Gold Standard
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TEMPLAT

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

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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

GS ID of Project	GS 11075
Title of Project	Solar water filtration units for rural areas in coastal Bangladesh
Time of First Submission Date	01/03/2021
Date of Design Certification	29/03/2022
Version number of the PDD	6.0
Completion date of version	23/01/2023
Project Developer	Value Network Ventures Advisory Services Pte. Ltd.
Project Representative	Value Network Ventures Advisory Services Pte. Ltd.
Project Participants and any communities involved	Bangladesh Bondhu Foundation
Host Country (ies)	Bangladesh
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Scale of the project activity	☐ Micro scale ☐ Small Scale ☒ Large Scale
Other Requirements applied	NA
Methodology (ies) applied and version number	TPDDTEC version 3.1 (Technology Practices to Displace Decentralized Thermal Energy Consumption)
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
Project Cycle:	☒ Regular ☐ Retroactive

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in B.6)	Estimated Annual Average	Units or Products
13 Climate Action (mandatory) 13.2 Integrate climate change measures into national policies, strategies, and planning	13.2.2 Total greenhouse gas emissions per year **Indicator:** Amount of GHGs emissions avoided or sequestered	590,307	tCO_2e per annum
15 Life on Land 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 Progress towards sustainable forest management **Indicator:** Total non-renewable fuelwood saved per year by the project	1230.78	Tonnes of wood per annum per system
SDG 8 – Decent Work and Economic Growth 8.5- By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value 8.6- By 2020, substantially reduce the proportion of youth not in employment, education or training	8.5.1 Average hourly earnings of female and male employees, by occupation, age, and persons with disabilities 8.6.1 Proportion of youth (aged 15-24 years) not in education, employment, or training **Indicator:** a. Number of jobs created (male/female) by project activity b. Number of trainings provided (filtration plant maintenance)	a. 300 (expected for the first 2 years) b. 20 training sessions	Numbers per annum

SDG 6 – Clean Water and Sanitation 6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all"	6.1.1 Proportion of population using safely managed drinking water services **Indicator:** Proportion of population using safely managed drinking water services	100.0	percentage
SDG 4 – Quality Education 4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex **Indicator:** Number of employees trained per year	200.0	number

SECTION A. DESCRIPTION OF PROJECT

A.1. Purpose and general description of project

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The purpose of the project is to reduce fuel consumption such as wood, coal etc. which is traditionally used to boil water to make it safe to drink. This is done by providing affordable and easily available treated water that is safe to drink to the low-income groups or in rural /coastal areas in Bangladesh.

According to Multiple indicator cluster survey 2019[1], In Bangladesh only 11.6% of the household population have access to piped water (table WS 1.1, page 323). Although 98.5% (table WS 1.1, page 323) of household population have access to improved source of drinking water, the survey established that percentage of household population with E. coli contamination in household drinking water is 81.9%(table WS 1.7, page 333). ~40% households (table WS 1.8, page 334) with improved water source and more than 90% households (table WS 1.8, page 323) with unimproved water source were found to have E.Coli contamination in their household drinking water. As per table WS 1.9, page 337, only 9.7% population use appropriate treatment methods of which 5% population treats drinking water by boiling. Thus, majority of population needs water treatment to make it safe for drinking. By providing safe water, the project will ensure that households avoid/or would have avoided use of firewood for boiling resulting in equivalent reduction in GHG emissions attributed with non-renewable biomass consumption.

[1] https://www.unicef.org/bangladesh/media/3281/file/Bangladesh%202019%20MICS%20Report_English.pdf

The proposed project will initiate from Bagerhat, Khulna, Barguna, Pirojpur, Gopalganj, Satkhira (6 districts) shall expand to many other districts in Bangladesh in future.

The technology distributed/installed are low-GHG water purification technologies which make the water safe by using reverse osmosis (as applicable) coupled with Ultraviolet (UV) ray treatment. The use of RO and UV renders water free from microbial contamination as well removes other suspended particulate matter (including salinity). Refer section A.3 for details.

The project also involves retrofitting of non-operational solar water filtration systems set up by the government in different coastal regions as well as installation of new water treatment systems to create a clean and safe drinking water ecosystem.

Bangladesh Bondhu Foundation (BBF) - a non-profit making, voluntary, non-governmental organization registered under the Societies Registration ACT, 1860 (Act No. XXI of 1860) of Bangladesh - will be leading this project activity. BBF was established by the initiative of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) with a view to implementing projects on sustainable energy technologies, protection of environment and mitigation and adaptation to climate change.

A.1.1. Eligibility of the project under Gold Standard

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The project meets the eligibility criteria as per section 3.1.1 of GS4GG Principles & Requirements Version 1.2 Published October 2019 and Community Service Activity Requirements Version 1.2 Published October 2019, as described below:

Eligibility under Gold Standard Principles & Requirements

As per section 3.1.1 of GS4GG Principles & Requirements Version 1.2 Published October 2019, compliance with relevant Eligibility criteria is demonstrated below:

GS Eligibility Criteria	**Remarks/Justification**
Type of project: Eligible projects shall include physical action/implementation on the ground. Pre-identified eligible project types are identified in the Eligibility Principles and Requirements section.	The project is large-scale water purification project which is an eligible project type as it is in accordance with 4.1.3. The project applies methodology TPDDTEC (Technology Practices to Displace Decentralized Thermal Energy Consumption) version 3.1, which is an approved methodology under Gold Standard for safe water supply and treatment technologies. In line with para 2.1.2 of Community Service Activity Requirements the project will lead to climate change mitigation by providing resources (safe water) at community level. In line with para 3.1.1 (d) the project falls under 'Water, sanitation and hygiene (WASH)' type.

Location of project - Projects may be located in any part of the world.	The project activity is located in Bangladesh
Project Area, Project Boundary and Scale: The Project Area and Project Boundary shall be defined. Projects may be developed at any scale although certain rules, requirements and limitations may apply under specific Activity Requirements, Impact Quantification Methodologies and Products Requirements. In order to avoid double counting the Project shall not be included in any other voluntary or compliance standards programme unless approved by Gold Standard (for example through dual certification). Also, if the Project Area overlaps with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature, the project shall demonstrate that there is no double counting of impacts at design and performance certification (for example use of similar technology or practices through which the potential arises for double counting or misestimation of impacts amongst projects).	The project area is territory of Bangladesh. The area and boundary are defined as in section A.2 and B.3 respectively. The project activity is a large-scale project activity and results in emission reduction more than 60,000 tCO_2 per annum. (Ref. ER calculation sheet.) The project activity as a whole or any single plant 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.
Host Country Requirements: Projects shall be in compliance with applicable Host Country's legal, environmental, ecological and social regulations.	The project is in compliance with the host country's (Bangladesh's) legal, environmental, ecological & social regulation. There are no objections for the implementation of these types of water filter project in the host country.
Contact Details: As part of the Project Documentation the Project Developer shall provide (i) name and (ii) contact details of all Project Participants; AND in case of an organization (iii) the legal registration details and (iv) documentation by the governing jurisdiction that proves that the entity is in good standing (defined as being a legal or other appropriate entity registered in or allowed to operate within the required jurisdiction and with no evidence of insolvency or legal/criminal notices placed against it or any of its Directors). Gold Standard retains the right (at its own discretion) to refuse use of the Standard where reputational concerns are highlighted.	Contact Details – The contact details of project developer & project participant are included under Appendix 2 of this report. Please refer Appendix 2.
Legal Ownership: Full and uncontested legal ownership of any Products that are generated under Gold Standard Certification, (for example carbon credits) shall be demonstrated. Where such ownership is transferred from project beneficiaries this must be demonstrated transparently and with full, prior and	Implementation of the proposed project if require any legal consent, shall be obtained. BBF intends to build these plants and then handover to local community groups who will manage the plants.

informed consent (FPIC). Note that for certain Project types there is a requirement for full and uncontested legal land title/tenure to be demonstrated. These are contained within specific Activity or Product Requirements. All projects shall immediately report to Gold Standard any land title/tenure disputes arising.	*Criteria for transfer of carbon credit ownership:* The PP is ensuring that its claim on ownership of credits is communicated to all project participants alike by way of the following (but not limited to): a. Including relevant provisions in the O&M agreement between local community groups and CME/VPAI b. Including relevant provisions in documents such as warranty/information cards etc. c. Including relevant provisions in the end user agreements, as applicable, having disclaimers in the mobile app etc.
Other Rights: As well as legal title and ownership, the Project Developer shall also demonstrate where required uncontested legal rights and/or permissions concerning changes in use of other resources required to service the Project (for example, access rights, water rights etc.). Any known disputes or contested rights must be declared immediately to Gold Standard by the Project Developer and resolved prior to further project implementation in affected areas.	There are no other rights involved in this 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, BBF intends to build these plants and then handover to local community groups who will manage the plants . The O&M agreement and handover documents will also include the emission attribute transfer to BBF in order for monetization of the same towards capex and O&M expenses.
Official Development Assistance (ODA) Declaration: All Project Developers applying for project activities located in a country named by the OECD Development Assistance Committee's ODA recipient list and seeking Gold Standard Certification for carbon credits shall declare the Official Development Assistance (ODA) support. The Project Developer shall follow the GHG Emissions Reduction & Sequestration Product Requirements and submit the declaration at the time of Design Certification.	PP has provided a declaration of non-use of ODA by the project owner.

