**Key Project Information & VPA Design Document (PDD)**

###### PUBLICATION DATE **7.10.2020** VERSION **v. 1.1** RELATED SUPPORT – [**TEMPLATE GUIDE Key Project Information & VPA Design Document v.1.1**](https://globalgoals.goldstandard.org/standards/TGuide-PreReview_V1.1-VPA-Design-Document.pdf)

This document contains the following Sections

Key Project Information

– Description of project

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

– Duration and crediting period

– Summary of Safeguarding Principles and Gender Sensitive Assessment

– Summary of Local stakeholder consultation

[Appendix 1](#_Appendix_1_-) – Safeguarding Principles Assessment (mandatory)

- Contact information of VPA Implementer (mandatory)

- Summary of Approved Design Changes (project specific)

### KEY PROJECT INFORMATION

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| --- | --- |
| GS ID of Project | GS11152 |
| Title of Project | [GS10959 VPA09 Safe Water Project in](https://impact.sustain-cert.com/project_developer/projects/2745) Bangladesh III |
| Time of First Submission Date | 04/04/2021 |
| Date of Design Certification | 19/08/2021 |
| Version number of the VPA-DD | 09 |
| Completion date of version | 18/12/2021 |
| Coordinating/managing entity | Guangzhou Iceberg Environmental Consulting Services Co., Ltd. |
| VPA Implementer (s) | Guangzhou Iceberg Environmental Consulting Services Co., Ltd.  Social Aid |
| Project Participants and any communities involved | Guangzhou Iceberg Environmental Consulting Services Co., Ltd. |
| Host Country (ies) | Bangladesh |
| GS ID and Title of applicable Design Certified VPA | N/A |
| GS ID and Title of applicable Performance Certified VPA | N/A |
| 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 | N/A |
| Methodology (ies) applied and version number | Technologies and Practices to Displace Decentralized Thermal Energy Consumption (Version 3.1) |
| 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) | Estimated Annual Average | Units or Products |
| SDG 13 Climate Action (mandatory) | Reduce emission from water boiling by non renewable biomass | 58,376 | VERs |
| SDG 3 – Good Health and Well-Being | Reduce the incidence of waterborne illness within the project area | 32.9% | Percentage |
| SDG 5 – Gender Equality | Reduce the time spent to fetch and purify water by women and girls | 61.83% | Percentage |
| SDG 6 – Clean Water and Sanitation | Provide safe water to local residents | 33,000 | Number of persons |

1. DESCRIPTION OF PROJECT
   1. Purpose and general description of project

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Many people in rural area of Bangladesh rely on boreholes to provide clean water. Unfortunately, a lot of boreholes have fallen into disrepair because maintenance has been poorly managed due to lack of capacity, organization or fund. The VPA, which is the VPA 09 for PoA GS 10959 “Safe Water Programme in Africa and Asia “ (hereinafter referred to as “the PoA”), consists of the maintenance of 30-100 boreholes in Cox’s Bazar District, Chittagong Division of Bangladesh. The CME will cooperate with a local NGO, Social Aid, to implement the VPA for providing safe water to local communities and ensure the water quality to meet the related requirements of Bangladesh and Gold Standard for the Global Goals. Chemical disinfection will be applied in case that water quality cannot meet the requirements after borehole maintenance through water quality test conducted by local accredited lab. The project boundary is the boundary of communities that use the boreholes maintained by the project activity.

Before the implementation of the VPA, local communities in the project location use fossil fuel and/or non-renewable biomass (Hereinafter referred to as NRB) to boil water for purification. Therefore, the baseline scenario is that fossil fuel and/or NRB is used to boil water as means of water purification in the absence of the project activity. As a result, water purification through boiling with wood makes local people vulnerable to the negative effects of poor indoor air quality. In Bangladesh, the morality rate due to diarrhea is 7.5 deaths per 100,000. [[1]](#footnote-1)Boiling water with wood also results in significant greenhouse gas emissions through the use of non-renewable biomass, causing deforestation and threatening biodiversity. In addition, usually in local communities it is women and girls that take the unpaid work of fetching and purifying water, which minimizes their time for rest and study, and even their opportunities to have paid jobs.

The VPA provides a solution to mitigate the above problems. The fund from sale of carbon credits generated by the VPA will make it sustainable and extendable.

* + 1. Eligibility of the project under approved PoA

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Eligibility of the VPA under the approved PoA-DD (Version 05) and Section B.3 of Key Project Information & Programme Design Document (Version 1.1):

