

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

PUBLICATION DATE 14.10.2020

VERSION v. 1.2

RELATED SUPPORT

– **TEMPLATE GUIDE Key Project Information & Project Design Document v.1.2**

This document contains the following Sections

Key Project Information

SECTION A – Description of project

SECTION B - Application of approved Gold Standard Methodology (ies) and/or demonstration of SDG Contributions

SECTION C – Duration and crediting period

SECTION D – Summary of Safeguarding Principles and Gender Sensitive Assessment

SECTION E – Outcome of Stakeholder Consultations

Appendix 1 – Safeguarding Principles Assessment (mandatory)

Appendix 2 - Contact information of Project participants (mandatory)

Appendix 3 - LUF Additional Information (project specific)

Appendix 3 - Summary of Approved Design Changes (project specific)

KEY PROJECT INFORMATION

GS ID of Project	GS11068
Title of Project	Enlightening lives by propagating Household biogas projects in India
Time of First Submission Date	22/02/2021
Date of Design Certification	-
Version number of the PDD	01
Completion date of version	22/02/2021
Project Developer	First Climate Markets AG, Green Solutions
Project Representative	Mr. Nikunj Agarwal (First Climate Markets AG)
Project Participants and any communities involved	First Climate Markets AG, Green Solutions
Host Country (ies)	India
Activity Requirements applied	<input type="checkbox"/> Community Services Activities <input checked="" type="checkbox"/> Renewable Energy Activities <input type="checkbox"/> Land Use and Forestry Activities/Risks & Capacities <input type="checkbox"/> N/A
Scale of the project activity	<input type="checkbox"/> Micro scale <input checked="" type="checkbox"/> Small Scale <input type="checkbox"/> Large Scale
Other Requirements applied	NA
Methodology (ies) applied and version number	AMS-I.E.: Switch from Non-Renewable Biomass for Thermal Applications by the User - Version 11
Product Requirements applied	<input checked="" type="checkbox"/> GHG Emissions Reduction & Sequestration <input type="checkbox"/> Renewable Energy Label <input type="checkbox"/> N/A
Project Cycle:	<input type="checkbox"/> Regular <input checked="" type="checkbox"/> Retroactive

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in B.6)	Estimated Annual Average	Units or Products
SDG 3: Good health and well being	Reduction in smoke related illness due to use of biogas instead of firewood.	Qualitative	
SDG 7: Affordable and Clean Energy	MWh of renewable energy generated	27.28 MW thermal/Annum	
SDG 8: Decent Work and Economic Growth	Employment Generation	15 persons employed	
SDG 13: Climate Action (mandatory)	Emission Reduction	40,143 tCO ₂ /Annum	

SECTION A. DESCRIPTION OF PROJECT

A.1. Purpose and general description of project

>>The project activity involves operation of 10000 household biogas plants (biodigestors) in Uttarakhand. The biodigesters are of 3m³ (almost 90%), 4m³, 2m³ and some of 6m³ capacity (minimal). The plants covered under the project activity are commissioned from 28th February 2020 onwards. The biogas plants are of deenbandhu model. The purpose of the project is to replace the commonly used inefficient wood fired mud stoves technology, with clean, sustainable and efficient biogas.

Each household utilizes cow dung to feed the digester for the production of biogas for cooking purpose and heating water. This leads to reduction of greenhouse gas emissions by displacing conventionally used nonrenewable biomass with renewable biogas. In addition, the hygienic conditions in the rural areas will be improved by an appropriate disposal of organic waste. Further, residue from the bio digesters can be used as organic fertilizer and will improve soil conditions in rural areas leading to increase in soil productivity.

Project activity will contribute towards sustainable development by replacing non renewable firewood with biogas generated from the bio digesters.

Pre project Scenario:

Household survey was conducted to assess the baseline fuel and quantity used. As per the Survey, firewood was the main fuel used to suffice domestic needs. Usage of inefficient firewood leads to indoor pollution and land use patterns have been showing a decrease in forest land cover and increase in degraded land. Increasing pressure from human and livestock population and indiscriminate and illegal exploitation of forest resources are among factors that have led to further intensification of the problem. Degradation of forest lands

has exacerbated the already existing problem of desertification. There is a need to maintain adequate forest cover in the state to mitigate climate change effects. The project envisages to reduce fuel wood consumption along with an improvement of lives by reducing indoor air pollution.

Project Scenario:

Project activity involves bundling of 10000 plants installed in rural areas of Uttarakhand installed from 28th Feb 2020 onwards.

A.1.1. Eligibility of the project under Gold Standard

>>As per section 3.1.1 of GS4GG Principles & Requirements '**A Project type is automatically eligible for Gold Standard Certification if there are Gold Standard published Activity Requirements and/or Gold Standard Approved Methodologies associated with it or as referenced in Gold Standard Product Requirements**'.

The project falls under GG4GG Community Services Activity Requirements:

Eligible Project Types & Scope: The projects leads to climate change mitigation by providing access to resources (biogas) to households.

Types of project: The project falls under 'Renewable energy" type:

Waste management and handling: Management of animal waste (cattle dung) to deliver biogas.

Project Area, Boundary and Scale:

Project Area and Boundary is described under section A.4 below.

Scale: The project falls under waste handling and disposal with emission reductions 40,143 tCO₂ per year with installed energy output of 27.28 MW_{thermal} (Below the threshold of 45 MW_{thermal}).

Hence, the project falls under small scale projects.

The project activity as a whole or any project digester is not part of any other registered carbon credit project (such as CDM, VCS etc.) project. This is confirmed through end user agreement and can be cross checked from publicly available sources such as UNFCCC, VCS etc.

A.1.2. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

>> 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 developer from the beneficiary households through a signed covenant.

A.2. Location of project

A.2.1 Host Country

>> India

A.2.2 Region/State/Province etc.

>> States: Uttarakhand

A.2.3 City/Town/Community etc.

>> The project activity is located in various districts of Uttarakhand.

