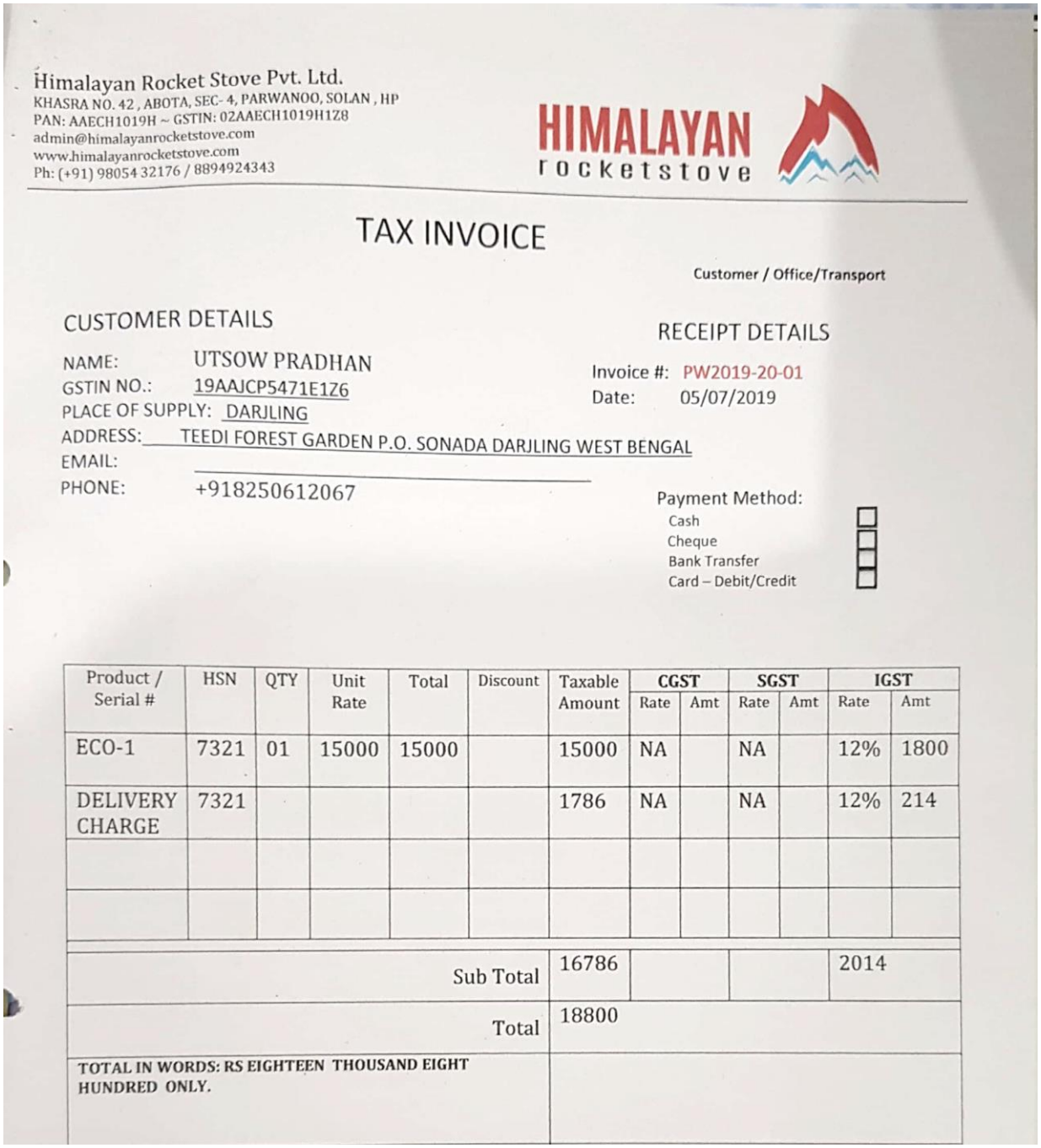
Organization name	Swiss Carbon Value Ltd.
Registration number with relevant authority	
Street/P.O. Box	Technoparkstrasse 1
Building	NA
City	Zurich
State/Region	Switzerland
Postcode	NA
Country	Switzerland
Telephone	NA
Fax	NA
E-mail	registration@southpole.com
Website	www.southpole.com
Contact person	Renat 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

Appendix 3. Evidence of Start date



Himalayan Rocket Stove Pvt. Ltd.
KHASRA NO. 42 , ABOTA, SEC- 4, PARWANOO, SOLAN , HP
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HIMALAYAN rocketstove

TAX INVOICE

Customer / Office/Transport

CUSTOMER DETAILS

NAME: UTSOW PRADHAN
GSTIN NO.: 19AAJCP5471E1Z6
PLACE OF SUPPLY: DARJLING
ADDRESS: TEEDI FOREST GARDEN P.O. SONADA DARJLING WEST BENGAL
EMAIL:
PHONE: +918250612067

RECEIPT DETAILS

Invoice #: PW2019-20-01
Date: 05/07/2019

Payment Method:
Cash ☐
Cheque ☐
Bank Transfer ☐
Card – Debit/Credit ☐

Product / Serial #	HSN	QTY	Unit Rate	Total	Discount	Taxable Amount	CGST		SGST		IGST	
							Rate	Amt	Rate	Amt	Rate	Amt
ECO-1	7321	01	15000	15000		15000	NA		NA		12%	1800
DELIVERY CHARGE	7321					1786	NA		NA		12%	214
					Sub Total	16786					2014	
					Total	18800						
TOTAL IN WORDS: RS EIGHTEEN THOUSAND EIGHT HUNDRED ONLY.												

Appendix 4. Calculation of Installed energy output for the proposed project at plant and project level.

No of stoves	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Eco1	552	3259	7821	19551	39103	20089	90374
Eco2	217	1281	3074	7686	15372	8335	35965
Eco 3	78	460	1105	2763	5525	2327	12259
Total	847	5000	12000	30000	60000	30751	138598

Firewood consumed/day in kg	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Eco1	12144	71688	172052	430130	860260	441962	1988236
Eco2	8029	47397	113752	284380	568760	308380	1330699
Eco 3	3510	20720	49728	124321	248642	104734	551656
Total	23683	139805	335532	838831	1677662	855076	3870590

Activity Data	**Value**	**Unit**	**Ref**
Combustion efficiency of stoves	50%	Percentage	Client Survey
H_b of firewood	0.0000156	TJ/kg	IPCC 2006
Energy output per unit	47	KW/unit	Calculated

Energy output							
Unit	Values						Average
TJ/day	0.18	1	2.62	7	13	7	
MJ/day	184727	1090481	2617153	6542883	13085766	6669594	5031767
kWh/day	51313	302911	726987	1817468	3634935	1852665	1397713
kWh/day	6414	37864	90873	227183	454367	231583	174714
MWh/day	6	38	91	227	454	232	175
MWh/year	1122	6626	15903	39757	79514	40527	30575
GWh/year	1	7	16	40	80	41	31

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