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Eligibility Criterion | Description/  Required condition | Means of Verification/Supporting evidence  for inclusion |
| 1 | Geographical boundaries of VPAs consistent with the geographical boundary of  the PoA | The geographical boundary of the VPA should be consistent with the geographical boundary described in the PoA. Each VPA should be located in one host country. | Locations of boreholes in the database (including geographical coordinates) will be checked to confirm that all the boreholes are located in Cox’s Bazar District, Chittagong Division of Bangladesh. |
| 2 | Conditions to avoid double accounting of GHG emission reductions or net anthropogenic GHG removals | 1. The VPA should exclusively belong to the PoA. It should be neither a single GS project activity nor a VPA under another PoA.  2. A unique identification system for boreholes should be applied and identification numbers should be recorded in related VPA databases.  3. The names and addresses of end users should be recorded in the related VPA databases  4. The clause in which the end users agree to give the ownership of the emission reductions to the CME should be included in the agreement accepted by both sides. | 1. GS registry has been checked to confirm that the VPA exclusively belongs to the PoA  2. VPA databases, maintenance records, donation and carbon transfer agreements will be checked and field investigation has been conducted to confirm that there is no double accounting for GHG emission reductions.  3. Declaration of no double counting check issued by CME has been provided to the VVB  4. Each borehole will be identified with unique GPS coordinates of its location and a unique serial which enables the unique identification of the borehole to be part of this VPA. |
| 3 | Conditions to confirm that VPAs are neither registered as project activities with other offset schemes, included in other registered PoAs, nor the project activities that have been deregistered | It should be confirmed that the VPA is neither registered as project activity with other offset scheme, included in another registered PoA, nor the project activity that has been deregistered. | 1. GS, CDM and VCS registries have been checked to confirm that the VPA is neither registered as project activity with other offset scheme, included in another registered PoA, nor the project activity that has been deregistered.  2. Declaration of independence from existing GS project/PoA has been provided by the CME |
| 4 | Specification of the technology/measure | The applied water purification technology should be borehole. Chemical disinfection will be used if water quality cannot meet the requirements after borehole maintenance through water quality test | Specification of hand pump used in the VPA has been provided. Specifications of water disinfectants which may be used in the future have also been provided. Field investigation has been conducted to confirm related information. |
| 5 | Conditions to check the start dates through documentary evidence | 1. The start date of VPA should be defined according to Principles and Requirements (Version 1.2)  2. The start date of the VPA should not be before that of the PoA (14/02/2021). | The date of the maintenance of the first borehole under the VPA will be checked to confirm the start date. |
| 6 | Conditions to ensure compliance with the applicability of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents | Please Refer to Section B.2. | All the conditions have been checked. Please Refer to Section B.2. |
| 7 | Conditions to ensure that VPAs meet the requirements for demonstration of additionality | According to Paragraph 4.1.9(b) of Community Service Activity Requirements (Version 1.2), community service projects located in LDS, SIDS and LLDC are considered as additional and therefore are not required to prove financial additionality at the time of design certification. | The VPA is additional because it is a community service project and located in a least developed country-Bangladesh[[2]](#footnote-2) |
| 8 | Conditions to ensure no diversion of official development of assistance | The implementation of the VPA should not result in the diversion of official development assistance from Annex I Parities. | Declaration about no diversion of official development assistance from Annex I Parities to the VPA by the CME has been provided. |
| 9 | Target group, and where applicable, distribution mechanism | The target group should be communities using boreholes maintained by the project activities | Maintenance records and agreements will be provided to prove that the target group is communities using boreholes maintained by the project activities |
| 10 | Conditions related to sampling requirements for the PoA | The sampling plan of the VPA should meet the requirements the applied methodology. | The sampling plan of the VPA-DD has been checked to confirm that it meets requirements of the applied methodology. |
| 11 | Conditions to ensure that VPAs that will be included meet the small-scale or microscale thresholds and remain within those thresholds throughout the crediting period | As per Glossary: CDM Terms version 10.0, for small-scale project activity the emission reductions generated by the VPA should be no more than 60kt CO2e annually. All VPAs included should meet the above small-scale threshold. | The VPA-DD and emission reductions calculation sheet have been check to confirm that the emission reductions generated by the VPA are fewer than 60kt CO2e annually. |
| 12 | Conditions to confirm that technologies in the VPAs are eligible | The technologies should be maintenance of boreholes using hand pumps. Chemical disinfection may be applied in case that water quality cannot meet the requirements after borehole maintenance. | It will be confirmed through field investigation conducted by Social Aid that all the borehole maintained by the project activities are using hand pumps. Chemical disinfection will be applied if the project implementer finds that water quality cannot meet the requirements in the future. |
| 13 | Conditions to be met by each VPA regarding SDG outcomes assessment | The VPAs should meet the requirements for SDG outcomes assessment in “Principle and Requirements (Version 1.2)” and “Programme of Activity Requirements (Version 1.2)”. | Section B.6 of the VPA-DD has been checked to confirm that the requirements for SDG outcomes assessment in “Principle and Requirements (Version 1.2)” and “Programme of Activity Requirements” are met. |
| 14 | Conditions to be met by each VPA regarding safeguarding principles | Each VPA should meet the requirements for safeguarding principles in “Principle and Requirements (Version 1.2)”, “Programme of Activity Requirements (Version 1.2)” and “Safeguarding Principles and Requirements (Version 1.2)”. | Section D.1 and Appendix 1 of the VPA-DD have been checked to confirm that the requirements for safeguarding principles in “Principle and Requirements (Version 1.2)”, “Programme of Activity Requirements (Version 1.2)” and “Safeguarding Principles and Requirements (Version 1.2)” are met. |
| 15 | Conditions to be met for retroactive VPAs | Not applicable as a regular VPA | Not applicable as a regular VPA |
| 16 | Conditions to be met for CER labeling | Not applicable | Not applicable |
| 17 | Conditions to be met in multi-country PoAs | The CME should provide a VPA-DD for each country considered at the time of PoA registration. | The CME has provided a VPA-DD for each country considered at the time of PoA registration. |
| 18 | fNRB | Reference for fNRB calculation should be provided | Reference for fNRB calculation has been provided in the fNRB form of Section B.6.2. |
| 19 | Wb,y | Reference for Wb,y calculation should be provided | Reference for Wb,y calculation has been provided in the Wb,y form of Section B.6.2. |
| 20 | Water treatment capacity | Water treatment capacity of the applied technology should be confirmed by technology manufacturer or seller. | Specifications of the hand pumps applied in the VPA which are provided by technology manufacturer or seller have been provided. |