Eligibility under Gold Standard Community Services Activity (CSA) Requirements

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As per section 3.1.1 of GS4GG Community Services Activity Requirements Version 1.2 Published October 2019, Eligibility criteria is defined below:

Eligibility criterion - Required condition	**Remarks/Justification**
Eligible Project Types: All CSA Projects shall lead to climate change mitigation and/or adaptation by providing or improving access to services/resources at the household or community or institution level. Eligible services include electricity and energy, water and sanitation, waste management, housing, etc.	The goal of the project is to provide access to affordable and safe drinking water to the low-income groups or in rural areas by installing water purification systems in Bangladesh.
GENERAL ELIGIBILITY CRITERIA - Type of project: **(d) Water, sanitation, and hygiene (WASH):** WASH activities contributing to climate change mitigation and/or adaptation benefits.	The Project activities involve installation of Low GHG Emission Water Purification Systems ("WPS"), which replaces energy requirements as compared to baseline scenario i.e. boiling the water for drinking purpose.
GENERAL ELIGIBILITY CRITERIA – Project Area, Boundary, and scale: 1. Project Area and Boundary shall be defined in line with the applicable Impact Quantification Methodologies and Product Requirements. 2. The definition of scale is the same for all Projects, except Microscale which is defined as: a) CSA Project issuing emission reductions less than or equal to 10,000 tCO_2eq per annum b) CSA Project seeking any Gold Standard Certified Impact or Product other than emission reductions and meeting one of the following criteria: • Installed capacity less than equal to 2 MW_{el} /6 MW_{th} that employs renewable energy as the primary technology • Energy savings at a scale of no more than 20 GWh per year where energy efficiency is the primary activity • Achieve GHG emissions reductions at a scale of no more than 20,000 tCO2eq per annum where project activity type is not included in the above two criteria. c) For the purpose of applying UNFCCC methodologies for quantification of GHG reductions, 'small scale' is defined as in CDM Modalities and Procedures for three projects types; Renewable Energy, Energy Efficiency and Others. Please refer to the GHG Emission Reductions and Sequestration Product Requirements for more information on the definition of 'small scale'.	1. The project area is point locations of WPSs installed. The project boundary is limited to the geographical boundary of Bangladesh. 2. Scale = Large 3. The VPA do not claim any product or certified impacts other than emission reductions.
GENERAL ELIGIBILITY CRITERIA – Suppressed Demand scenario:	Not applicable, default values for $W_{b,y}$ / $W_{p,y}$ shall be used and is not likely to include

Eligibility criterion - Required condition	Remarks/Justification
Certain Impact Quantification methodologies allow projects to account Suppressed Demand scenario when establishing a baseline. In such cases, the application of Suppressed Demand baseline is limited to Small Scale and Microscale Projects. Where a Suppressed Demand baseline is applied, it is not possible to 'stack' Gold Standard Certified Impact Statements or Products as the definition of the baseline may be contradictory.	suppressed demand. Thus, WPS VPAs can be large scale in such cases.
GENERAL ELIGIBILITY CRITERIA – Legal Ownership (a) Projects involving the distribution of a large number of devices for services such as heating, cooking, lighting, electricity generation, water treatment technology such as water filter, etc. shall provide a clear description of the ownership of the Products that are generated under Gold Standard Certification all along the investment chain. In line with the FPIC requirement, the proofs that end-users are aware of and willing to give up their rights on Products shall be provided. (b) The transfer of Product ownership shall be discussed during local stakeholder consultations for projects.	The projects plant will be owned by BBF. BBF intends to build these plants and then handover the O&M to local community groups to manage the plant operation and running. The project beneficiaries will receive safe drinking water from the project plants. Thus, the treatment plant ownership lies with BBF. Criteria for transfer of carbon credit ownership: The PP is ensuring that its claim on ownership of credits is communicated to all project participants alike by way of the following: a. Including relevant provisions in the O&M agreement between local community groups and CME/VPAI b. Including relevant provisions in documents such as warranty/information cards etc. c. Including relevant provisions in the end user agreements, as applicable, having disclaimers in the mobile app etc. The same was discussed during LSC and SFR for all other stakeholders including but not limited to technology producers 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.
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The entitlement of the emission reductions generated by the project shall be transferred to BBF through a signed covenant from the local community groups to whom the technology will be handed over for operation and maintenance.

A.2. Location of project

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Host Party(ies): Bangladesh
Region/State/Province: All across Bangladesh
City/Town/Community: All across Bangladesh
Physical Geographical location: The geographical location of Bangladesh is depicted by the map below[2]

The project is located within Bangladesh as can be verified from the WPS installation database. Dhaka is the national capital of Bangladesh. Bangladesh lies between 20°34' to 26°38' north latitude and between 88°01' to 92°41' east longitude.

A.3. Technologies and/or measures

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Depending on the available water source at the specific location, appropriate technology will be applied. The project typically involves community-based water purification system containing pumps, filters, overhead tank and pipelines. A desalinization plant, if required, will include a reverse osmosis process.

Technology[3]

The technology distributed/installed are low-GHG water purification technologies which make the water safe by using a combination of treatment technologies depending upon the quality of water including multi-media filter, addition of alum, activated carbon filter and chemical disinfection (chlorination). In most of the cases, these shall be sufficient to yield the water with safe drinking water. In some cases, reverse osmosis (as applicable) and/or Ultraviolet (UV) treatment may be further

[2] https://www.researchgate.net/figure/Political-Map-of-Bangladesh-Source_fig1_328717393

[3] Other models may be added during the course of the crediting period, provided they meet the eligibility criteria for inclusion. This shall not be construed as a design change.

applied, as deemed appropriate, to achieve desired output quality (safe water). The use of these treatment technologies renders water free from microbial contamination as well removes other suspended particulate matter (including salinity).

A typical project plant involves a battery bank installed with solar panel to run the plant. The solar panels charge the battery and provide power supply to motor pumps and other parts of the system.

The raw water is filtered in through a staged mechanism

1) Pre-treatment section (multi-media filter, addition of alum, activated carbon filter)
2) Chemical disinfection (chlorination)
3) Post treatment (Reverse Osmosis / UV Treatment) (optional, as needed)

Pre-treatment:
The raw water is pumped to the pre-treatment section which consists of Multimedia Filter, sedimentation chamber and Activated Carbon Filter. The multimedia filter reduces the level of turbidity of water by decreasing the flow rate into trickle pace. The water is treated with Alum (Aluminium Sulphate) in the sedimentation chamber to remove suspended particulate matters and then treated with activated carbon filter to reduce organic compounds and other soluble particles to remove taste and odour.

Chemical Disinfection:
After pre-treatment, to remove the microbial contamination from the water, chemical disinfection(chlorination) is used. Chlorination has been proven to be very effective against bacteria and viruses and makes water safe for drinking. Also, chlorination provide "residual disinfectant" levels that prevent microbial re-growth and help protect treated water throughout the distribution system.

However, in some cases where water is saline or there is excess iron, arsenic etc. in water then post treatment is used.

Post Treatment:
In post treatment, salinity of water or excess iron, arsenic present in the water are removed using RO membranes. Also in some cases, before water distribution, to disinfect and destroy bacteria and viruses, water is treated through Ultraviolet (UV) disinfection.

Management System and Plant Maintenances:
Management Committees (MC) will be formed which support BBF since initial stages of planning, site selection, selection of route for pipeline and installation of systems. The MC will likely include local government representatives (Union Parishads), representatives of beneficiaries, local elites like schoolteachers, public health, upazila administration, etc. The project system will be handed over to the MC, who will be responsible for management of the assigned system. MC may appoint a caretaker, to operate and maintain the system. Expenses including salary of the caretaker, operation, maintenance and repairing will be covered by the cumulative contribution of the beneficiaries and parts of the carbon revenue.

Overall objectives:

- Supply safe drinking water to fresh-water scarce communities and people,

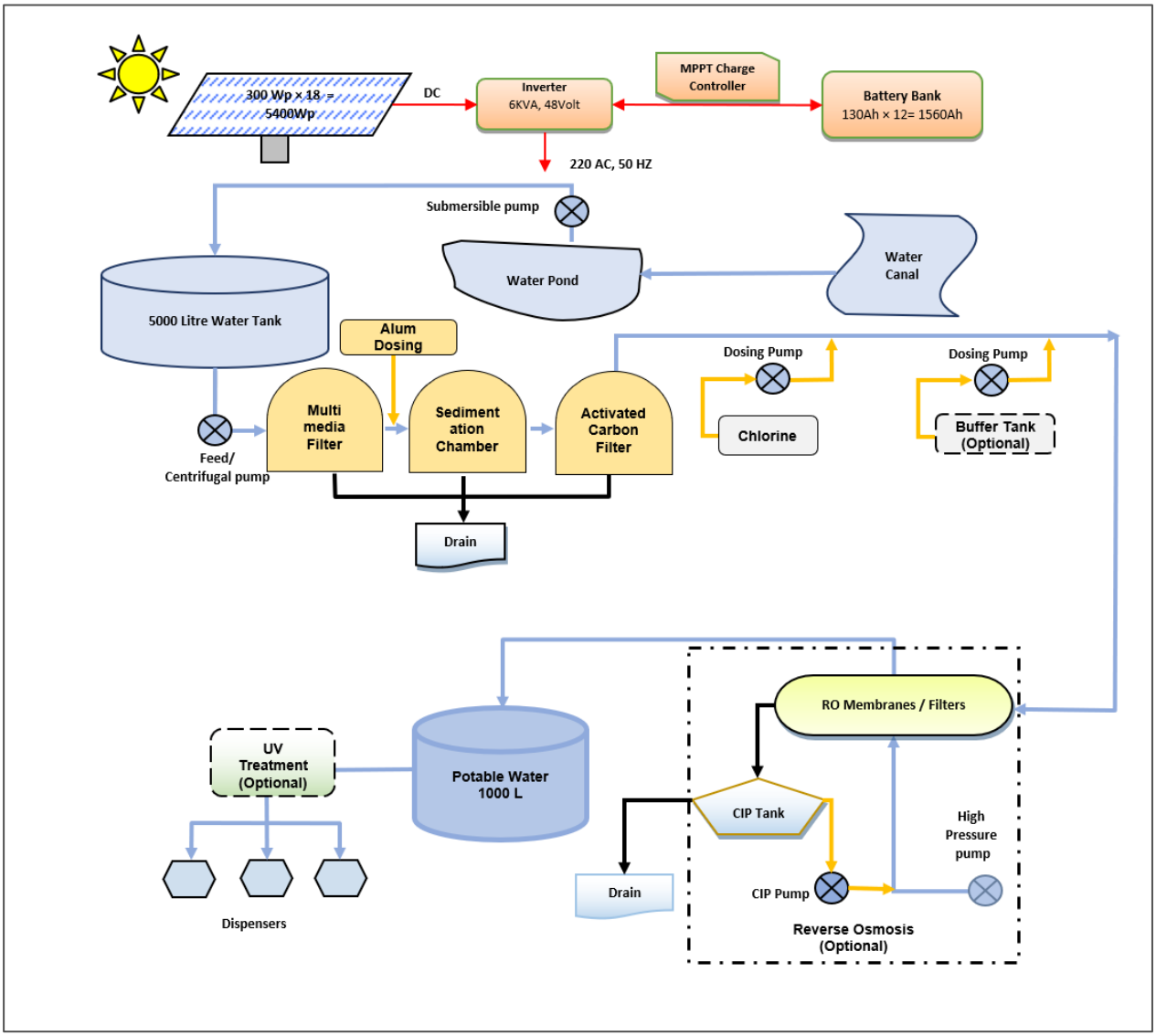
- Reduce vulnerability to climate change by introducing climate resilient drinking water infrastructure, and
- Introduce low carbon and climate change resilient development pathways.