State	District	Geo-coordinate
Uttarakhand	Ramgarh, Rudrapur, Sitarganj, Dehradun, Haldwani	Latitude: 30° 15' N Longitude: 79° 15' E

A.2.4 Physical/Geographical location

The project activity is located in various districts of Uttarakhand

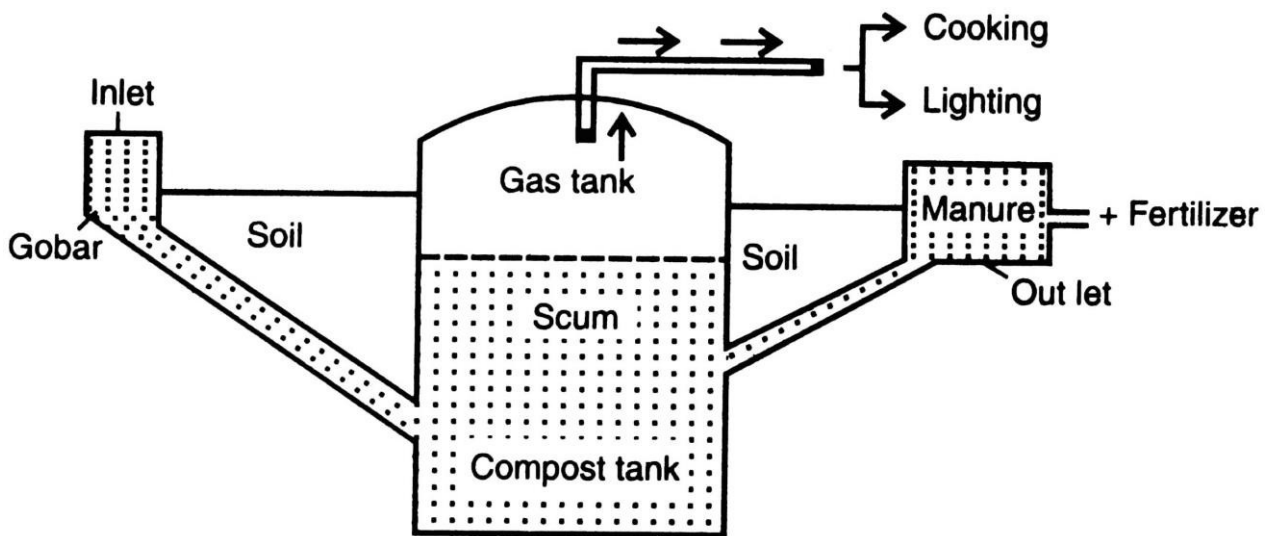


A.3. Technologies and/or measures

(Describe the technologies and measures to be employed and/or implemented by the project, including a list of the facilities, systems and equipment that will be installed and/or modified by the project. Include information essential to understand the purpose of the project and how it will contribute positively to three SDGs.)

The household bio-digesters involved in the project activity are Fixed –Dome Digester technology (Deenbandhu model) of 3m³ (almost 90%), 4m³, 2m³ and some of 6m³ size each. The major feed cattle dung is mixed with water and fed into the plant through the inlet chamber of the plant. This waste is converted into biogas with the help of a special type of anaerobic bacteria. The digested material, which comes out of the plant, is enriched manure.

The main feature of a Deenbandhu biogas plant is the fixed underground digester chamber, constructed with a layer of bricks and an additional layer of cement mortar forming the roof above. Connected to the underground chamber is an inlet tank, through which manure is fed into the plant. The manure then ferments separating the slurry from the methane gas which rises and collects at the top of the digester tank, and is released through the gas outlet pipe. The slurry passes into the outlet tank where it is ejected from the plant and can be used as fertilizer on the field.



The cattle dung otherwise would have been left to decay in open which leads to methane emissions and by utilizing the same for generation of biogas leads to capture of methane and utilize as fuel. The biogas thus generated replaces firewood that otherwise would have been used for cooking and heating purposes. The project is expected to reduce 40,143 tCO₂ per annum.

The project contributes directly in achieving the SDG#3, 7 & 8 in addition to SDG#13 as required by Principle-1 of GS4GG.

Apart from the SDGs mentioned above, the project also indirectly contributes to SDG# 5, 8 &15. More specifically, 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#3,5, 8).
- **Health Benefits:** Sufficiently enhance indoor air quality thereby improving health family members and reducing incidences of smoke and fire related injuries (SDG#3).
- **Social Benefits:** The project will provide affordable and clean fuel compared to baseline scenario (SDG #7)



A.4. Scale of the project

>> The project falls under waste handling and disposal with emission reductions with installed energy output of 27.28 MW_{thermal} (Below the threshold of 45 MW_{thermal}). Hence, the project falls under small scale projects.

A.5. Funding sources of project

>> No public funding from parties included in Annex I to the UNFCCC, is available to the project. No Official Development Assistance involves in the project activity.

SECTION B. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS

B.1. Reference of approved methodology (ies)

>> Methodology : AMS-I. E - Switch from non-renewable biomass for thermal applications by the user Version: Version 11

Reference:

<https://cdm.unfccc.int/methodologies/DB/CU5MMCFAZCZKDP0V9DYAS7VQ56OBJW>

B.2. Applicability of methodology (ies)

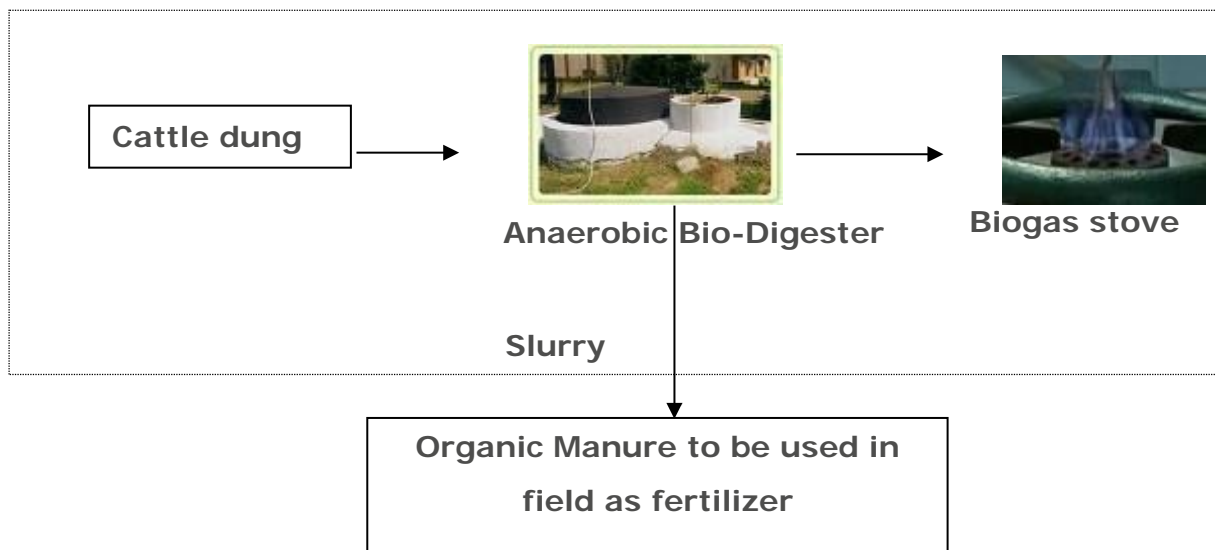
>> (Justify the choice of the selected methodology(ies) by demonstrating that the project meets each applicability condition of the applied methodology(ies))