Eligibility of the VPA under Gold Standard Principles and Requirements document as well as general eligibility of Community Service Activity Requirements

|  |  |  |
| --- | --- | --- |
| **Eligibility Criteria** | **Description** | **Demonstration** |
| Types of Project | Eligible Projects shall include physical action/implementation on the ground | The VPA is a water, sanitation and hygiene (WASH) project. It provides safe water. It can be verified by site visit. Therefore, the project activity is also a community service activity as per Paragraph 3.1.1(d) of Community Service Activity Requirements (Version 1.2). |
| Location of Project | Projects may be located in any part of the world. | The VPA is located in Cox’s Bazar District, Chittagong Division of 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. | The project area is the communities that use the boreholes maintained by the project activity. The project boundary is the boundary of communities that use the boreholes maintained by the project activity.  The estimated annual emission reductions of the VPA are 58,376 tCO2e, which is less than 60,000 tCO2e. As a result, the VPA is a type III small-scale project activity, which results in emission reductions of fewer than or equal to 60 kt CO2e annually.  So suppressed demand scenario is applied when establishing a baseline as per Paragraph 4.1.10 of Principle and Requirements (Version 1.2). |
| Avoiding Double Counting | 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. Also, if the project area overlaps with that of another Gold Standard and 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.  Demonstrate the activity is not located in a host country, region, locality or state that has an emission reduction cap enforced or has the possibility to trade emissions that include the scope of the proposed project. | Each borehole maintained by the VPA will have a unique serial number to ensure that double counting will not occur. Moreover, the geographic coordinates of boreholes will be provided. The registries of Gold Standard, VCS and CDM have been checked to confirm that the VPA is not included in any other voluntary or compliance standards programme as well as the project area does not overlaps with that of another Gold Standard and other voluntary or compliance standard programme of a similar nature. The CME will continuously check the registries to confirm this point.  Bangladesh does not have any plan for emission reduction cap. The VPA will not generate any emissions to be traded under an emission reduction cap. |
| Host Country Requirements | Projects shall be in compliance with applicable host country’s legal, environment, ecological and social regulations. | The VPA is in compliance with related legal, environment, ecological and social regulations of Bangladesh, such as National Water Policy of Bangladesh[[3]](#footnote-3), which has been checked by the CME. |
| Contact Details | As part of the project documentation the CME should 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. | The related information of CME and all project participants have been provided in the Appendix 2 of the VPA-DD. |
| Legal Ownership | Full and uncontested legal ownership of any products that are generated under Gold Standard certification shall be demonstrated. Where such ownership is transferred from project beneficiaries that must be demonstrated transparently and with full, prior and informed consent. | The legal ownership will be confirmed by carbon transfer agreement signed between CME and users representatives. |
| 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, 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 is no dispute or contested right about any aspect of the VPA. |
| Official Development Assistance (ODA) Declaration | All project developers applying for project activities located in a country named by the ODA Committees’ ODA receipt list and seeking Gold Standard Certification for carbon credits shall declare the ODA support. | No ODA has been or will be diverted for the implementation of the VPA. The declaration has been provided. |
| Suppressed Demand | 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 micro scale 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. | Since the VPA is a small scale project, a suppressed demand scenario has been developed when establishing a baseline according to the applied methodology. |

* + 1. 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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Donation and carbon transfer agreements were signed between CME and the representatives of the villages where the VPA is located in. So the CME has full rights over the Products generated from GS Certification. No legal rights concerning changes in use of resources or legal land title/tenure are required to implement the VPA.

* 1. Location of project

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The VPA is located in Cox’s Bazar District, Chittagong Division of Bangladesh. The geographic coordinates of Cox’s Bazar District, are shown as follows:

Table 1. Geographic coordinates of Cox’s Bazar District

|  |  |  |  |
| --- | --- | --- | --- |
| Eastmost | Southmost | Westmost | Northmost |
| 20°45’15”N 92°20’49”E | 20°34’32”N 92°20’15”E | 21°45’21”N 91°50’8”E | 21°55’26”N 91°52’15”E |

The location of Cox’s Bazar District is shown in the following map:



Figure 1. Cox’s Bazar District in Bangladesh

* 1. Technologies and/or measures

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The major borehole maintenance activity is to repair broken hand pumps. No. 6 Hand Pump and BFL Hand Pump are the most representative types of hand pumps used in the VPA. No.6 Hand Pump is a conventional lever action hand pump. This pump has a pump head, pump stand and a handle of galvanised steel. The down hole components exist of a brass lined cast iron cylinder with a foot valve and a plunger of brass. The specifications are shown as follows:

Table 2. Specifications of No. 6 Hand Pump

|  |  |
| --- | --- |
| **Specification** | **Capacity** |
| Depths to be used | 150 m (deep aquifer) |
| Cylinder diameter: | 89.0 mm |
| Maximum Stroke: | 215 mm |
| Water Provided: | 12,000 litres/per day |
| Number of persons can be served | No more than 1,500 |
| Lifetime: | 15 to 20 yrs |

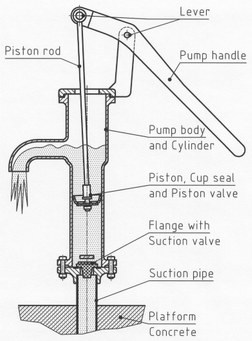


Figure 2. Structure of No.6 Hand Pump

BFL Hand Pump is locally produced. Pump head, body and handle are made from cast iron. Pump rods are made from mild steel. The specifications are shown as follows:

Table 3. Specifications of BFL Hand Pump

|  |  |
| --- | --- |
| **Specification** | **Capacity** |
| Cylinder diameter: | 89 mm |
| Maximum Stroke: | 215 mm |
| Number of persons can be served | 1,000-1,500 |
| Lifetime: | 15 years |



Figure 3. Picture of BFL Hand Pump

If water quality cannot meet the requirements after borehole maintenance through water quality test, chemical disinfection will be used in the VPA. Chemical disinfection is an effective and low-cost way for water purification. It does not need electricity, which makes it more feasible in the LDCs as the power supply is not stable or even available in many areas. Therefore, the purification process has no greenhouse gas emission. Chlorine disinfectants are applied in the VPA, which kills bacteria, viruses and parasites in water. The disinfectants are put or dissolved in water disinfectant dispenser. Users add disinfectants from dispensers built near boreholes into water fetched from boreholes. The disinfectant will be provided by Social Aid periodically. The lifespan of the most representative water disinfectant and water disinfectant dispenser is 24 months and 15 years, respectively. The capacity of the water disinfectant dispenser is 5-20L and the treatment ability is 180 households (around 900 persons) per hour. Social Aid and water management committees will be in charge of water disinfection.



Figure 4. Chemical disinfection

**Contribution to sustainable development**

For local communities currently water is supplied from unsafe sources (like river) in the project area. Local people usually use wood on inefficient stoves to boil water as a means of purification. Greenhouse gas (GHG) will be released in this process from the combustion of wood.

After the implementation of the VPA, safe water will be supplied by boreholes. As a result, water boiling will be reduced so that GHG emissions will be reduced.

Besides reducing GHG emissions in line with the UN’s Sustainable Development Goal (SDG) number 13, this VPA will also contribute to the following other Sustainable Development Goals:

* SDG 3: Reduce the incidence of waterborne illness within the project area
* SDG 5: Reduce the time spent to fetch and purify water by women and girls
* SDG 6: Provide safe water to local residents
  1. Scale of the project

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The annual emission reductions of the VPA are 58,376 tCO2e, which is less than 60,000 tCO2e. As per Glossary CDM Terms (Version 10.0), the VPA is a type III small-scale project activity, which results in emission reductions of fewer than or equal to 60 kt CO2e annually.

* 1. Funding sources of project

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There is no public funding for the VPA. A signed ODA declaration has been provided.

1. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS
   1. Reference of approved methodology (ies)

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Technologies and Practices to Displace Decentralized Thermal Energy Consumption (Version 3.1)

* 1. Applicability of methodology (ies)

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|  |  |
| --- | --- |
| **Methodology requirement** | **Demonstration** |
| 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 maybe 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 VPA is located in Cox’s Bazar District, Chittagong Division of Bangladesh. The project boundary is the boundary of communities that use the boreholes maintained by the project activity. Each borehole consisted in the VPA will have a unique serial number engraved on the borehole or hand pump to ensure that double counting will not occur. The registries of Gold Standard, VCS and CDM have been check to confirm that the VPA is not included in any other voluntary market or CDM project activity as well as the project area does not overlaps with that of another Gold Standard and other voluntary or compliance standard programme of a similar nature. |
| The technologies have a continuous useful energy output of less than 150kW per unit (defined as total energy delivered usefully 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 VPA is to provide safe water through boreholes. The baseline scenario is that fossil fuel and/or NRB is used to boil water as means of water purification in the absence of the project activity.Therefore, the project technology just displaces thermal energy supplied in the baseline scenario rather than delivers thermal energy. According to the default value from "Application of TPDDTEC Methodology to Safe Water Supply Projects", 0.4Kg of wood is used for boiling 1L of water in 10 minutes. The NCV of wood is 15,600 KJ/Kg[[4]](#footnote-4). The total energy output is 0.4Kg × 15,600 KJ/Kg ÷ 600s = 10.4KW, which is less than 150KW. |
| The use of the baseline technology as a backup or auxiliary technology in parallel with the improved technology introduced by the project activity is permitted as long as a mechanism is put into place to encourage the removal of the old technology 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. | The use of baseline technology, using fossil fuel and/or NRB to boil water as means of water purification will be monitored in the monitoring plan. The emissions generated will be accounted for project emissions. More details are provided in Section B.6 and B.7. |
| 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. | A full explanation was given to the representatives of the villages where the VPA is located. Since the CME will undertake the cost for borehole maintenance, the ownership of the emission reductions generated from the VPA will be transferred to the CME. Donation and carbon transfer agreements were signed between the CME and the representatives of the villagers. |
| 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. | Not applicable as the VPA reduces the usage of biomass for water boiling rather than uses a new biomass feedback. |
| Adequate evidence is supplied to demonstrate that indoor air pollution (IAP) levels are not worsened compared to the baseline, and greenhouse gases 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. | The VPA provides safe water through boreholes thus it reduces water boiling for households and improves indoor air quality. |
| 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. These records need to be 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. | The emission reduction calculation will be based on the number of persons using the project technology, amount of fuel used to boil water and the amount of safe water consumed. Therefore, there is no renewable fuel sold in the VPA. |
| The Methodology is for project technologies and practices that introduce a new zero emission technology for safe water, instead of boiling water as a purification technique. Technologies include gravity household water filters, borehole pumps and their repair/maintenance/operation, ultraviolet radiation treatment, chlorine tablets, etc.. | The VPA maintains hand pump-drive boreholes to provide safe water. Chemical disinfection will be applied in case that water quality cannot meet the requirements after borehole maintenance. Both of the above technologies are zero emission technologies for safe water. |
| Special attention is required to as to the level of GHG emissions arsing 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. | Materials used in the VPA will be transported from Dhaka. The distance is no more than 500km. The diesel consumption for heavy truck is 0.41L/km[[5]](#footnote-5) and the density of diesel is 0.85Kg/L [[6]](#footnote-6)while the emission factor of diesel is 74.1t CO2e/TJ[[7]](#footnote-7) and the net calorific value is 0.043TJ/t[[8]](#footnote-8). So the emission is 0.56t CO2e (0.41L/km × 500km × 0.85Kg/L ÷ 1000Kg/t × 0.043TJ/t ×74.1t CO2e), which is much less than 5% of the emission reductions and negligible. |
| The water in its improved form should be available within 1km walking/pedaling distance from the households. There is a two-year grace period (from date of registration) for any households falling outside of the distance. However, once this period is over these households would not be in the emission reduction calculation. | After grace period, no emission reductions will be taken into account for households outside of 1km walking distance of the boreholes maintained by the VPA. |
| Only end-users boiling water or currently using unsafe water are eligible for crediting. | Only end-users boiling water or current using unsafe water will be account for number of persons consuming safe water supplied by the VPA. Related questions are raised in the questionnaire. |