Specific objectives:
- Improve access to safe drinking water,
- Establish drinking water infrastructure resilient to disaster and climate change,
- Improve public health through reduction of water borne and saline water related diseases,
- Reduce burden of carrying water, especially for women and children,
- Enable children to go to school regularly (they spend significant amount of time to carry water),
- Enhance technical and managerial capacities of local community and private organizations.
- Enhance knowledge base and capacity on mitigation and adaptation to climate change, and

Technical Specifications:
The project systems can reach upto 30,000 litres per day of Water purification capacity. The technical lifetime of the systems, however, is not deemed constrained. The most critical components of the project systems are comprised of consumables (multimedia filter, activated carbon filter, RO membrane and UV bulb). These can be replaced as and when required, and the systems can continue to operate as long as needed with a maintenance plan in place. An example project system[4] is shown below:

1. Solar Panel Capacity: 300 Wp×18=5400Wp=5.4KWp, Warranty 20 Years
2. Inverter: 6KVA, 48Volt, Warranty 5 years
3. Battery Capacity: 130Ah×12=1560Ah, 48 volt, Warranty 5 years
4. Feed/Centrifugal Pump Capacity: 1.1KW

[4] This is merely indicative and is deemed non-binding. In most of the cases, the use of multi-media filter, activated carbon filter and the chemical disinfection (dosing) shall be sufficient to yield safe water. In some cases, reverse osmosis (as applicable) and/or Ultraviolet (UV) treatment may be further applied as deemed appropriate to achieve desired output quality (safe water). For example, cases where water salinity /arsenic contamination is not a concern, RO systems may not be installed. Other types of treatment systems may also be included in the project provided they comply with the methodology requirements. Variations from the listed specifications, shall not be construed as design change.



A.4. Scale of the project

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The project activity is a large-scale project activity. Project activity involves safe water supply technology and results in emission reduction more than 60,000 tCO2 per annum. (Ref. ER calculation sheet.)

A.5. Funding sources of project

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The project activity does not receive any public funding from Annex I countries and diversion of official development assistance (ODA) is not involved in the project activity. Please refer ODA declaration form.

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

B.1. Reference of approved methodology (ies)

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The following approved Gold Standard Foundation baseline and monitoring methodology is applied to the project activity:

Title: Voluntary Gold Standard methodology: **"Technologies and Practices to Displace Decentralized Thermal Energy Consumption"** Version 3.1, August 2017. In this document, this is also referred to at the 'TPDDTEC Methodology'.

Reference: Gold Standard Website:

https://globalgoals.goldstandard.org/407-ee-ics-technologies-and-practices-to-displace-decentrilized-thermal-energy-tpddtec-consumption/

B.2. Applicability of methodology (ies)

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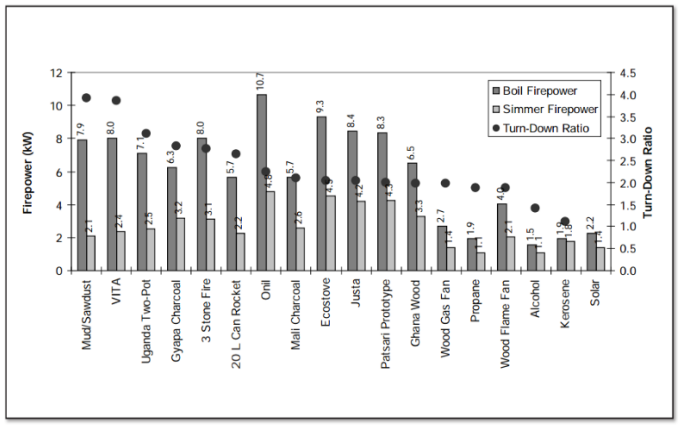
The project applied methodology "Technologies and Practices to Displace Decentralized Thermal Energy Consumption, version 3.1,25/08/2017".

Applied Methodology Applicability Criteria	**Justification**
This methodology is applicable to programmes or activities introducing technologies and/or practices that reduce or displace greenhouse gas (GHG) emissions from the thermal energy consumption of households and non-domestic premises. a) Examples of these technologies include the introduction of improved biomass or fossil fuel cookstoves, ovens, dryers, space and water heaters (solar and otherwise), heat retention cookers, solar cookers, bio-digesters, safe water supply and treatment technologies that displace the boiling of water, thermal insulation in cold climates, etc. b) Examples of practices include the improved application of such technologies, a shift from non-renewable to renewable fuel (e.g., shift to plant oil fired stoves), humidity control through improved storage and drying of fuels, etc. Project activities that claim emission reductions from improved practices only (e.g., there is no installation of improved devices) are expected to provide a detailed discussion of the chosen monitoring approach	a) The Project activities involves installation of Low GHG Emission Water Purification Systems (technology) in local communities and rural areas in Bangladesh with a plan to expand in other regions subsequently. b) The PoA involves installation of Water purification systems and hence is not limited to introduction of improved practices alone. Hence, this is not applicable.

so as to demonstrate that emission reductions do indeed result from the practices introduced by the project activity.	
Shifts in technology may occur in a gradual manner and adoption can increase over the project period. The project activity is implemented by a project proponent and can include additional project participants. The individual households and institutions do not act as project participants.	"VNV Advisory Services Pte. Ltd." is the project developer and "BBF" is the project participant. The target users of the project are households of the local communities where systems are being installed. The individual household or local communities will not act as project participants.
The project boundary needs to be clearly identified, and the technologies counted in the project are not included in any other voluntary market or CDM project activity (i.e., no double counting takes place). In some cases, there 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 defined as the location of project water purification systems (WPS) installed used in Bangladesh. There PP confirms that this project is not a part of any other project neither the region has similar other projects. Besides, PP maintains a log of all project WPS installed under the project to uniquely associate them with the project.
The technologies each have continuous useful energy outputs of less than 150kW per unit (defined as the total useful energy delivered from start to end of operation of a unit divided by time of operation). For technologies or 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.	The baseline technology are traditional / 3 stone fires to boil water. The thermal capacity of traditional / 3 stone fires is deemed much lower than 150kW, being highly inefficient. Table shown below substantiate that traditional/3 stone fire stoves produce energy outputs of well below 150kW: around kW on average: 
Using the baseline technology as a backup or auxiliary technology in parallel with the improved	It is possible that baseline technologies are still used in the project activity. Any raw water boiled after Project Intervention is deemed

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.	outside the purview of ER calculations as VERs being claimed in the project is a function of water treated by the project technology directly. Further, the monitoring surveys shall collect information if any of the treated water is being boiled ex-post and emission reductions shall be accounted accordingly. Lastly, The ER calculation approach ensures that VERs are limited by the available treatment capacity of the project technology i.e., VERs claimed is a function of minimum of the Available treatment capacity and total quantity of treated water deemed consumed, hence there is no risk of over claim on account of any baseline device use for boiling raw water.
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. If the claimants are not the project technology end users, the end users will need to be informed and notified that they cannot claim for emission reductions from the project.	"BBF" (Project Participant) has full and uncontested legal ownership of GS VERs (SDG 13) that are generated from use of products distributed under the project (VERs rights). Also, the PP is ensuring that its claim on ownership of credits is communicated to all project participants alike by way of the following: a. Including relevant provisions in the O&M agreement between local community groups and CME/VPAI b. Including relevant provisions in documents such as warranty / information cards etc. c. Including relevant provisions in the end user agreements, as applicable, having disclaimers in the mobile app etc. This was also discussed during LSC and SFR for all other stakeholders including but not limited to technology producers etc.
Project activities making use of a new biomass feedstock in the project situation (e.g., shift from non-renewable to green charcoal, plant oil or renewable biomass briquettes) must comply with relevant Gold Standard specific requirements for biomass related project activities, as defined in the latest version of the Gold Standard rules. If the biomass feedstock is sourced from a	No new biomass feedstock usage is envisaged in the project activity.

dedicated plantation, the criteria must apply to both plantations established for the project activity AND existing plantations that were established in the context of other activities but will supply biomass feedstock.	
Adequate evidence is supplied to demonstrate that indoor air pollution (IAP) levels are not worsened compared to the baseline, and greenhouse gases (as listed in section 2.1) emitted by the project fuel/stove combination are estimated with adequate precision. The project fuel/stove combination may include instances in which the project stove is a baseline stove.	Not applicable, as the Project activities involves installation of Low GHG Emission Water Purification Systems (technology)
Records of renewable fuel sales may not be used as sole parameters for emission reduction calculation, but may be used as data informing the equations in section 2.0 of this methodology if correlated to data on distribution and results of field tests and surveys confirming (a) actual use of the renewable fuel and usage patterns such as average fraction of non-renewable fuels used in mixed combustion or seasonal variation of fuel types, (b) GHG emissions, (c) evidence of CO levels not deteriorating (d) any further factors effecting emission reductions significantly.	Not applicable, as the Project activities involves installation of Low GHG Emission Water Purification Systems (technology)

Applicability Criteria as available in the Annex 3 (Application of the methodology to safe water supply project) of the applied methodology.