Conditions	Applicability
<p>The methodology is applicable for technologies displacing use of non-renewable biomass by renewable energy.</p>	<p>Project activity involves installation of biodigesters, biogas thus produced will displace the use of nonrenewable biomass to major extent. Therefore, condition is justified.</p>
<p>Project participants shall describe in the PDD/PoA-DD the proposed method for distribution of project devices and how the double counting of emission reductions has been addressed, for example, using methods such as unique identifications of product and end-user locations (e.g. programme logo), to prevent double counting of emission reductions from the project devices</p>	<p>Each of the bio-digesters shall be allocated a unique id against each end users. End user and project implementer shall have an agreement to avoid any double counting.</p>
<p>For project activities introducing bio-ethanol cookstoves, project participants or coordinating and managing entities shall demonstrate that the bioethanol cookstoves are designed, constructed and operated to the requirements (e.g. with regard to safety) of a relevant national or local standard or comparable literature. Latest guidelines issued by a relevant national authority or an international organization may also be used.</p>	<p>Not applicable.</p>

B.3. Project boundary

>> *The project boundary is the physical, geographical site of the use of biomass or the renewable energy.*

The project boundary encompasses the sum of all the 10,000 physical geographical sites of all individual biogas plants (digester system, pipe leading to the stove and the stove itself) realized by the project activity. However, the baseline emissions from methane avoidance have been excluded to be conservative.



Source		GHGs	Included?	Justification/Explanation
Baseline	Firewood	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 ₂ O	No	Not applicable for the project activity
Project	Not applicable	CO ₂		Not applicable
		CH ₄		Not applicable
		N ₂ O		Not applicable
Leakage	The use/diversion of non-renewable woody biomass saved under the project activity by non-project households/users	CO ₂	Yes	Default option as per methodology to be applied.
		CH ₄	No	Not applicable for the project activity
		N ₂ O	No	Not applicable for the project activity

B.4. Establishment and description of baseline scenario

>> As per "AMS I.E- Switch from non-renewable biomass for thermal applications by the user, Version 11" 'the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs'.

The project activity involves the installation of anaerobic bio digesters for the production of biogas which will replace non renewable biomass, used as a fuel for household cooking purposes. A survey has been done to estimate the average firewood consumption prior to project activity at user point following sampling standard as per UNFCCC 'Sampling and surveys for CDM project activities and programs of activities' version 07 and guideline 'Sampling and surveys for CDM project activities and programs of activities' version 04. Below parameter needed to identify:

- a) Type of fuel used prior to biogas
- b) Average fuel consumption before biogas

A simple random sampling approach has been applied as the target population are of homogeneous nature. However, samples are drawn for each size of digester and for each state separately so that, a clear and more reliable result is arrived.

A 90% confidence interval and 10% margin of error has been considered to determine the sample size. Expected proportion is considered 90%.

As per the baseline survey 100% of the sampled households were using firewood and traditional (mud based/clay based) cookstoves before biogas installation. Therefore, baseline scenario for the project activity is use of non-renewable biomass (firewood) for thermal energy needs (cooking).

In common practice, cattle manure is either directly used in crop lands to use as fertilizer or dried up as dung cake to use as fuel. However, the practice of using cattle dung as fuel is not hygienic. According to world health organization, about 1.6 million people, mostly women and children, die each year due to cooking and heating with wood, dung, coal or crop waste¹. In addition, applying cattle dung directly at crop lands results in lower fertile value whereas, anaerobic digestion of the sludge releases greater amount of phosphate into the slurry. During the digestion process, nitrogen in the organic matter is converted to ammonium. Ammonium is readily accepted by the soil and is absorbed by plants slowly. This form is more stable when plowed into the soil, unlike nitrogen that oxidizes into nitrates and nitrites which do not get absorbed by the plants and are readily washed away. Therefore, by utilizing cattle dung in biogas production results in positive outcome environmentally and socio-economically.

B.5. Demonstration of additionality

Specify the methodology, activity requirement or product requirement that establishes deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	Not Applicable
Describe how the proposed project meets the criteria for deemed additionality.	Not Applicable

>> 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 **‘Project activities 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’** as explained below:

The maximum capacity of individual unit (biogas) is 6m³. Considering a 6m³ plant can save around 870 kg/month of firewood, the emission reduction as per applied methodology (AMS-I.E, version 11) for a 6m³ plant is calculated as below:

$$B_y = N_{HH} \times (BC_{BL,HH,y} - BC_{PJ,y})$$

Where,

B_y = Quantity of woody biomass that is substituted or displaced in tonnes

N_{HH} = Number of households in the project activity, number. It is considered 1 considering a single unit.

$BC_{BL,HH,y}$ = Average annual consumption of woody biomass per household before the start of the project activity, tonnes/household/year. 435 kg/month is considered.

$BC_{PJ,HH,y}$ = If it is found that pre-project devices were not completely displaced but continue to be used to some extent, average annual consumption of woody biomass per household in the pre-project devices during the project activity, tonnes/household/year. It is considered conservatively that entire firewood is replaced.

$$B_y = 1 * (10.44 \text{ ton})$$

$$= 10.44 \text{ ton}$$

Therefore, emission reduction is

$$BE_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil_fuel}$$

$$= 10.44 \times 100\% \text{ (most conservative value)} \times 0.015 \times 64.4$$

$$= 8.01 \text{ tCO}_2$$

Therefore, with conservative assumptions, the emission reduction for a individual unit is far below 600 tons of emission reduction per year. Hence, the proposed project activity falls under the 'Positive List' and hence under Principle 5 – Financial Additionality & Ongoing Financial Need, the project is considered deemed additional and therefore not required to prove Financial Additionality at the time of Design Certification.

B.5.1. Prior Consideration

>> The project shall be listed within 1 year of start date, thereby demonstrating the prior consideration for the project.

B.5.2. Ongoing Financial Need

>> Not applicable for the project as it meets the Annex-B Positive list under 'GG4GG Community Services Activity Requirements'.

B.6. Sustainable Development Goals (SDG) outcomes

Relevant Target/Indicator for each of the three SDGs

Sustainable Development Goals Targeted	Most relevant SDG Target	SDG Impact
		Indicator (Proposed or SDG Indicator)
3 Good Health and Well-being	3.9	3.9.1 Mortality rate attributed to household and ambient air pollution
7 Affordable and Clean Energy	7.1	7.1.2 Proportion of population with primary reliance on clean fuels and technology
7 Affordable and Clean Energy	7.2	7.2.1 Renewable energy share in the total final energy consumption
SDG 8: Decent Work and Economic Growth	8.3	8.3.1 Proportion of informal employment in non-agriculture employment, by sex

13 Climate Action (mandatory)	13.3	13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions
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B.6.1. Explanation of methodological choices/approaches for estimating the SDG Impact

>> As per “AMS I.E- Switch from non-renewable biomass for thermal applications by the user, Version 11, the

baseline emissions (BE_y) are calculated as:

$$BE_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil_fuel}$$

Where,

BE_y = Baseline emissions during the year y in t CO₂e
 B_y = Quantity of woody biomass that is substituted or displaced in tones