* 1. Project boundary

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The project boundary is the boundary of communities that use the boreholes maintained by the project activity in Cox’s Bazar District, Chittagong Division of Bangladesh as shown in the following figure:



Figure 5. Diagram of Project Boundary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Source | | GHGs | Included? | Justification/Explanation |
| **Baseline scenario** | Emissions from combustion of non-renewable biomass (firewood) for boiling water in the absence of the project activity | CO2 | Yes | Important emission source during complete combustion of biomass |
| CH4 | Yes | Important emission source during incomplete combustion of biomass |
| N2O | Yes | Important emission source during incomplete combustion of biomass |
| **Project scenario** | Emissions from combustion of non-renewable biomass (firewood) for the operation of the project activity | CO2 | Yes | Important emission source during complete combustion of biomass |
| CH4 | Yes | Important emission source during incomplete combustion of biomass |
| N2O | Yes | Important emission source during incomplete combustion of biomass |

* 1. Establishment and description of baseline scenario

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According to the applied methodology, the baseline scenario is that fossil fuel and/or NRB is used to boil water as means of water purification in the absence of the project activity. Baseline survey was applied to calculate baseline emissions. Since local residents do not have enough budget to buy firewood for water boiling, suppressed demand is applied in the small scale VPA when establishing the baseline scenario as per the applied methodology. The percentage of premises that would have used other non-GHG emitting technologies, if available, in the absence of the project activity (Xboil) was determined by baseline survey. Only the premises that would have used boiling as water purification method will be taken into consideration in the suppressed demand scenario.

**Baseline Survey**

As per the applied methodology, baseline survey was conducted by representative and random sampling during from 08/05/2021 to 22/05/2021. Since the group size is more than 1,000, the sample size is determined to be 120 to satisfy the related requirements in the applied methodology. There are 6 communities with 20 households each which were chosen randomly from the communities involved in the PoA in Cox’s Bazar District of Bangladesh. The following information was collected during the baseline survey:

* + Address or location
  + Telephone number (when possible)
  + Number of people served by baseline technology
  + Typical baseline technology usage patterns and tasks (commercial, institutional, domestic ect)
  + Types of baseline technology used
  + Types of fuels used and price.
  + Season variation in baseline technology and fuel use

The following parameters were determined by the baseline survey:

|  |  |  |
| --- | --- | --- |
| Parameter | Description | Value |
| Cj | Percentage of users of project technology who were already in baseline using a non-boiling safe water supply | 0 |
| Xboil | Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary | 0 |
| Ib | Waterborne illness incidence in the baseline scenario | 62.9% |
| Tb | Time spent to fetch and purify water by women and girls per household per day in the baseline scenario | 2.62h |

In addition, baseline stove type (three stone) and fuel type (firewood) were also determined by the baseline survey.

More details are shown in Section B.6.1 and B.7.2.

* 1. 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). | According to Paragraph 4.1.9(b) of Community Service Activity Requirements (Version 1.2), community service projects located in LDC SIDS and LLDC are considered as additional and therefore are not required to prove financial additionality at the time of design certification. |
| Describe how the proposed project meets the criteria for deemed additionality. | The VPA is additional because it is a community service project and located in a least developed country-Bangladesh[[9]](#footnote-9). |

Before implementation of the VPA, all the boreholes involved in the VPA were not operated or completely abandoned. The CME will confirm this as well as there is no planned maintenance or repair for at least 3 months after the date the boreholes became non-operational.

* + 1. Prior Consideration

>>

Not applicable as a regular project.

* + 1. Ongoing Financial Need

>>

Not applicable because the VPA is not required to demonstrate financial additionality.