The following conditions apply to VPAs under this methodology:

Applied Methodology Applicability Criteria	**Justification**
The methodology is for project technologies and practices that introduce a new technology for safe water, instead of boiling water as a purification technique. Technologies include gravity household water filters, borehole pumps (not fossil fuel-driven) and their repair/maintenance/operation,	The Project activities involves distribution of Low GHG Emission Water Purification Systems ("WPS").

ultraviolet radiation treatment, chlorine tablets, etc.	
Safe water is defined as water, which is both clean and consumed hygienically. Hygienic consumption should be assessed following the guidelines provided in the methodology below.	Each system will achieve water quality defined in a relevant national standard or guidelines as of drinking water quality or WHO's "Evaluating household water treatment options: Health based targets and microbiological performance specifications". To ensure that water is consumed hygienically, PP will carry out ex-post hygiene campaigns among the project technology users to make them aware of the important hygiene practices and health benefit associated with it.
This methodology allows for project activities to include safe water supply technologies implemented in households, commercial premises e.g., shops and institutional premises e.g., schools, prisons, army camps, refugee camps, offices, etc.	Project activities includes safe water supply technologies implemented in the community supplying water to households.
Special attention is required as to the level of GHG emissions arising from production, transport, installation and delivery of the clean water supply or treatment options. This is applicable to all technologies encompassed within this methodology. Whenever such emissions are expected to be material (5% or more of the overall emissions), these must be accounted for in the project situation as part of the project emissions. In the baseline situation, the project proponent has the option to take them into account, or to neglect them altogether (as this latter case implies a conservative result).	No significant Emission arising from production, transport, installation and delivery of the clean water supply or treatment options are envisaged in the project. The systems are solar powered and hence are zero emission technology.
The water in its improved form should be available within 1 km walking / pedalling distance from the households. There is a two-year grace period (from date of registration) for any households falling outside of this distance, however once this period is over these households would not be included in the emission reduction calculation.	Not applicable, as the water distribution is available within 1 km walking / pedalling distance from the households. In this project, end users carry clean water from project system output points in jerry cans, which they then use at home over the next few days. Once the water runs out, they can return, and refill jerry can.
Only end users that boil water or are currently using unsafe water are eligible for crediting. The baseline scenario is the existing practice of boiling water using high emission fuels including non-	Approximately 81% population in Bangladesh uses solid fuel for cooking, with 39.5% of population relying on wood as their primary fuel. (Table

renewable biomass and fossil fuels to treat it for consumption. The type of fuel and technology being used shall be determined by carrying out the baseline survey. Suppressed demand can be applied in instances where inadequate safe water is available or where treatment is not practiced.	TC.3.2, page 184, MICS dated December 2019). Further, as per MICS dated December 2019(Table TC.3.1, page 182), percentage of population with primary reliance on traditional solid fuel stove/three stone/open fire is ~81%. Also, as per IEA, World Energy Outlook-2019, based on WHO Household Energy Database and IEA World Energy Balances 2019, Population without access to clean cooking is 135.2 million which amounts to 83.78% (=135.2/161.36) of the total population of Bangladesh. Out of the 135.2 million population without access to clean cooking, 133.5 million rely on traditional (inefficient) use of biomass. This substantiates that the population using solid biomass fuel is primarily relying on traditional / three stone / open fire for meeting their water boiling. According to Multiple indicator cluster survey 2019[5], In Bangladesh only 11.6% of the household population have access to piped water (table WS 1.1, page 323). Although 98.5% (table WS 1.1, page 323) of household population have access to improved source of drinking water, the survey established that percentage of household population with E. coli contamination in household drinking water is 81.9% (table WS 1.7, page 333). ~40% households (table WS 1.8, page 334) with improved water source and more than 90% households (table WS 1.8, page 323) with unimproved water source were found to have E.Coli contamination in their household drinking water. As per table WS 1.9, page 337, only 9.7% population use appropriate treatment methods of which 5% population treats drinking

[5] https://www.unicef.org/bangladesh/media/3281/file/Bangladesh%202019%20MICS%20Report_English.pdf

	water by boiling. Thus, majority of population needs water treatment to make it safe for drinking.

B.3. Project boundary

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The requirements apply to boundary of the project under this methodology:

a) The project boundary is the physical, geographical sites of the project technologies and potentially of the baseline and project fuel collection and production (e.g., charcoal), as well as solid waste and effluents disposal or treatment facilities associated with the fuel processing.
   - The project boundary is the location where the project water purification systems are physically located, and the fuel collection and production points, which is wood, or charcoal produced or collected in the areas surrounding the project water purification system.

b) The region(s) or town(s) within a single country define the target area. The target area provides an outer limit to the project boundary in which the project has a target population.
   - The target area is defined in Section A.2 above, which corresponds to the geographical borders of Bangladesh.

c) In cases where woody biomass (including charcoal) is the baseline fuel or where the project activity introduces the use of a new biomass feedstock into the project situation, the fuel production and collection area is the area within which this woody or new biomass is produced, collected, and supplied.

   - The fuel is expected to be sourced from within the project boundary or target area. The project does not involve introduction of new biomass feedstock

Source		GHGs	Included?	Justification/Explanation
Baselin	Source 1 - Heat delivery from stoves used for boiling water	CO_2	Yes	Important source of emissions
		CH_4	Yes	Minor source of emissions
		N_2O	Yes	Minor source of emissions
Project	Source 1 - Heat delivery from stoves used for boiling water	CO_2	Yes	Important source of emissions
		CH_4	Yes	Minor source of emissions
		N_2O	Yes	Minor source of emissions

B.4. Establishment and description of baseline scenario

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Drinking water is an acute problem in the coastal region of Bangladesh. The reasons behind are the lack of fresh-water aquifers, intrusion of saline water and damage of limited freshwater aquifers, damage of surface water reservoirs by cyclones. There are also other factors such as water logging, increase of water demand for domestic use and irrigation, increased depth of water table, shrimp farming and the consequent intrusion of brackish water far inside the coast which seriously affects ground water. People have no choice but to consume unsafe / saline water or carry water from distant places, which is done mostly by women and children. The number

of cases of waterborne as well as heart and skin diseases are increasing. Solving this drinking water problem is an urgent need.

The objectives of the 'National Policy for Safe Water Supply and Sanitation' are to improve the standard of public health and to ensure improved environment. For achieving these objectives, Increasing the present coverage of safe drinking water in rural areas, and making safe drinking water available to each household in the urban areas are major goals stated in the policy.

National water policy,1999 emphasised on ensuring the availability of potable water to all level people of the society emphasizing on women and children", as one of its main objectives.

Even though there are policy and framework in place in Bangladesh related to safe water drinking, the situation of access to safe drinking water remains largely unaddressed. According to Multiple indicator cluster survey 2019[6], In Bangladesh only 11.6% of the household population have access to piped water (table WS 1.1, page 323). Although 98.5% (table WS 1.1, page 323) of household population have access to improved source of drinking water, the survey established that percentage of household population with E. coli contamination in household drinking water is 81.9%(table WS 1.7, page 333). ~40% households (table WS 1.8, page 334) with improved water source and more than 90% households (table WS 1.8, page 323) with unimproved water source were found to have E.Coli contamination in their household drinking water. As per table WS 1.9, page 337, only 9.7% population use appropriate treatment methods of which 5% population treats drinking water by boiling.

The people targeted by the project activity lead economically challenged lives with meagre earnings, and therefore are deprived of reasonable level of human development: they have no access to safe drinking water because the local administration is unable to provide them with piped clean water and other water treatments like filters are beyond their financial reach.

Therefore, the only affordable and effective way to treat the water is to boil it over traditional stoves. The project activity fills this gap by providing affordable safe drinking water to the local population. By providing safe water, the project will ensure that households avoid/or would have avoided, use of non-renewable biomass for boiling resulting in equivalent reduction in GHG emissions attributed with non-renewable biomass consumption.

Water boiling and cooking practices

In order to determine the baseline emissions for the project, two pieces of information are needed:

1. **The type of boiling equipment**, which usually coincides with the cook stove used by households. Approximately 81% population in Bangladesh uses solid fuel for cooking, with 39.5% of population relying on wood as their primary fuel. (Table TC.3.2, page 184, MICS dated December 2019). Further, as per MICS dated

[6] https://www.unicef.org/bangladesh/media/3281/file/Bangladesh%202019%20MICS%20Report_English.pdf

December 2019(Table TC.3.1, page 182), percentage of population with primary reliance on traditional solid fuel stove/three stone/open fire is ~81%. Also, as per IEA, World Energy Outlook-2019, based on WHO Household Energy Database and IEA World Energy Balances 2019, Population without access to clean cooking is 135.2 million which amounts to 83.78% (=135.2/161.36) of the total population of Bangladesh. Out of the 135.2 million population without access to clean cooking, 133.5 million rely on traditional (inefficient) use of biomass.
This above information helps to estimate the parameter $W_{b,y}$ (Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario). $W_{b,y}$ is being considered as 0.4kg/ltr as default value as per rule update, given significant prevalence of traditional / 3 stone fire cooking in the host country.