$f_{NRB,y}$ = Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable biomass (f_{NRB})

$NCV_{biomass}$ = Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/ton)

$EF_{projected_fossil_fuel}$ = Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 64.4 t CO₂/TJ

By is determined by using option (a) paragraph 15 of the methodology as follows:

“Calculated as the product of the number of households multiplied by the estimate of average annual consumption of woody biomass per household that is displaced by the project activity (tons/household/year)”;

$$B_y = N_{HH} \times (BC_{BL,HH,y} - BC_{PJ,HH,y})$$

Where,

N_{HH} = Number of households in the project activity, number

$BC_{BL,HH,y}$ = Average annual consumption of woody biomass per household before the start of the project activity, tons/household/year

$BC_{PJ,HH,y}$ = If it is found that pre-project devices were not completely displaced but continue to be used to some extent, average annual consumption of woody biomass per household in the pre-project devices during the project activity, tons/household/year

$BC_{BL,HH,y}$ has been determined as per third party survey for the sample of households explained in section B.4 above. The average firewood consumption per month only on firewood is around 435 kg for 3 m³.

Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable biomass ($f_{NRB,y}$) is determined as per methodological tool 'Calculation of the fraction of non-renewable biomass' as follows:

The fraction of woody biomass that can be established as non-renewable, is:

$$f_{NRB} = \frac{NRB}{NR + RB}$$

Where,

f_{NRB} = Fraction of non-renewable biomass (fraction or %) NRB = Quantity of non-renewable biomass (t/yr)

RB = Quantity of renewable biomass (t/yr)

Estimation of consumption of woody biomass (H/Bold, total) is done following paragraph 11 (a) of the tool 'Official Statistics'.

As per Forest Survey of India report 2011, Annual fuelwood consumption in household sector and consumption of wood in House construction, Furniture and Agriculture is given below:

State	Uttarakhand
Annual wood fuel consumption in household sector (Ton/year)	3433119
Non-domestic wood consumption (ton/year)	8988200

Total wood consumption (ton/year)	12421319
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Procedure to estimate RB:

Renewable biomass (RB) in the country/region/area is estimated using the equation below:

$$RB = \sum (MAI_{forest,i} \times (F_{forest,i} - P_{forest})) + \sum (MAI_{other,i} \times (F_{other,i} - P_{other}))$$

Where:

$MAI_{forest,i}$ = Mean Annual Increment of woody biomass growth per hectare in subcategory i of forest areas (t/ha/yr). For this parameter report from Ministry of Environment and Forest, Govt. of India has been referred².

$MAI_{other,i}$ = Mean Annual Increment of woody biomass growth per hectare in subcategory i of other wooded land areas (t/ha/yr). Same value as $MAI_{forest,i}$ is considered.

$F_{forest,i}$ = Extent of forest in sub-category i (ha). India state of forest report, 2017 has been referred for this parameter.

$F_{other,i}$ = Extent of other wooded land in sub-category i (ha).

P_{forest} = Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas (ha). Neglected due to non-availability of region specific data.

P_{other} = Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within other wooded land areas (ha). Neglected due to non-availability of region specific data.

i = Sub-category i of forest areas and other wooded land areas

State	Uttarakhand
$MAI_{forest,i}$	0.5
$MAI_{Other,i}$	0.5
$F_{forest,i}$	3800000
RB	2544500

² <http://www.moef.nic.in/sites/default/files/Pacific.pdf>

Accordingly, the f_{NRB} would be:

State	H	RB	NRB (H-RB)	f_{NRB}
Uttarakhand	12421319	2544500	9876819	79.5%

Project Emissions (PE_y):

As per applied methodology AMS-I.E, version 11, project emissions are accounted for below activities:

- a) CO2 emissions from on-site consumption of fossil fuels due to the project activity
- b) CO2 emissions from electricity consumption by the project activity
- c) Methane emission from solid waste disposal or waste water
- d) Project emissions related to cultivation of feedstock
- e) Project emissions from transportation

The project activity does not involve any of the above activity and hence, project emissions for the project activity is not applicable.

Leakage Emissions (LE_y):

Leakage emissions (related to the non-renewable woody biomass saved by the project activity shall be assessed based on ex post surveys of users and the areas from which this woody biomass is sourced (using 90/30 precision for a selection of samples).

The following potential source of leakage shall be considered: The use/diversion of non-renewable woody biomass saved under the project activity by non-project households/users that previously used renewable energy sources.

If this leakage assessment quantifies an increase in the use of non-renewable woody biomass used by the non-project households/users that is attributable to the project activity, then B_y is adjusted to account for the quantified leakage. Alternatively, B_y is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

PP has opted default option, and B_y shall be adjusted with adjustment factor of 0.95 to account leakage.

Emission reductions:

Emission reductions are to be estimated based on the equation below:

$$ER_y = BE_y - PE_y - LE_y$$

B.6.2. Data and parameters fixed ex ante

SDG13, 3, 7

Data/parameter	B_y
Unit	Tonnes/year
Description	Quantity of woody biomass that is substituted or displaced
Source of data	Calculated as per applied methodology
Value(s) applied	48,032 for entire 10,000 bio digester plants.
Choice of data or Measurement methods and procedures	Calculated as per applied methodology AMS-I.E, version 11.
Purpose of data	Baseline emissions estimation.
Additional comment	-

Data/parameter	$f_{NRB,y}$
Unit	%
Description	Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass
Source of data	Calculated as per 'tool for calculation of the fraction of non-renewable biomass' version 02
Value(s) applied	79.5%
Choice of data or Measurement methods and procedures	In line with the 'tool for calculation of the fraction of non-renewable biomass' version 02.
Purpose of data	Baseline emissions estimation.
Additional comment	

Data/parameter	N_{HH}
Unit	Number
Description	Number of households in the project activity in year y
Source of data	As per PP's project database
Value(s) applied	10,000
Choice of data or Measurement methods and procedures	For each of the participating users all details (name of user, location, size of digester, commissioning date, unique digester ID etc.) are recorded and database is maintained.
Purpose of data	Baseline emissions estimation.
Additional comment	

Data/parameter	$BC_{BL,HH,y}$
Unit	tonnes/household/year
Description	Average annual consumption of woody biomass per household before the start of the project activity
Source of data	Baseline survey
Value(s) applied	6.53 ton This is a weighted average calculated for all the households
Choice of data or Measurement methods and procedures	Third party survey was conducted to know the firewood consumption pattern. Survey was conducted following UNFCCC sampling standard 'Sampling and surveys for CDM project activities and programs of activities' version 07 and guideline 'Sampling and surveys for CDM project activities and programs of activities' version 04.
Purpose of data	Baseline emissions estimation.
Additional comment	

Data/parameter	NCV_{biomass}
Unit	TJ/tonne
Description	Net calorific value of the non-renewable woody biomass that is substituted
Source of data	AMS-I.E, version 11
Value(s) applied	0.0156 TJ/tonne
Choice of data or Measurement methods and procedures	IPCC default for wood fuel
Purpose of data	Baseline emissions estimation.
Additional comment	

Data/parameter	$EF_{\text{projected_fossil fuel}}$
Unit	tCO ₂ /TJ
Description	Emission factor for the substitution of non-renewable woody biomass
Source of data	Default value as per AMS-I.E, version 11
Value(s) applied	64.4 tCO ₂ /TJ
Choice of data or Measurement methods and procedures	Default value as per AMS-I.E, version 11.
Purpose of data	Baseline emissions estimation.
Additional comment	tCO ₂ /TJ

B.6.3. Ex ante estimation of SDG Impact

>> (Provide a transparent ex ante calculation of baseline and project outcomes (or, where applicable, direct calculation of net benefit) during the crediting period, applying all relevant equations provided in the selected methodology(ies) or as per proposed approach.