* 1. 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.b: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing states, including focusing on women, youth and local and marginalized communities | Reduce emission from water boiling by non renewable biomass in a LDC country - Bangladesh |
| 3 Ensure healthy lives and promote well-being for all at all ages | 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases | Reduce the incidence of waterborne illness within the project area |
| 5 Achieve gender equality and empower all women and girls | 5.4: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate | Reduce the time spent to fetch and purify water by women and girls |
| 6 Ensure availability and sustainable management of water and sanitation for all | 6.b: Support and strengthen the participation of local communities in improving water and sanitation management | Provide safe water to local residents |

* + 1. Explanation of methodological choices/approaches for estimating the SDG Impact

>>

(1) SDG 13:

**Baseline Scenario Fuel Consumption Calculation**

Bb,y = (1 – Xboil) \* (1 - Cj) \* Np,y \* Wb,y \* (Qp,y + Qp,rawboil,y)

Where:

Bb,y Quantity of fuel consumed in baseline scenario b during the year in tons

Xboil Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary

Cj Percentage of users of project technology who were already in baseline using a non boiling safe water supply

Np,y Number of person.days consuming water supplied by project scenario p through year y

Wb,y Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b in year y

Qp,y Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day.

Qp, rawboil,y Quantity of raw water boiled in the project scenario p per person per day

Xboil, Cj and Np,y are determined by baseline survey; Wb,y uses default value; Qp,y and Qp, rawboil,y are determined by water consumption field test.

**Project Scenario Fuel Consumption Calculation**

Bp,y = (1 - Cj) \* Np,y \* Wp,y \* (Qp,rawboil,y + Qp,cleanboil,y)

Where:

Bp,y Quantity of fuel consumed in project scenario p during the year y in tons

Cj Percentage of users of project technology who were already in baseline using a non boiling safe water supply

Np,y Number of person.days consuming water supplied by project scenario p through year y

Wp,y Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b in year y

Qp,rawboil,y Quantity of raw water boiled in the project scenario p per person per day

Qp,cleanboil,y Quantity of safe water boiled in the project scenario p per person per day in year y

Cj and Np,y are determined by baseline survey; Wp,y is equal to Wb,y since the same water boiling technology is applied in the baseline and project scenarios as per the baseline and project surveys; Qp,rawboil,y and Qp,cleanboil,y are determined by project water consumption field test.

**Emission Reductions**

BEb,y = Bb,y \*(( fNRB,b,y \* EFb,fuel,CO2) + EFb,fuel,non-CO2) \* NCVb,fuel

PEp,y = Bp,y \* ((fNRB,p,y \* EFp,fuel,CO2) + EFp,fuel,non-CO2) \* NCVp,fuel

ERy = (ΣBEfuel,b,y - ΣPEfuel,p,y) \* Up,y - ΣLEp,y

Where:

BEb,y  Baseline emissions during year y

PEp,y Project emissions during year y

Bb,y Quantity of fuel consumed in baseline scenario b during the year in tons

Bp,y Quantity of fuel consumed in project scenario p during the year y in tons

fNRB,b,y Fraction of biomass used that can be established as non-renewable biomass in baseline scenario b during year y

fNRB,p,y Fraction of biomass used that can be established as non-renewable biomass in project scenario p during year y

EFb,fuel,CO2 CO2 emission factor of fuels used in the baseline scenario

EFb,fuel,non-CO2 Non-CO2 emission factor of fuels used in the baseline scenario

EFp,fuel,CO2 CO2 emission factor of fuels used in the project scenario

EFp,fuel,non-CO2 Non-CO2 emission factor of fuels used in the project scenario

NCVb,fuel Net calorific value of fuels used in the baseline scenario

NCVp,fuel Net calorific value of fuels used in the project scenario

ERy Overall emission reductions achieved by the project activity during year y

Up,y Cumulative usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate

LEp,y Leakage from project scenario p during year y

fNRB, EFb,fuel,CO2, EFb,fuel,non-CO2, EFp,fuel,CO2, EFp,fuel,non-CO2, NCVb,fue and NCVp,fuel are determined by literature; Up,y is determined by project survey; LEp,y is determined by baseline and project surveys.

(2) SDG 3

The outcome of SDG 3 is quantified as the reduction of waterborne illness incidence compared to baseline scenario, which is calculated as follows:

Ir,y = Ib – Ip,y

Where:

Ir,y Reduction of waterborne illness incidence in year y

Ib Waterborne illness incidence in the baseline scenario

Ip,y Waterborne illness incidence in the project scenario during year y

Ib is determined by baseline survey while Iy is determined by project survey.

(3) SDG 5

The outcome of SDG 5 is quantified as percentage reduction of time spent to fetch and purify water by women and girls, which is calculated as follows:

Tr,y = (Tb - Tp,y)/Tb

Where:

Tr,y Percentage reduction of time spent to fetch and purify water by women and girls per household per day in year y

Tb  Time spent to fetch and purify water by women and girls per household per day in the baseline scenario

Tp,y Time spent to fetch and purify water by women and girls per household per day in the project scenario during year y

Tb is determined by baseline survey while Tp,y is determined by project survey.

(4) SDG 6

The outcome of SDG 6 is quantified as number of persons consuming safe water supplied by the project activity, which is calculated as follows:

Py = Pp,y \* (1-Cj) \*Up,y

Where

Py Number of persons consuming safe water supplied by the project activity during year y

Cj Percentage of users of project technology who were already in baseline scenario using a non boiling safe water supply

Pp,y Number of persons consuming water within the project area during year y

Up,y Cumulative usage rate for technologies in project scenario p during year y

Cj is determined by baseline survey while Pp,y and Up,y are determined by project survey.