2. **The type of fuel used**, based on aforesaid, the following have been applied considering woodfuel as the most plausible baseline fuel:
   a. $NCV_{b,fuel}$ (Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.0156 TJ/ton)
   b. $EF_{b,fuel,CO2}$ (CO_2 emissions factor of the fuel that it substituted or reduced. 112 tCO_2/TJ for Wood/Wood waste, or the IPCC default value of the relevant fuel)
   c. $EF_{b,fuel,nonCO2}$ (Non-CO_2 emissions factor of the fuel that is substituted or reduced. 9.46 tCO_2/TJ for Wood/Wood waste, or the IPCC default value of the relevant fuel)

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).	Community Services Activity Requirements (Version 1.2), paragraph 4.1.9: "Projects that meet any of the following criteria are considered as deemed additional and therefore are not required to prove Financial Additionality at the time of Design Certification: (a) Positive list (Annex B) (b) Projects located in LDC, SIDS, LLDC (c) Micro-scale projects"
Describe how the proposed project meets the criteria for deemed additionality.	This project is deemed additional under (b) Projects located in LDC, SIDS, LLDC. The project meets the criteria given as Bangladesh is an LDC (i.e. Least developing country[7]) Please refer https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/ldc_list.pdf.

B.5.1. Prior Consideration

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This is a regular project activity. Hence prior consideration is not required.

[7] https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/ldc_list.pdf

B.5.2. Ongoing Financial Need
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As described under section B.5 the project is deemed additional as per Community services Activity requirements (Version 1.2), paragraph 4.1.9.(b) Projects located in LDC, SIDS, LLDC, "Projects that meet any of the following criteria are considered as deemed additional and therefore are not required to prove Financial Additionality at the time of Design Certification.

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)
13 Climate Action (mandatory)	13.2 Integrate climate change measures into national policies, strategies, and planning	13.2.2 Total greenhouse gas emissions per year
15 Life on Land	15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 Progress towards sustainable forest management
SDG 8 – Descent Work and Economic Growth	8.5- By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	8.5.1 Average hourly earnings of female and male employees, by occupation, age, and persons with disabilities 8.6.1 Proportion of youth (aged 15-24 years) not in education, employment, or training
SDG 6 – Clean Water and Sanitation	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all"	6.1.1 Proportion of population using safely managed drinking water services
SDG 4 – Quality Education	4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex

B.6.1. Explanation of methodological choices/approaches for estimating the SDG Impact
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SDG Goal	Methodological choices/approaches for estimating the SDG outcome
SDG 6 –Clean Water and Sanitation:	**Measurement Method:** - Amount of water purified and supplied to the stakeholders is monitored. **QA/QC Process:** This parameter is monitored continuously.
SDG 4 – Quality Education	**Measurement Method: -** Number of employees trained is monitored through records. **QA/QC Process:** This parameter is based on records, data and not any QA/QC procedure required. The DOE can confirm this parameter with interview with PP or Site in-charge or employees for training and employment generation.
SDG 8 – Descent Work and Economic Growth: Promote inclusive and sustainable economic growth, employment and decent work for all	**Measurement Method:** - Employment generation is monitored through records; staff register and no. of trainings provided to the staff. **QA/QC Process:** This parameter is based on records, data and not any QA/QC procedure required. The DOE can confirm this parameter with interview with PP or Site in-charge or employees for training and employment generation.
15 Life on Land	**Measurement method:** Progress towards sustainable forest management (Total non-renewable fuelwood saved per year by the project) **QA/QC Process:** This parameter is monitored during project survey.
SDG 13 – Climate Action: Take urgent action to combat climate change and its impacts	**Measurement Method:** - The emission reduction parameter is calculated as Amount of water purified and supplied. **QA/QC Process:** This parameter is calculated, and not any QA/QC procedure required.

Emission Reductions

$Q_{p,rawboil,y}$ has been deemed same in the baseline and project scenarios and hence is not included in the emission reduction calculations.

$W_{b,y}$ has been considered equal to $W_{p,y}$ as a conservative measure given project scenario is likely to use same or better technologies for boiling water compared to baseline.

Suppressed demand has not been considered in baseline scenario the project being large scale. Hence X_{boil} has not been considered as it is only applicable in case of suppressed demand as specified on page 45 of the methodology.

The emission reductions are calculated by using the model described in the Voluntary Gold Standard methodology: *"Technologies and Practices to Displace Decentralized Thermal Energy Consumption"* Version 3.1, August 2017. More specifically, the model equations are described explicitly in the *"Annex 3: Application of the methodology to safe water supply project scenarios"*.

The overall GHG reductions are calculated as follows:

$$ER_y = (\Sigma BE_{b,y} - \Sigma PE_{p,y}) * U_{p,y} - \Sigma LE_{p,y} \quad (13)$$

Where the baseline emissions $BE_{b,y}$ and the project emissions $PE_{p,y}$ are given by

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

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

Where:

$BE_{b,y}$: Emissions for baseline scenario b during the year y in tCO2e

$B_{b,y}$: Quantity of fuel consumed in baseline scenario b during year y, in tons, as per by-default factors

$f_{NRB,y}$: Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass

$NCV_{b,fuel}$: Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.0156TJ/ton)

$EF_{b,fuel,CO2}$: CO_2 emissions factor of the fuel that it substituted or reduced. 112 tCO_2/TJ for Wood/Wood waste, or the IPCC default value of the relevant fuel

$EF_{b,fuel,nonCO2}$: Non-CO_2 emissions factor of the fuel that is substituted or reduced. 9.46 tCO_2/TJ for Wood/Wood waste, or the IPCC default value of the relevant fuel

$U_{p,y}$: Cumulative usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate.

Baseline Scenario Fuel Consumption Calculations

Fuel consumption is "back-calculated" by multiplying the safe water consumption of end users observed in the project scenario by the amount of fuel required to boil a specific quantity of water. The general formula proposed in the GS methodology is:

$B_{b,y}$ = Number of person-days * Total Safe Water consumed in project scenario (L/p/d) * Baseline Fuel used to Treat Water (T/L)

$B_{b,y} = (1-X_{boil}) * (1 - C_j) * N_{j,y} * W_{b,y} * (Q_{p,y} + Q_{p,rawboil,y})$ (11)

Assumptions:

$Q_{p,rawboil,y}$ has been deemed same in the baseline and project scenarios and hence is not included in the emission reduction calculations.

X_{boil} has not been considered as it is only applicable in case of suppressed demand.

Revised equation as a result of the above methodological choices / assumptions:

$B_{b,y} = [(1-C_j) * QPW_y[8]] * W_{b,y}$ 11(a)

Where:

QPW_y : Quantity of safe drinking water consumed in year y

C_j : Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it

[8] QPW_y is a function of $N_{p,y}$ and $Q_{p,y}$ as explained below in 11(b).

$W_{b,y}$: Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b during project year y, as per Baseline Water Boiling Test

The following approach will be used for determining water consumption (QPW_y):

QPW_y =Minimum {($\sum_{i=1}^{n}$ Number of person serviced by system i * $Q_{p,y,capped}$ * 346.75[9]),
($\sum_{i=1}^{n}$ Total treatement capacity of system i /day * 346.75),
($\sum_{i=1}^{n}$ Monitored water supplied by project system i)} 11(b)

Where,

$N_{p,y}$: Number of person-days consuming water supplied by project scenario p through year y ($\sum_{i=1}^{n}$ Number of person serviced by system i * 346.75).

$Q_{p,y,capped}$: Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day (7 ltr/person/day cap from methodology).

Project Scenario Fuel Consumption Calculation

The fuel emissions at the point of use in the project are zero. The reason is that the water does not need to be treated, for example by boiling. The formulas below derive this formally by adopting the model used in the GS Methodology.

$B_{p,y}$ = Number of person-days * Total volume of water boiled in project scenario (L/p/d) * Project Fuel used to boil water (T/L)

$B_{p,y} = [(1-C_j) * N_{p,y} * (Q_{p,cleanboil,y})] * W_{p,y}$

Where:

$B_{p,y}$: Quantity of fuel consumed in project scenario p during the year y in tons

$Q_{p,cleanboil,y}$: Quantity of safe water boiled in the project scenario p per person per day

$W_{p,y}$: Quantity of wood fuel or fossil fuel in tons required to treat 1 litre of water per day using technologies representative of the project scenario p during project year y

Ex-ante estimated $Q_{p,cleanboil,y}$ = 0. As a result $B_{p,y}$ = 0 and it follows that the project emissions $PE_{p,y}$ = 0. However, ex-post $Q_{p,cleanboil,y}$ shall be monitored (in terms of ltr/person/day or expressed as a % of treated water consumption in the sampled households) and accordingly project emissions shall be calculated.

Cumulative usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate ($U_{p,y}$)

The usage rate shall be determined as number of operational systems under the project.

Leakage (LE_y)

[9] This is considering full year (with 5% discount for maintenance). In case of monitoring period shorter than an year, this shall be pro-rated.

The project proponent has investigated the following potential sources of leakage:

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.

There will be no displaced baseline technology as households will continue to cook using the cook stoves they own. Therefore, there will be no leakage impact to consider for this point.

b) Non-project users who previously used lower emitting energy sources use the non-renewable biomass or fossil fuels saved under the project activity.

The volume of water treated by boiling in the baseline consumes a fractional portion of the biomass used by families. Biomass is currently non-renewable and expensive for families. It is highly unlikely that any biomass saved by the project activity will significantly reduce biomass costs outside the project boundary. Therefore, the project proponent assigns a value of 0 to this leakage parameter.

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

The small size of the project is unlikely to have a significant impact on the NRB fraction. Therefore, the leakage arising from significantly impacting NRB is considered null.

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.

In Bangladesh households rarely, if ever, use stoves for heating as the temperature is rarely below 20 °C all year long. Therefore, it is unlikely that the project activity will result in increased use of biomass for space heating effects. Thus, the project proponent assigns a value of 0 to this leakage parameter.

e) By virtue of promotion and marketing of a new technology with high efficiency, the project stimulates substitution within households who commonly used technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline.