For data or parameters available before design certification, use values contained in the table in section B.6.3 above. For data/parameters not available before design 101.1 T PDD

Page 23 of 29 certifications and monitored during the crediting period, use estimates contained in the table in section B.7.1 below)

SDG 13:

Baseline Emissions:

$$BE_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil_fuel}$$

Where,

$$B_y = N_{HH} \times (BC_{BL,HH,y} - BC_{PJ,HH,y})$$

Total population (NHH)	Average firewood consumption (kg/month)- $BC_{BL,HH,y}$	Average firewood consumption (ton/yr)- $BC_{BL,HH,y}$	By (ton/year)
10000	435 for 3M ³	6.53	52,896

$BC_{PJ,HH,y}$ (if it is found that pre-project devices were not completely displaced but continue to be used to some extent, average annual consumption of woody biomass per household in the pre-project devices during the project activity, tones/household/year) is considered zero during design certification stage. The same shall be monitored ex-post certification.

$$BE_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil_fuel}$$

$$= 52,896 * 79.5\% * 0.0156 * 64.4$$

$$\text{Total } BE_y = 42,255 \text{ tCO}_2$$

Project Emissions (PE_y): Nil as explained in section B.6.2 above.

Leakage Emissions: By is multiplied by a net to gross adjustment factor of 0.95 to account for leakages. Therefore, Leakage would be 2,112 tCO₂

$$\text{Emission reductions} = BE_y - PE_y - LE_y$$

$$= 42,255 - 0 - 2,113$$

$$= 40,143 \text{ tCO}_2$$

B.6.4. Summary of ex ante estimates of each SDG Impact

TEMPLATE

Year	Baseline estimate	Project estimate	Net benefit
Year 1	42,255	2,113	40,143
Year 2	42,255	2,113	40,143
Year 2	42,255	2,113	40,143
Year 4	42,255	2,113	40,143
Year 5	42,255	2,113	40,143
Total	2,11,277	10,564	2,00,713
Total number of crediting years	5		
Annual average over the crediting period	42,255	2,113	40,143

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

SDG13 (Climate Action) & safeguarding principle 7.1.

Data / Parameter	BC _{PJ,HH,y}
Unit	tonnes/household/year
Description	Average annual consumption of woody biomass per household in the pre-project devices during the project activity, if it is found that preproject devices were not completely displaced but continue to be used to some extent.
Source of data	Survey
Value(s) applied	To be monitored
Measurement methods and procedures	Monitoring shall consist of estimation of all project devices or a representative sample thereof
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	Survey to be conducted following standard sampling approach.
Purpose of data	Baseline Emissions estimation
Additional comment	

13 (Climate Action)

Data / Parameter	N _{HH,y}
Unit	Number
Description	Number of households (biogas system) in the project activity in operational per year.
Source of data	Survey
Value(s) applied	To be monitored
Measurement methods and procedures	Monitoring consist of checking of representative sample, to ensure that bio digesters operating
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	Survey to be conducted following standard sampling approach.
Purpose of data	Baseline Emissions estimation
Additional comment	

SDG 3

Air Quality/ Reduction in health problems

Data / Parameter	Air Quality/ Reduction in health problems
Unit	Qualitative
Description	Impact on health due biogas use leading to improved air quality
Source of data	Sampling Surveys/Annual usage survey/Monitoring survey
Value(s) applied	To be monitored (Baseline survey and project survey to be conducted)
Measurement methods and procedures	<ul style="list-style-type: none"> No. of biogas units constructed and operating Reduction in incidence of health problems due to better indoor air quality: Collection of information from the local health centres and interview with local stakeholders.
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	Survey to be conducted following standard sampling approach; survey will try to capture the view of the women actually involved in cooking. Improve indoor air conditions and reduce respiratory problems especially for women and children.

	Monitor the number of biogas operating as per records from field supervisors on six monthly basis. Annual survey to cross check the status of biogas plants and feedback from users on air quality/reduction in health problems.
Purpose of data	Sustainable Development Assessment.
Additional comment	Requirements as defined in the sampling plan shall be met.

SDG 7

Data / Parameter	Time saving (Fuel wood collection and Cooking) and use of the time saved
Unit	Qualitative
Description	Users' perception on time saving due to project (comparing to baseline) and use of the saved time
Source of data	Sampling Surveys/Annual usage survey/Monitoring survey
Value(s) applied	To be monitored
Measurement methods and procedures	Assess through users interviews during the Biogas User Survey.
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	Survey to be conducted following standard sampling approach.
Purpose of data	Sustainable Development Assessment.
Additional comment	Requirements as defined in the sampling plan shall be met.

SDG 7

Data / Parameter	Access to affordable and clean energy services
Unit	Number
Description	No of household/No of Biogas installed under the project
Source of data	Sampling Surveys/Annual usage survey/Monitoring survey
Value(s) applied	To be monitored
Measurement methods and procedures	Sample survey to confirm if Biogas Unit are operational. Operational status will confirms that the users are accessed to affordable and clean energy
Monitoring frequency	At least once every two years (biennial)

QA/QC procedures	Survey to be conducted following standard sampling approach.
Purpose of data	Sustainable Development Assessment.
Additional comment	Requirements as defined in the sampling plan shall be met.

SDG 8

Data / Parameter	Employment Generation
Unit	Quantitative
Description	Number of employment generation
Source of data	Project participants records
Value(s) applied	To be monitored
Measurement methods and procedures	As per employment record
Monitoring frequency	At least once every two years (biennial)
QA/QC procedures	Salary slips, employment records to be used to cross check.
Purpose of data	Sustainable Development Assessment.
Additional comment	Employment Generation

B.7.2. Sampling plan

As per applied methodology AMS-I. E, version 11, when biennial inspection is chosen a 95 per cent confidence interval and a 10 per cent margin of error requirement shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90 per cent confidence interval and a 10 per cent margin of error requirement shall be achieved for the sampled parameters.

A simple random sampling will be adopted for estimating the sample size for the monitoring surveys. Simple random sampling is suited to populations that are homogenous (EB 75 annex 08).