* + 1. Data and parameters fixed ex ante

**SDG13**

|  |  |
| --- | --- |
| Data/parameter | Cj |
| Unit | Percentage |
| Description | Percentage of users of project technology who were already in baseline using a non-boiling safe water supply |
| Source of data | Baseline survey: B125 of Document “1-Data Recording Form for Baseline Survey\_20210610” |
| Value(s) applied | 0 |
| Choice of data or Measurement methods and procedures | The data is obtained through sampling survey as per the applied methodology. The sampling survey was conducted by Social Aid on 08/05/2021-22/05/2021 and the result is 0. |
| Purpose of data | Calculation of baseline and project emissions (SDG 13) as well as number of persons consuming safe water supplied by the project activity (SDG 6) |
| Additional comment | Also used for SDG 6 |

|  |  |
| --- | --- |
| Data/parameter | 1. Xboil |
| Unit | 1. Percentage |
| Description | 1. Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary. |
| Source of data | 1. Baseline survey: B126 of Document “1-Data Recording Form for Baseline Survey\_20210610” |
| Value(s) applied | 1. 0 |
| Choice of data or Measurement methods and procedures | 1. The data is obtained through sampling survey as per the applied methodology. The sampling survey was conducted by Social Aid on 08/05/2021-22/05/2021 and the result is 0. |
| Purpose of data | 1. Calculation of baseline emissions |
| Additional comment | - |

|  |  |
| --- | --- |
| Data/parameter | Wb,y |
| Unit | t/L |
| Description | Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representatives of baseline scenario b during year y |
| Source of data | Default value |
| Value(s) applied | 0.0004 |
| Choice of data or Measurement methods and procedures | 1. According to the baseline survey, the baseline fuel type is 100% of firewood. So the default value of Wb,y for firewood as per "Application of TPDDTEC Methodology to Safe Water Supply Projects" is applied. |
| Purpose of data | 1. Calculation of baseline emissions |
| Additional comment | Should be updated if ongoing monitoring surveys show that baseline water boiling technologies change over time. |

|  |  |
| --- | --- |
| Data/parameter | Wp,y |
| Unit | t/L |
| Description | Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representatives of project scenario p during year y |
| Source of data | Default value |
| Value(s) applied | 0.0004 |
| Choice of data or Measurement methods and procedures | 1. According to the baseline and project survey, the same water boiling technology is applied in the baseline and project scenarios. So Wb,y and Wp,y are equal |
| Purpose of data | 1. Calculation of project emissions |
| Additional comment | Should be updated if ongoing monitoring surveys show that baseline water boiling technologies change over time. |

|  |  |
| --- | --- |
| Data/parameter | fNRB,b,y |
| Unit | Percentage |
| Description | Fraction of biomass used that can be established as non – renewable biomass in the baseline scenario b during year y |
| Source of data | Calculation: C26 of Document “ 2-Bangladesh fNRB\_20210608” The value was calculated as per CDM Tool 30 “Calculation of The fraction of Non-renewable Biomass” (Version 03.0).  Other reference documents:  2019 Refinement to IPCC 2006  Global Forest Resources Assessment 2020 Bangladesh  Forest Product Conversion Factors 2020  FAOSTAT on Forest Production and Trade ( <http://www.fao.org/faostat/en/#data/FO>) |
| Value(s) applied | 0.9576 |
| Choice of data or Measurement methods and procedures | 1. - |
| Purpose of data | 1. Calculation of baseline emissions |
| Additional comment | \_ |

|  |  |
| --- | --- |
| Data/parameter | EFb,fuel,co2 |
| Unit | tCO2/TJ |
| Description | CO2 emission factor of fuels used in the baseline scenario |
| Source of data | IPCC default value for Wood: IPCC 2006 Guidelines for National Greenhouse gas Inventories  Chapter 2: Stationary Combustion  Page 2.23 Table 2.5 |
| Value(s) applied | 112 |
| Choice of data or Measurement methods and procedures | 1. According to the baseline survey, wood is the only fuel used in the baseline scenario. |
| Purpose of data | 1. Calculation of baseline emissions |
| Additional comment | - |

|  |  |
| --- | --- |
| Data/parameter | EFb,fuel,non co2 |
| Unit | tCO2/TJ |
| Description | Non CO2 emission factor of fuels used in the baseline scenario |
| Source of data | IPCC default value for Wood: IPCC 2006 Guidelines for National Greenhouse gas Inventories  Chapter 2: Stationary Combustion  Page 2.23 Table 2.5  IPCC Fifth Assessment Report: Climate Change 2014[[10]](#footnote-10) |
| Value(s) applied | 9.46 |
| Choice of data or Measurement methods and procedures | 1. According to the baseline survey, wood is the only fuel used in the baseline scenario. 2. As per IPCC 2006 Guidelines for National Greenhouse gas Inventories, the default emission factor of CH4 and N2O for stationary combustion is 0.3t/TJ and 0.004t/TJ, respectively. As per IPCC Fifth Assessment Report: Climate Change 2014, the global warming potential for CH4 and N2O is 28 and 265, respectively. So EFb,non co2 = 0.3×28+0.004×265 = 9.46. |
| Purpose of data | 1. Calculation of baseline emissions |
| Additional comment | - |

|  |  |
| --- | --- |
| Data/parameter | NCVb,fuel |
| Unit | TJ/ton |
| Description | Net calorific value of the fuels used in the baseline |
| Source of data | IPCC default value for wood  IPCC (2006) "IPCC Guidelines for National Greenhouse Gas  Inventories", Volume 2, Energy, Chapter 1, Introduction, Page 1.19, Table 1.2 |
| Value(s) applied | 0.0156 |
| Choice of data or Measurement methods and procedures | 1. According to the baseline survey, wood is the only fuel used in the baseline scenario. |
| Purpose of data | 1. Calculation of baseline emissions |
| Additional comment | - |