This leakage parameter is not applicable in this project, where the activity is provisioning of a water treatment system. The project proponent will not be involved in promoting any particular stove or fuel type. Therefore, the project proponent assigns a value of 0 to this leakage parameter.

f) Other sources of leakage:

- The water is purified using renewable source of solar energy, hence no leakage shall be there.

Thus, based on aforesaid, no leakage is envisaged in the project. Leakage assessment will be conducted once every two years.

B.6.2. Data and parameters fixed ex ante

SDG13

Data/parameter	$W_{b,y}/W_{p,y}$
Unit	Tonnes/litre

Description	Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b
Source of data	Default value for woody biomass from "Application of TPDDTEC methodology to safe water supply projects" Dated – 03/05/2021
Value(s) applied	0.0004 Tonnes/litre for woody biomass
Choice of data or Measurement methods and procedures	Default value from the GS
Purpose of data	Calculations of emission reductions
Additional comment	-

Data/parameter	$EF_{b,wood,CO2}$ / $EF_{p,wood,CO2}$
Unit	tCO2/TJ
Description	CO2 emission factor arising from use of fuels in baseline/project scenario
Source of data	IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Energy, Chapter 2, Stationary Combustion, Table 2.5 [10]
Value(s) applied	112
Choice of data or Measurement methods and procedures	Determined as per IPCC default figures
Purpose of data	Calculation of baseline emission
Additional comment	

Data/parameter	$EF_{b,wood,nonCO2}$ / $EF_{p,wood,nonCO2}$
Unit	tCO2e/TJ
Description	Non-CO2 emission factor arising from use of fuels in baseline/project scenario
Source of data	IPCC defaults For wood and charcoal, the following defaults derived from the IPCC shall be applied: AR5 GWP
Value(s) applied	9.46
Choice of data or Measurement methods and procedures	Determined as per IPCC default figures
Purpose of data	Calculation of emission reduction
Additional comment	

[10] http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf

Data/parameter	$NCV_{b,wood}$ / $NCV_{p,wood}$
Unit	TJ/ton
Description	Net calorific value of the fuels used in baseline/ project scenario
Source of data	TPDDTEC methodology ver 3.1, IPCC default value for wood fuel
Value(s) applied	0.0156
Choice of data or Measurement methods and procedures	IPCC default value
Purpose of data	Calculation of emission reduction
Additional comment	-

Data/parameter	$f_{NRB,i,y}$
Unit	Fractional non-renewability
Description	Non-renewability of woody biomass fuel during year y
Source of data	Calculated using the fNRB formula recommended by the TPDDTEC. See ER calculation sheet (NRB FRA 2015)
Value(s) applied	0.843
Choice of data or Measurement methods and procedures\	Fixed for a given crediting period. As per the CDM "TOOL30: Calculation of the fraction of non-renewable biomass"
Purpose of data	tCO_2 reduction calculation
Additional comment	

Data/parameter	Cj
Unit	Percentage
Description	Portion of users of project technology who were already in baseline consuming safe water without boiling it
Source of data	Bangladesh Multiple Indicator Cluster Survey 201911
Value(s) applied	Bangladesh Multiple Indicator Cluster Survey 2019, "Household water treatment" shows in Table WS1.9 on

[11] Bangladesh Multiple Indicator Cluster Survey 2019, Table WS.1.9, page 337

	Page 337, that 6.6% of total population use some form of non-boiling effective water treatment (Bleach/Chlorine added 0.4%, use water filter 6.1%,other 0.1%). C_j = 6.1+0.4+0.1=6.6 C_j = 6.6%
Choice of data or Measurement methods and procedures	Ex-ante values from Bangladesh Multiple Indicator Cluster Survey 2019, (MICS), is representative of the population within the national project boundary of Uganda. MICS study was designed to be representative of the national population of Bangladesh, which is the same as the target population of this project (Bangladesh) When applying MICS data, the PP shall also provide evidence to substantiate that households do not have access to safe water from a piped source households using piped water shall demonstrate that the water quality is not safe. Any pipe connected house found to have safe water shall be excluded from crediting for the year in which it was found to have received safe water.
Purpose of data	Determination of baseline emissions
Additional comment	-

Data / Parameter	$Q_{p,y,capped}$
Unit	Litres per person per day
Description	Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day
Source of data	Methodology, section A.3.2, page 48-49
Value(s) applied	7 for households and full-time premises 5.5 for half time premises
Choice of data or Measurement methods and procedures	The project involves direct measurement of quantity of treated water supplied by project systems. As a cross check measure, it shall be ensured that the amount of water treated does not exceeds the capped water consumption/person/day * number of persons served * day of operation (346.75 per year)
Purpose of data	Emission reduction calculations
Additional comment	For cross checking QPW_y

B.6.3. Ex ante estimation of SDG Impact

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This section brings together sections B.6.1 and B.6.2 by populating the equations with the estimated values of the parameters. The equations are ordered such that the earlier equations are components of the ones appearing below, thus culminating with the last equation which calculates the total emission reductions in a given year.

$B_{b,y} = (1-C_j) * QPW_y * W_{b,y}$ 11(a)
$B_{b,y} = (1-6.6\%) * QPW_y * W_{b,y}$
$= (1-6.6\%) * QPW_y * 0.0004$

$BE_{b,y} = B_{b,y} * ((f_{NRB,b,y} * EF_{b,fuel,CO2}) + EF_{b,fuel,nonCO2}) * NCV_{b,fuel}$
$= (1-6.6\%) * QPW_y * 0.0004 * ((0.843 * 112) + 9.46) * 0.0156$

$B_{p,y} = [(1-C_j) * N_{p,y} * (Q_{p,cleanboil,y})] * W_{p,y}$
$= 0$

$PE_{p,y} = B_{p,y} * ((f_{NRB,p,y} * EF_{p,fuel,CO2}) + EF_{p,fuelnonCO2}) * NCV_{p,fuel}$
$= 0 * ((f_{NRB,p,y} * EF_{p,fuel,CO2}) + EF_{p,fuelnonCO2}) * NCV_{p,fuel} = 0$
$U_{p,y} = 1$
$LE_{p,y} = 0\%$
$ER_y = (BE_{b,y} - PE_{p,y}) * U_{p,y} - LE_{p,y}$
$= (BE_{b,y} - 0) * 1 - 0$

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

SDG#	Baseline Estimate	Project Estimate	Net Effect
15 Life on Land Unit: tonnes of wood per annum per system	0	1230.78	1230.78
SDG 8 – Decent Work and Economic Growth Unit: Number (of employments provided/year)	0	300	300
SDG 8 – Decent Work and Economic Growth Unit: Number (of training sessions/year)		20 Number of trainings provided (filtration plant maintenance)	20

SDG 6 – Clean Water and Sanitation Unit: %	0	100 %	100 %
SDG 4 – Quality Education Unit: Number of employee trained/year	0	200	200

SDG 13

Year	Baseline estimate	Project estimate	Net benefit
Year 1	432,444	0	433,653
Year 2	629,773	0	631,533
Year 2	629,773	0	631,533
Year 4	629,773	0	631,533
Year 5	629,773	0	631,533
Total	2,951,536	0	2,951,536
Total number of crediting years		**5**	
Annual average over the crediting period	590,307	0	590,307

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

SDG 13

Data / Parameter	QPW_y
Unit	Litres
Description	litres of purified water supplied by the project activity in year y
Source of data	Distribution records
Value(s) applied	975,061,000 litres (ex-ante estimation)
Measurement methods and procedures	The total water treated by the project system *i* will be monitored using flowmeters.
Monitoring frequency	Annual
QA/QC procedures	The PP shall also monitor the following for cross check: 1. Number of persons services by system *i* – This should be based on number of households (and their size) contracted for a project system *i* 2. Total Treatment capacity of system *i* / day
Purpose of data	Emission Reduction Calculation

Additional comment	QPW_y = Minimum {($\sum_{i=1}^{n}$ Number of person serviced by system i * $Q_{p,y,capped}$ * 346.75[12]), ($\sum_{i=1}^{n}$ Total treatement capacity of system i /day * 346.75), ($\sum_{i=1}^{n}$ Monitored water supplied by project system i)}

Data / Parameter	$N_{p,y}$
Unit	Person-days
Description	Number of persons consuming water supplied by project scenario p through year y
Source of data	Installation Database and user agreement between households and PP
Value(s) applied	243,765,250 (ex-ante estimation)
Measurement methods and procedures	User agreements
Monitoring frequency	The household size of the households contracted to draw water from the project system *i* shall be recorded at the time of contract.
QA/QC procedures	To cross check the QPW_y
Purpose of data	Cross check ER calculation
Additional comment	In absence on this data, default household size from credible published literature may be used.

Data / Parameter	$U_{p,y}$
Unit	Percentage
Description	Usage rate in project scenario p during year y
Source of data	Annual usage survey
Value(s) applied	100%
Measurement methods and procedures	Project survey PP will use either in-person survey of project premises or Survey performed via ICT (telephone or messaging or a mix of both options) following Annex 9 of the applied GS methodology(non-binding).
Monitoring frequency	Annual or more frequently, in all cases on time for any request for issuance
QA/QC procedures	Transparent data analysis and reporting.
Purpose of data	Emission Reduction calculation
Additional comment	--

[12] This is considering full year (=365 days discounted by 5% for maintenance). In case of monitoring period shorter than a year, this shall be pro-rated.