Sample Size: The calculation of the required sample size for each parameter will be calculated at 95/10 confidence/precision as required for the annual monitoring. The

sample size is determined using the Guidelines for Sampling and Surveys for CDM Project activities and program of Activities Ver. V4.0 (EB86, Annex 4).

The minimum sample size to determine number of biogas system in operation using the procedure outlined in para 12 of appendix 1, EB 86 Annex 4, Guidelines for Sampling and Surveys for CDM Project activities and Program of Activities Ver. 4.0.

$$n \geq \frac{1.96^2 N \times p(1 - p)}{(N - 1) \times 0.1^2 \times p^2 + 1.96^2 p(1 - p)}$$

Where:

n= Sample size

N = Total number of biogas system of type *i* installed under the project

p = expected proportion (0.5). Depending on results of surveys the proportion shall be adjusted in next surveys.

1.96 = represents the 95% confidence required

0.1 = represents the 10% relative precision (0.1x0.5=0.05 = 5% points either side of p)

Accordingly, the sample determined for the survey is 370.

Identification of samples are done randomly using random sample generator

(<http://stattrek.com/statistics/random-number-generator.aspx>). Details are included in the emission reduction worksheet.

B.7.3. Other elements of monitoring plan

>> For effective implementation of the project, we have designated local supervisors for a specific bunch of digesters and accordingly collect operational details and other feedback from each supervisor. This arrangement is also to collect feedback as part of continuous grievance mechanism.

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1. Start date of project

>>28/02/2020 The date represents first batch of biogas digesters commissioned within the project activity.

C.1.2. Expected operational lifetime of project

>>15 years 0 month

C.2. Crediting period of project

C.2.1. Start date of crediting period

>>28/02/2020 or two years prior to the date of project design certification whichever is later.

C.2.2. Total length of crediting period

>> The project falls under GS community service activity and hence eligible for total 15 years issuance with certification renewal every 5 years.

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1. Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is in [Appendix 1](#), ongoing monitoring is summarized below.

Principles	Mitigation Measures added to the Monitoring Plan
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<p>Principle 2. Gender Equality</p>	<p>The project proponent is committed to the employee’s equal pay for equal work during all phases of the project. Please refer section B.7.2.1 above, same has been considered as monitoring parameter under SDG 8 (8.3.1)</p>
<p>Principle 6.1 Labor Rights</p>	<p>The Project Developer ensures the training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.</p>
<p>Principle 9.5 Hazardous and Non-hazardous Waste</p>	<p>The waste will be disposed to the waste handlers and the firm will comply with all the local laws for monitoring and disposal.</p>

D.2. Assessment that project complies with GS4GG Gender Sensitive requirements

Assessment that project complies with GS4GG Gender Sensitive requirements

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?

Response: Project participants do not involve and promote any discrimination about the gender differences. As per Gold Standard Gender Policy, para 13(i) “Foundational gender-sensitive requirement - This strengthens Gold Standard’s ‘do no harm’ approach and addresses safeguard to prevent or mitigate adverse impacts on women or men and girls and boys. Such action is mandatory for all projects seeking Gold Standard certification and includes compliance with the gender ‘do no harm’ safeguards, gender gap analysis and gender sensitive stakeholder consultations.”.

The project does not seek to graduate to gender-grade GS certification and thus foundational gender sensitive requirements have been described.

The Foundational gender-sensitive minimum standards have been demonstrated as per the below:

HR Policy of the implementing company takes into account various gender sensitive measures such as:

1. There is no gender pay gap and there is transparency in pay and opportunities for promotion and advancement.

There is no discrimination between employees by: (1) paying a wage to employees of one sex or gender identity at an equal rate; and (2) providing equivalent employment opportunities as defined by the law, based on sex and gender identity.

For distribution of biogas there is no discrimination on basis of sex or gender identity, caste, disability etc.

2. There are Gender Unbiased Leave policies, working hours, compliance to minimum wage standards, no harassment policy in the organization.

Thus, the project does not involve and is not complicit in any form of discrimination based on gender difference.

Question 2: - Explain how the project aligns with existing country policies, strategies and best practices

Response: India is party to "Convention on the Elimination of All Forms of Discrimination against Women" and the project has aligned its policies which does not discriminate on gender.

Question 3: - Is an Expert required for the Gender Safeguarding Principles & Requirements?

Response: - The project does not seek to graduate to gender-grade GS certification and thus foundational gender sensitive requirements have been justified.

Further since the project is leading to implementation of biogas digesters for domestic use, thus it will lead to positive health benefits to the users (mainly women) due to riddance of age old chulas, also saving of time for wood collection.

Women folk have a very positive impact due to the project.

As per GS4GG GENDER EQUALITY REQUIREMENTS & GUIDELINES, "Gold Standard may require that the Project seek the input of an Expert Stakeholder and to include their recommendations in the Project design. For projects seeking gender-responsive certification, the Gold Standard VVBs audit teams shall include gender consultants with relevant sector expertise to verify the gender claims of the project".

The Project participants do not involve and promote any discrimination about the gender differences. NGOs at various sites have been allocated to ensure proper

Further the questions raised in the Gold Standard Safeguarding Principles & Requirements document are described under Appendix 1.

Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?

No Expert is required to assist with Gender issues at the Stakeholder Consultation as the stakeholders were invited in a 'gender-sensitive' manner and efforts has been made to solicit input from women and marginalised groups.

As per the GS Stakeholder guidelines, section 1.1.2 "All Gold Standard projects shall "take gender issues into account". This requires local stakeholder consultation processes to reach a wide range of community representatives in ways that ensure equal and effective participation of both women and men, and that gender issues are fully factored into comprehensive social and environmental impact assessments."

Since the project is applying retroactively for GS registration, the Stakeholder meeting was held at Various locations. However due to prevailing COVID situation, individual one to one meetings were carried to avoid large segregation of people at one place.

The stakeholder meeting was held on 15/12/2020 at Nainital district where stakeholders were invited and discussions were carried out about the operational issues and the benefits associated with the project. Apart from a common meeting various block level and household level meetings were carried out in block kotabag, ramnagar and haldwani areas.

The Local Stakeholder Consultation Meeting had an overall healthy participation in the meeting. It was held during the day, as women tend to move more freely and safely than after sunset. Various villagers were invited for the consultation through invitation pasted in public places (local administration Offices, Bus Stand, Market etc.) The meeting was conducted in local language (Hindi) and English translation is prepared for the purpose of reporting

The project proponent (Green Solutions) explained how these projects help in providing clean energy and thereby help in mitigating impacts due to Global Warming, increase in employment opportunities both long term and short term, increased income and thereby leading to improvement in living standard of the people.

Special emphasis was given on the health benefits of the project due to riddance of age old chulas, also saving of time for wood collection was highlighted. The villagers were in agreement and could relate to the problems faced mostly by women folks currently and were happy to be part of the project.

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

The below is a summary of the 2 step GS4GG Consultation for monitoring purposes. Please refer to the separate Stakeholder Consultation Report for a complete report on the initial consultation carried out.

E.1. Summary of stakeholder mitigation measures

>>

Since the project is applying retroactively for GS registration, a Stakeholder Consultation has been carried after the start date. Further due to COVID19 restrictions the meeting had to be delayed and individual meetings were promoted rather than large segregation of villagers.

Various stakeholders were invited through a notices pasted at village Panchayat Office notice board. The meeting was attended by several participants further individual visits to each of households were carried out to discuss about the comments.

There were no negative comments from the village populace and the committee members.

Moreover, PP shall conduct a stakeholder feedback consultation round in line with GS4GG requirements and guidelines to incorporate all the feedback received for the project activity if any.

E.2. Final continuous input / grievance mechanism

Method	Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers.
Continuous Input / Grievance Expression Process Book (mandatory)	The grievance register and contact details are shared with each and every operator.
GS Contact (mandatory)	help@goldstandard.org
Other	greensolutions.mailbox@gmail.com

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

Complete the Assessment below and copy all Mitigation Measures for each Principle into SECTION D above. Please refer to the instructions in the Guide to Completing this Form below.

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 1. Human Rights			
1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights	No	1. The Project is not in conflict with the economic livelihood or other issue of the local community. Thus, the Project does not cause any human rights abuse and respects internationally proclaimed human rights issue. 2. Project activities are not expected to cause any human rights abuse. As a member of United	Not Required

<p>2. The Project shall not discriminate with regards to participation and inclusion</p>		<p>Nations³ and part of UN Agreement on Human Rights⁴, it is ensured by law in India that no action can be taken against human rights.</p>	
<p>Principle 2. Gender Equality</p>			
<p>1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women.</p>	<p>No</p>	<p>1. The Project do not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women rather women are the ones who are the most beneficial in terms of hygienic indoor air conditions as well as saving of time for collection of wood.</p> <p>The operational and maintenance team serves as a grievance team and any concerns are addressed by them.</p>	<p>Not required</p>

³ <https://labour.gov.in/lcandilasdivision/india-ilo>

⁴ <https://www.ilo.org/newdelhi/lang--en/index.htm>

<p>2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work.</p>		<p>There is no any sexual harassment and/or any forms of violence against women. The project does not involve any slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.</p> <p>The project does not restrict of women’s rights or access to resources. The project recognizes women’s ownership rights regardless of marital status.</p> <p>2. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work. The project has equal opportunity for both men and women. The project team has HR policy and same is followed equally. The project ensures participation of both men and women.</p> <p>There is no limit to the access of women or men to Project participation and benefits.</p>	
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<p>3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks</p> <p>4. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s)</p>		<p>3. India ratified the International Convention on the Elimination of All Forms of Racial Discrimination⁵ on 03/12/1968 with certain reservation. The project activity is in line with strategy of elimination of discrimination.</p> <p>4. Summary of opinions and recommendations of an Expert Stakeholder is required in case of Gender responsive project activity which is not the case for the project activity.</p>	
<p>Principle 3. Community Health, Safety and Working Conditions</p>			
<p>1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the</p>	<p>No</p>	<p>a. The project proponent is committed to the employee's workplace health & safety during all phases of the project. All employees/participants will be trained in operational and maintenance issues as well as health & safety related topics.</p>	<p>Health & Safety trainings will be conducted regularly during the project operation.</p>

⁵ https://nhrc.nic.in/documents/india_ratification_status.pdf

health of the workers and the community		This is issued in the Labor code on Occupational Safety, Health and Working Conditions and UN Agreement on Human Rights ⁶ .	
Principle 4.1 Sites of Cultural and Historical Heritage			
Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	No	PP has conducted a detailed study for the project area and it is concluded that: Since the project leads to implementation of biogas digesters to households in various districts thus it does not have any impact on protected archaeological and cultural heritage sites.	Not Required
>>		The project does not involve any settlement areas. Thus, this project does not cause the physical or economic relocation of peoples. The project activity does not involve any alteration of existing roads as well as it does not add additional traffic. No cultural heritage/ indigenous people are replaced by the project.	

⁶ <https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/INIndex.aspx>

Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	Project activity is an installation of biogas digesters at households in the state of Uttarakand, India. Thus, there is no physical or economic relocation of peoples (temporary or permanent, full or partial).	Not required
>>			
Principle 4.3 Land Tenure and Other Rights			
Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership?	No	There are no uncertainties regarding land tenure, access rights, usage rights or land ownership. The biogas digesters are developed for the users and will belongs to them. They will have the all the rights to use and maintain the same.	Not Required
>>			
Principle 5. Corruption			
1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	No	Project activity is an installation of biogas digesters at households in the state of Uttarakhand, and does not contribute to or reinforce corruption of any kind. Indulgence in corruption is an illegal activity in the	Not Required

		<p>host country and the local labor compliance takes into account of the same.</p> <p>PP does not involve and is not complicit in any kind of corruption. India has ratified UN convention against Corruption in 2011⁷.</p>	
Principle 6.1 Labour Rights			
<p>1. The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions.</p>	No	<p>1. The project proponent is committed to the employee’s workplace health & safety during all phases of the project. All employees will attend health & safety trainings. This is issued in the Labour code on Occupational Safety, Health and Working Conditions and UN Agreement on Human Rights⁸.</p>	Not required

⁷ https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XVIII-14&chapter=18&clang=en#EndDec

⁸ <https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/INIndex.aspx>

<p>2. Workers shall be able to establish and join labour organisations</p> <p>3. Working agreements with all individual workers shall be documented and implemented and include:</p> <p>a) Working hours (must not exceed 48 hours per week on a regular basis), AND</p> <p>b) Duties and tasks, AND</p>		<p>2. The project respects fundamental right of employee. There is law in India since 1926 by The Trade Unions Act, 1926⁹ which protects rights of industrial trade unions and their members. PP and appointed contractors will not involve in any form of forced or compulsory labor. India has ratified ILO “C029 – Forced Labor Convention”¹⁰</p> <p>3. PP and their subcontractors complying with all relevant national laws regarding child labor. PP will not employ children in any shape or form for their works. India has ratified ILO “C138 – Minimum Age Conventions” and “C182 – Worst Forms of Child Labor Convention”¹¹.</p>	
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⁹ <http://ncw.nic.in/acts/TheTradeUnionsAct1926.pdf>

¹⁰ https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102691

¹¹ https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102691

<p>c) Remuneration (must include provision for payment of overtime), AND</p> <p>d) Modalities on health insurance, AND</p> <p>e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND</p> <p>f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave.</p> <p>4. No child labour is allowed (Exceptions for children working on their families'</p>		<p>4. PP and their subcontractors complying with all relevant national laws regarding child labor. PP will not employ children in any shape or form for their works. India has ratified ILO "C138 – Minimum Age Conventions" and "C182 – Worst Forms of Child Labor Convention"¹².</p>	
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¹² https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102691