Data / Parameter	Quality of treated water
Unit	%
Description	% Installations providing safe quality treated water
Source of data	Water quality test (WQT)
Value(s) applied	100%
Measurement methods and procedures	As per Water Quality test (WQT) WQTs may be conducted either in the field (using test kits) or by transportation of samples to laboratories. As a first option, WPS shall meet host country standards (where available) for treated water quality. Where national standards are not available, projects shall meet WHO standard of less than 1 Colony Forming Unit (CFU) of E.Coli /100[13] As per the World Health Organizations Guidelines it is more cost-effective and feasible to monitor indicator organisms such as E. coli. Thus, monitoring of proxies such as E. coli, faecal coliform counts, chlorine levels can be used to assess water quality.
Monitoring frequency	At least once before first verification, thereafter quarterly
QA/QC procedures	The sample size should be sufficient to meet 90/10 confidence/precision. The lower bound of the one-sided 90% confidence interval may optionally be used as an alternative, in case the sample size does not meet the 90/10 rule.
Purpose of data	Determination of project baseline emissions
Additional comment	At least once every two years, accredited laboratories (if available in the host country) must perform the water quality testing.

Data / Parameter	$LE_{p,y}$
Unit	tCO_2e per year
Description	Leakage in the project scenario p through year y
Source of data	Baseline and monitoring surveys
Value(s) applied	0.00

[13] http://whqlibdoc.who.int/publications/2011/9789241548151_eng.pdf?ua=1

Measurement methods and procedures	Leakage will be assessed through monitoring surveys. Sampling methods for data collection will follow methodological requirements. Survey respondents will be asked questions related to the following topics: • if baseline technologies are being reused outside of the project boundary • if non-renewable biomass or fossil fuels saved under the VPA are used outside of the project boundary • if end-users are compensating for a loss of space-heating effects from the baseline technology by adopting some other form of heating or retaining an inefficient technology • if the promotion and marketing of the project technologies is encouraging households using a less polluting technology to adopt the project technology instead. Survey respondents who admit to contributing to any of the above situations will have emissions equivalent to their estimated emission reductions counted as leakage. The VPA implementer will also conduct a leakage assessment from transportation.
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Determination of leakage
Additional comment	Aggregate leakage can be assessed for multiple project scenarios, if appropriate

Data / Parameter	Hygiene campaigns
Unit	-
Description	Hygiene campaigns carried out among project technology users
Source of data	Hygiene Awareness Campaign Report
Value(s) applied	1
Measurement methods and procedures	The hygiene campaign shall include sample survey of project beneficiaries to assess the following: 1. Outbreak of water related disease in the sampled household 2. Assessment of handling and storage of treated water 3. Adoption of Hygienic practices like handwashing, use of clean utensils etc.
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	-
Additional comment	-

Data / Parameter	Treatment capacity
Unit	Litre per day
Description	Treatment capacity of the project system *i*/day
Source of data	Manufacturer specification/design specification
Value(s) applied	Once at the time of registration of new technology
Measurement methods and procedures	-
Monitoring frequency	-
QA/QC procedures	-
Purpose of data	The water volume values used in the calculations of emission reduction must be justified in terms of capacity of the project technology/improved sources.
Additional comment	-

Data / Parameter	$Q_{p,cleanboil,y}$
Unit	Litres per person per day
Description	Quantity of safe (treated, or from safe supply) water boiled in the project scenario p, after installation of project technology
Source of data	Project Usage survey
Value(s) applied	0.0
Measurement methods and procedures	This will be determined via questionnaire surveys to check with the sampled users % of treated water being boiled in the project activity.
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Project emissions
Additional comment	-

SDG8

Data / Parameter	Decent work and economic growth
Unit	Numbers
Description	a. Number of employment provided b. Number of trainings provided (filtration plant maintenance)
Source of data	Monitoring survey
Value(s) applied	300 (expected for the first 2 years) 20 training sessions
Measurement methods and procedures	PP's records
Monitoring frequency	Annual
QA/QC procedures	Employment proof and training proof

Purpose of data	SDGs
Additional comment	-

SDG 15

Data / Parameter	Life on Land
Unit	Tonnes of wood per annum per system
Description	Total non-renewable fuelwood saved per year by the project
Source of data	Monitoring survey
Value(s) applied	0.0004 tonnes per litre * 10,000 litre per day/system * 365 day/year*0.843 = 1230.78 tonnes per year per system
Measurement methods and procedures	Calculation
Monitoring frequency	Annual
QA/QC procedures	Sales database
Purpose of data	SDGs
Additional comment	-

SDG 6

Data / Parameter	Clean Water and Sanitation
Unit	%
Description	Proportion of population using safely managed drinking water services
Source of data	Water quality test (WQT)
Value(s) applied	100
Measurement methods and procedures	-
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	SDGs
Additional comment	-

B.7.2. Sampling plan

>>

Due to the large number of units projected to be installed, coupled with the difficulties with monitoring in some regions, it is not economically feasible to monitor each unit installed. Therefore, the project will employ representative sampling in line with the requirements of the applied methodology, Guideline: Sampling and surveys for CDM project activities and programmes of activities, Ver 4.0 and Standard: Sampling and surveys for CDM project activities and programmes of activities, Ver 9.0.

(a) Monitoring survey. *Completed annually, beginning 1 year after project registration.*

The monitoring survey investigates changes over time in the project scenario (and in the baseline scenario in case renewal of crediting period), by surveying project systems on an annual basis for usage and water quality.

The following guidelines shall be used to determine the minimum sample size as per section 3 GS methodology TPDDTEC version 3.1 (page 13) :
i. Group size <300: Minimum sample size 30 or population size, whichever is smaller
ii. Group size 300 to 1000: Minimum sample size 10% of group size
iii. Group size > 1000: Minimum sample size 100.

The samples shall be obtained, using random/stratified sampling, from the installation database.

(b) **Baseline Update** – this is not applicable, the baseline is being fixed ex-ante and may only be updated at the renewal of crediting period, as applicable

(c) **Usage Survey.** Maintained continuously as part of the Total sales record (Project Database)
The TPDDTEC Meth states: 'The usage survey provides a single usage parameter that is weighted based on drop off rates that are representative of the age distribution for project technologies in the total sales record.

(d) **Non-Renewable Biomass Assessment Update.** *To be carried out in case of a renewable of the crediting period.*

(e) **Leakage Assessment.** This shall be conducted once every two years[14].

(f) **Project FT Update** – Project FTs are not required as the water treated by project systems will be monitored directly.

(g) **Hygiene campaigns – completed annually-** Community wide trainings will be provided by BBF for the use of purified water and other hygiene requirements. This will be done by community-health worker. A supervision aiming to assess hygiene and sanitation status will be conducted in their own communities. The results of that assessment are to upgrade water, hygiene and sanitary facilities to be improved in all village where local leaders will contribute by organizing community workers to help vulnerable households as well the promise of sustainability of water point since it will be rehabilitated.

[14] Given an initial assessment has been justified above at the time of registration, hence this is deemed applicable from year 3 onwards of the crediting period.

Success of education on hygiene issues will be monitored through the usage/monitoring survey to check on the use of clean/safe containers and devices for transport and storage of water used for drinking, cooking, food preparation and basic personal hygiene.

(h) Water quality testing – completed every quarter- The quality of the treated water will be assessed using standardized field-testing kits or through laboratory testing of samples collected to substantiate that it meets the national /WHO standard as applicable. In line with the methodology, the water quality will be tested every quarter.

B.7.3. Other elements of monitoring plan

>>

Specific parameters to be monitored and methods used are listed in section B.7.1. Additionally, project systems and indicators that facilitate sampling are tracked as follows:

Monitoring procedure

This project's monitoring shall include the following elements:

1. A Total Installation Record listing all systems installed will be maintained continuously.
2. A monitoring survey, to determine usage of project systems, conducted annually.
3. A Non-Renewable Biomass Assessment Update shall be carried out in case of a renewal of the crediting period
4. A leakage assessment shall be conducted every two years.
5. There is no need to carry out a Project Field Tests, as no technology is used at the Point of Use.

Total Sales Record *(maintained continuously)*

The project proponent will maintain an accurate and complete installation record, which will be backed up electronically.

The above approach complies with the requirements from Section III of the TPDDTEC Meth. Specifically:

1. Date of installation/commissioning. The installation record indicates the date of installation/commissioning of a system.
2. Geographic area of Installation - Bangladesh.
3. Model/type of project technology sold – list the total treatment capacity of a system *i*.
4. Quantity of project technologies sold - The total number of systems installed
5. Information from end users is automatically collected by the projects 'last-mile distribution network'. The information is partly digitized and partly handwritten, depending on the circumstances of the various kiosks and villages.

BBF distributes safe water to its end customers using two channels, both of which involve regular and repeated contact with end customers:

I. Home delivery. Many customers choose to have the water delivered directly to their homes. As a result, the project may have a database of people's names, addresses, household size etc. If customers are willing to share it, their phone numbers will be collrected. In summary, this distribution channel allows monitoring and surveying customers directly at their home.

II. Sales at the kiosk. End customers also buy purified water directly at the retailer's kiosk. This allows a direct point of contact and an opportunity to interview customers at distribution stations.

6. Mode of use: domestic, commercial, other: Most of the project sales are for domestic use. However, some sales may be for schools and businesses.

Project database *(maintained continuously)*
The project database is obtained from the total installation record, as described above. Since the project is using a unique technology, the project database does actually coincide with the above Total Sales Record Database.

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1. Start date of project
>>
09/11/2022 (date of commissioning of the first plant device/plant i.e., the date when the first plant starts delivering water to the users)

C.1.2. Expected operational lifetime of project
>>
15 years

C.2. Crediting period of project

C.2.1. Start date of crediting period
>>
09/11/2022, or two years prior to the date of inclusion of VPA in the registered PoA, whichever is later

C.2.2. Total length of crediting period
>>
5 years (renewable twice)

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 summarised below.

Principles	Mitigation Measures added to the Monitoring Plan

Principle 3 – Community Health, Safety and Working Conditions	Workplace Health & Safety trainings will be conducted regularly during the project operation.