<p>property requires an <u>Expert Stakeholder</u> opinion)</p> <p>5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.</p>		<p>5. The project owner is committed to the safe and healthy working conditions all phases of the project. All employees will attend trainings health & safety. This issue is protected by Labor code¹³ and UN Agreement on Human Rights¹⁴.</p>	
<p>Principle 6.2 Negative Economic Consequences</p>			
<p>1. Does the project cause negative economic consequences during and after project implementation?</p>		<p>The project activity is installation of biogas digesters for energy generation and generates various employment opportunity for the locals throughout its lifetime. Thus, there is no negative economic</p>	
<p>>></p>			

¹³ <https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/INIndex.aspx>

¹⁴ <https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/INIndex.aspx>

		consequences during and after project implementation.	
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	a. The project reduces Greenhouse Gas (GHG) emissions and fossil fuel usage compared to the baseline scenario based on the use of non renewable wood in the baseline scenario for cooking/domestic purposes.	Not Required
>>			
Principle 7.2 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	No. The project activity is a installation of biogas digesters for energy generation to meet domestic requirements. Cowdung and other household waste shall be used as a feed source for the digesters. There is no use of Wood or Biomass in the project activity.	Not required
>>			
Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of	No	The project activity is installation of biogas digesters for energy generation to meet domestic	Not Required

<p>watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?</p>		<p>requirements. Individual household based biogas digesters are planned to be installed which are small in size and will not have any impact on the natural or pre-existing pattern of water courses.</p>	
<p>>></p>			
<p>Principle 8.2 Erosion and/or Water Body Instability</p>			
<p>Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion?</p>	<p>No</p>	<p>No. The risk of erosion is unlikely by the project.</p>	<p>Not Required</p>
<p>>></p>			
<p>Principle 9.1 Landscape Modification and Soil</p>			
<p>Does the Project involve the use of land and soil for production of crops or other products?</p>	<p>No</p>	<p>The project will not involve use of land and soil for production of crops or other products.</p>	<p>Not Required</p>
<p>>></p>			
<p>Principle 9.2 Vulnerability to Natural Disaster</p>			

<p>Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?</p>	<p>No</p>	<p>The project is susceptible to decreased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme conditions. Proper and regular maintenance schedule have been planned to meet any disaster.</p>	<p>Not Required</p>
<p>>></p>			
<p>Principle 9.3 Genetic Resources</p>			
<p>Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?</p>	<p>No</p>	<p>The project shall not have any impact on the genetic resources.</p>	<p>Not Required</p>
<p>>></p>			
<p>Principle 9.4 Release of pollutants</p>			

Could the Project potentially result in the release of pollutants to the environment?	No	The project activity is installation of biogas digesters for energy generation to meet domestic requirements. The project would lead to improving of indoor air pollution that occurs due to use of wood based chula's or cookstoves in the baseline.	Not Required
>>			
Principle 9.5 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?	No	The project activity is installation of biogas digesters for energy generation to meet domestic requirements. There are no hazardous waste generated due to the project. The slurry generated as part of the biodigester shall be used as fertilizer.	Not Required
>>			
Principle 9.6 Pesticides & Fertilisers			
Will the Project involve the application of pesticides and/or fertilisers?	No	The project activity is installation of biogas digesters for energy generation to meet domestic requirements.	Not Required
>>			

		There are no hazardous waste generated due to the project. The slurry generated as part of the biodigester shall be used as fertilizer.	
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	No	No, the project does not involve harvesting of forest.	Not Required
>>			
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	No. The project does not modify the quantity or nutritional quality of food available.	Not Required
>>			
Principle 9.9 Animal husbandry			
Will the Project involve animal husbandry?	No	Yes, cow dung is the main source of feed for the biodigesters. This would lead to improved sanitation and hygienic conditions of the nearby areas.	Not required
>>			

Principle 9.10 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?	No	No, the project activity is installation of biogas digesters for energy generation to meet domestic requirements which are not located in sensitive ecological zones, biodiversity conservation areas, and there are no rare and valuable plant and animal species.	Not Required
>>			
Principle 9.11 Endangered Species			
Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? AND/OR Does the Project potentially impact other areas where endangered	No	No. There were no endangered species found in the project boundary. No. The project does not impact other areas where endangered species may be present.	Not required

species may be present through transboundary affects?			
>>			

APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	First Climate Markets AG
Registration number with relevant authority	
Street/P.O. Box	Industriestrasse 10
Building	
City	Bad Vibel
State/Region	Hessen
Postcode	61118
Country	Germany
Telephone	
E-mail	
Website	
Contact person	Nikunj Agarwal
Title	Mr.
Salutation	Director – Sourcing & Portfolio Management
Last name	Agarwal
Middle name	
First name	Nikunj
Department	
Mobile	
Direct tel.	
Personal e-mail	Nikunj.Agarwal@firstclimate.com

Organization name	Green Solutions
Registration number with relevant authority	NA
Street/P.O. Box	19/1 Rajendra Nagar, St. -1.
Building	
City	Dehradun
State/Region	Uttarakhand
Postcode	248001
Country	India
Telephone	+91 9412127663
E-mail	greensolutions.mailbox@gmail.com
Website	
Contact person	Nityanand Joshi
Title	Mr.
Salutation	Director
Last name	Joshi
Middle name	
First name	Nityanand
Department	
Mobile	+91 9412127663
Direct tel.	
Personal e-mail	greensolutions.mailbox@gmail.com

APPENDIX 3- LUF ADDITIONAL INFORMATION

NA

Risk of change to the Project Area during Project Certification Period:	
Risk of change to the Project activities during Project Certification Period:	
Land-use history and current status of Project Area:	
Socio-Economic history:	
Forest management applied (past and future)	
Forest characteristics (including main tree species planted)	
Main social impacts (risks and benefits)	
Main environmental impacts (risks and benefits)	
Financial structure	
Infrastructure (roads/houses etc):	
Water bodies:	
Sites with special significance for indigenous people and local communities - resulting from the Stakeholder Consultation:	
Where indigenous people and local communities are situated:	
Where indigenous people and local communities have legal rights, customary rights or sites with special cultural, ecological, economic, religious or spiritual significance:	

APPENDIX 4-SUMMARY OF APPROVED DESIGN CHANGES

NA

Please refer to Annex A of [Principles and Requirements](#) for more information on procedures governing Design Changes

Revision History

Version	Date	Remarks
1.2	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Inclusion criteria table added Gender sensitive requirements added Prior consideration (1 yr rule) and Ongoing Financial Need added Safeguard Principles Assessment as annex and a new section to include applicable safeguards for clarity Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on Stakeholder Consultation information required Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1.0	10 July 2017	Initial adoption