D.2. 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?	The project respects the key gender issues and requirements of gender-sensitive design and implementation of the project. SDG#5 is one of the impact areas of the project. The project is aimed to replace conventional boiling of water with filtered water. This will result in reducing use of firewood consumption or replacement of complete firewood usage at user place for water cleaning for drinking purpose.
Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	The project does not involve in any form of based on gender, race, religion, sexual orientation or any other basis as per the country policies, strategies and best practices. The Government of Bangladesh reaffirms its commitment to work for the realization of constitutional guarantee of equality, social justice and non-discrimination based on sex, caste, community, language and religion. Ministry of women & child development, govt. of Bangladesh has taken various measures for gender equality/socio-economic development/empowerment of women (http://pib.nic.in/newsite/PrintRelease.aspx?relid=132945). 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*).
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	No gender experts will be required for the Gender Safeguarding Principles & Requirements, as this requirement is not mandatory. However, the team will redouble its efforts to fit the project into the gender policy required by the GS methodology.

Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	No gender experts will be present at the Stakeholder Consultation, as this requirement is not mandatory. However, the sustainable carbon team, which will be present on the day of the consultation, has extensive experience in conducting this type of meeting, and will follow the Gold Standard Stakeholder Consultation and Engagement Requirements, which includes gender guidelines, and specifies which social groups must be included in the consultation. Therefore, the team will be able and willing to address and assist any gender issues at the Stakeholder Consultation[53].

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 which was held on 21/01/2021. The stakeholder feedback round is initiated on 05/07/2021 for the period of 2 months. During the SFR all the relevant stakeholders were emailed the revised PDD and LSC report. The documents were also made publicly available on sustain-cert app for the electronic comments from the stakeholders. All the GS NGO supporters were also emailed for their comments.

E.1. Summary of stakeholder mitigation measures

>>

A live meeting was organised as per the Gold Standard GS4GG rules and requirements. There were many people who were concerned about the maintenance of the plants like previous time. But they were assured that this will be maintained this time.

BBF will install the water purification plants and then handover to local community groups who will mantain the plants. To ensure smooth and standard functioning of the systems there is provision of O&M agreement according to which the systems will be serviced periodically. Further the number of maintenance trainings conducted shall be monitored.

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 shall be kept at the purification plant locations. The stakeholders can directly contact respective plant offices for the registers.
GS Contact (mandatory)	help@goldstandard.org
Other	contact@vnvadvisory.com

The complaint registers shall be placed at the time of construction of the plants. The details and addresses shall be provided separately before the first verification to the VVB.

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 2. The Project shall not discriminate with regards to participation and inclusion	No	Not relevant 1. The project involves filtration and distribution of water to the households. The Project Proponent and the Project does not conflict with the economic livelihood or other factors of the local communities. Thus, the Project does not cause any human rights abuse and respects internationally proclaimed human rights issue (https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/BDIndex.aspx). 2. As a member of United Nations and part of UN Agreement on Human Rights, it is ensured by law no action can be taken against human rights.	

Principle 2. Gender Equality			
1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. 2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work. 3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks 4. (where required) summary of opinions and recommendations of an Expert Stakeholder(s)	No	1. Not relevant. The project does not reproduce or support any kind of gender discrimination. 2. Not relevant. The project does not discriminate the local community on basis of gender or caste or religion and therefore equally serve to all. 3. Not relevant. No, the Project does not consider the gender roles while engaging them and thereby provide equal rights to men and women. Local community meetings are scheduled considering participation by both Men and Women. 4. Not relevant. The project activity is not expected to expose women and girls to further risks or hazards.	
Principle 3. Community Health, Safety and Working Conditions			
1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community	No	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 issue is protected by Labor code and UN Agreement on Human Rights	Workplace Health & Safety trainings will be conducted regularly during the

		(https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/BDIndex.aspx).	project operation.
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**	Not relevant. The project does not involve sites or objects with historical, cultural, artistic, traditional, or religious values or intangible forms of culture.	
>>			
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**	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. Hence, there is no additional burden to the existing traffic.	
>>			
Principle 4.3 Land Tenure and Other Rights			
a. Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage	**No**	Not relevant. The project does not involve any land tenure arrangements and/or other rights.	

rights or land ownership? b. For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership?			
Principle 4.4 - Indigenous people			
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	Not relevant	
Principle 5. Corruption			
1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	No	The project doesn't involve any transaction of cash and/or kind between the project participant and the beneficiary. The project participant will facilitate the implementation of the project by capacitating the local people with necessary technical expertise. There are no specific permit and/or approvals required to implement the project. Finally, anything generated as project revenue shall be spent towards the project monitoring,	

		repair and maintenance, project operation and costs against project verification and issuance of the emission reduction credits. Therefore, the project is not expected to involve any corrupt practices or reinforce the same.	
Principle 6.1 Labour Rights			
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. 2. Workers shall be able to establish and join labour organisations. 3. Working agreements with all individual workers shall be documented and implemented and include: a) Working hours (must not exceed 48 hours per week on a regular basis), AND	No	1. This issue is protected by Labor code and UN Agreement on Human Rights (https://www.ohchr.org/EN/Countries/AsiaRegion/Pages/BDIndex.aspx). 2. the people working for the project will not be salaried staffs to the project. Therefore, the possibility of workers forming labour unions and joining labour organizations is not applicable for the project. 3. Project employs few administrative staffs to support secretarial functions. Each staff is provided with a set terms of reference highlighting the responsibilities, terms of payment and terms of detachment. 4. The project is complying with all relevant national laws regarding child labor. will not employ children in any shape or form for their works. There is not involvement of any equipment or machinery during the project implementation. Therefore, accidental injuries resulting from the operation of machines and equipment	

b) Duties and tasks, AND c) Remuneration (must include provision for payment of overtime), AND d) Modalities on health insurance, AND e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave. 4. No child labour is allowed (Exceptions for children working on their families' property requires an Expert Stakeholder opinion). 5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and		are not applicable to the project. Therefore, the project doesn't trigger the safeguard requirement under consideration. Therefore, the safeguarding principle under discussion will not be triggered.	

reporting of accidents and incidents, and emergency preparedness and response measures			
Principle 6.2 Negative Economic Consequences			
Does the project cause negative economic consequences during and after project implementation?	**No**	The project has positive economic benefit due to less utilization of firewood in water boiling and increase job opportunity.	
>>			
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project will provide filtered water against the boiling water being used in the baseline scenario. Implementation of the project will result in reduction of firewood and ultimately the GHG emission reduction.	
>>			
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	The project utilizes renewable solar energy, which are used to clean the water, replacing the use of native firewood from illegal deforestation.	
>>			

Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity? >>	Yes	Relevant The project activity shall purify existing pond water or the ground water to purify the water which was also used in the baseline. The project activity shall only purify the water which was purified by some other mean or used as such for drinking purpose. There will be no discharge water in the purification systems except for the R.O systems for saline water. The discharge water from the saline water cannot be used for irrigation hence shall be discharged into the source of the saline water.	
Principle 8.2 Erosion and/or Water Body Instability			
a. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? b. Is the Project's area of influence susceptible to	No	Relevant There will not be additional impact as the pond water or the ground water itself is used for the drinking purposes with different cleaning methods and a. Project's area of influence susceptible to excessive erosion and/or water body instability due to project activity	

excessive erosion and/or water body instability?			
>>			
Principle 9.1 Landscape Modification and Soil			
Does the Project involve the use of land and soil for production of crops or other products?	No	Not relevant	
>>			
Principle 9.2 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	Not relevant	
>>			
Principle 9.3 Genetic Resources			
Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development,	No	Not relevant	

or take place in facilities or farms that include GMOs in their processes and production)?			
>>			
Principle 9.4 Release of pollutants			
Could the Project potentially result in the release of pollutants to the environment?	No	Not relevant The activity involves the filtration of water and reduction in fuelwood. Hence pollution amount is reduced.	
>>			
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	Not relevant	
>>			
Principle 9.6 Pesticides & Fertilisers			
Will the Project involve the application of pesticides and/or fertilisers?	No	Not relevant The project does not involve any activity that requires the use of pesticides or fertilizers.	
>>			
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	No	Not relevant.	

>>		The project activity does not involve harvesting of forests. On the other hand, the project activity will utilize renewable biomasses, such as non-fossil residues from industrial or municipal waste.	
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	Not relevant. The project does not affect the quantity or nutritional quality of food available.	
>>			
Principle 9.9 Animal husbandry			
Will the Project involve animal husbandry?	No	Not relevant. The project does not involve animal husbandry.	
>>			
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	Not relevant. The project does not affect any of these aspects.	
>>			
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 species may be present through transboundary affects?	No	Not Relevant The project area and its surroundings does not have any endangered species.	
>>			

APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	Value Network Ventures Advisory Services Pte Ltd.
Registration number with relevant authority	201903830Z
Street/P.O. Box	10 Anson Road
Building	#29-07 International Plaza
City	Singapore
State/Region	-
Postcode	079903
Country	Singapore
Telephone	+91 80 42429927
E-mail	sandeep@vnvadvisory.net
Website	www.vnvadvisory.com
Contact person	Sandeep Roy Choudhury
Title	Director
Salutation	Mr.
Last name	Choudhury
Middle name	Roy
First name	Sandeep
Department	-
Mobile	-
Direct tel.	+91 80 42429927
Personal e-mail	sandeep@vnvadvisory.net

APPENDIX 3- LUF ADDITIONAL INFORMATION

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

Not applicable

Please refer to Annex A of Principles and Requirements for more information on procedures governing Design Changes

APPENDIX 5- CONTACT INFORMATION OF ENTITY COMPLETING THE POA DESIGN DOCUMENT

CME and/or responsible person/ entity	☐ CME ☒ Responsible person/ entity for application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the PoA
Organization	Climate Secure India Private Limited
Street/P.O. Box	Club Road, Paschim Vihar
Building	65, Pragati Apartments
City	West Delhi
State/Region	Delhi
Postcode	110063
Country	India
Telephone	+91-11-25213080
E-mail	info@climate-secure.com

Website	www.climate-secure.com
Contact person	
Title	Director
Salutation	Mr.
Last name	Lohia
First name	Rohit

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