|  |  |
| --- | --- |
| Data/parameter | fNRB,p,y |
| Unit | Percentage |
| Description | Fraction of biomass used that can be established as non – renewable biomass in the project scenario p during year y |
| Source of data | Calculation: C26 of Document “ 2-Bangladesh fNRB\_20210608”. The value was calculated as per CDM Tool 30 “Calculation of The fraction of Non-renewable Biomass” (Version 03.0).  Other reference documents:  2019 Refinement to IPCC 2006  Global Forest Resources Assessment 2020 Bangladesh  Forest Product Conversion Factors 2020  FAOSTAT on Forest Production and Trade ( <http://www.fao.org/faostat/en/#data/FO>) |
| Value(s) applied | 0.9576 |
| Choice of data or Measurement methods and procedures | 1. - |
| Purpose of data | 1. Calculation of project emissions |
| Additional comment | \_ |

|  |  |
| --- | --- |
| Data/parameter | EFp,fuel,co2 |
| Unit | tCO2/TJ |
| Description | CO2 emission factor of fuels used in the project scenario |
| Source of data | IPCC default value for Wood: IPCC 2006 Guidelines for National Greenhouse gas Inventories  Chapter 2: Stationary Combustion  Page 2.23 Table 2.5 |
| Value(s) applied | 112 |
| Choice of data or Measurement methods and procedures | 1. According to the project survey, wood is the only fuel used in the project scenario. |
| Purpose of data | 1. Calculation of project emissions |
| Additional comment | - |

|  |  |
| --- | --- |
| Data/parameter | EFp,fuel,non co2 |
| Unit | tCO2/TJ |
| Description | Non CO2 emission factor of fuels used in the project scenario |
| Source of data | IPCC default value for Wood: IPCC 2006 Guidelines for National Greenhouse gas Inventories  Chapter 2: Stationary Combustion  Page 2.23 Table 2.5  IPCC Fifth Assessment Report: Climate Change 2014[[11]](#footnote-11) |
| Value(s) applied | 9.46 |
| Choice of data or Measurement methods and procedures | 1. According to the baseline survey, wood is the only fuel used in the baseline scenario. 2. As per IPCC 2006 Guidelines for National Greenhouse gas Inventories, the default emission factor of CH4 and N2O for stationary combustion is 0.3t/TJ and 0.004t/TJ, respectively. As per IPCC Fifth Assessment Report: Climate Change 2014, the global warming potential for CH4 and N2O is 28 and 265, respectively. So EFb,non co2 = 0.3×28+0.004×265 = 9.46. |
| Purpose of data | 1. Calculation of project emissions |
| Additional comment | - |

|  |  |
| --- | --- |
| Data/parameter | NCVp,fuel |
| Unit | TJ/ton |
| Description | Net calorific value of the fuels used in the project scenario |
| Source of data | IPCC default value for wood  IPCC (2006) "IPCC Guidelines for National Greenhouse Gas  Inventories", Volume 2, Energy, Chapter 1, Introduction, Page 1.19, Table 1.2 |
| Value(s) applied | 0.0156 |
| Choice of data or Measurement methods and procedures | 1. According to the project survey, wood is the only fuel used in the project scenario. |
| Purpose of data | 1. Calculation of project emissions |
| Additional comment | - |

**SDG 3**

|  |  |
| --- | --- |
| Data/parameter | Ib |
| Unit | Percentage |
| Description | Waterborne illness incidence in the baseline scenario |
| Source of data | Baseline survey: B127 of Document “1-Data Recording Form for Baseline Survey\_20210610” |
| Value(s) applied | 62.9% |
| Choice of data or Measurement methods and procedures | 1. The data is obtained through sampling survey as per the applied methodology. The sampling survey was conducted by Social Aid on 08/05/2021-22/05/2021 and the result is 62.9%. |
| Purpose of data | 1. Calculation of reduction of waterborne illness incidence |
| Additional comment | - |

**SDG 5**

|  |  |
| --- | --- |
| Data/parameter | Tb |
| Unit | Hour |
| Description | Time spent to fetch and purify water by women and girls per household per day in the baseline scenario |
| Source of data | Baseline survey: B128 of Document “1-Data Recording Form for Baseline Survey\_20210610” |
| Value(s) applied | 2.62 |
| Choice of data or Measurement methods and procedures | 1. The data is obtained through sampling survey as per the applied methodology. The sampling survey was conducted by Social Aid on 08/05/2021-22/05/2021 and the result is 2.62. |
| Purpose of data | 1. Calculation of percentage reduction of time spent to fetch and purify water by women and girls |
| Additional comment | - |

* + 1. Ex ante estimation of SDG Impact

>>

(1) SDG 13:

**Baseline Scenario Fuel Consumption Calculation**

Bb,y = (1 – Xboil) \* (1 - Cj) \* Np,y \* Wb,y \* (Qp,y + Qp,rawboil,y)

Where:

Bb,y Quantity of fuel consumed in baseline scenario b during the year in tons

Xboil Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary; the applied value is 0 as per section B.6.2.

Cj Percentage of users of project technology who were already in baseline scenario using a non boiling safe water supply; the applied value is 0 as per section B.6.2.

Np,y Number of person.days consuming water supplied by project scenario p through year y; the applied value is 11,451,000 as per Section B.7.1.

Wb,y Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b in year y; the applied value is 0.0004 as per Section B.6.2.

Qp,y Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day; the applied value is 7 as per Section B.6.2.

Qp, rawboil,y Quantity of raw water boiled in the project scenario p per person per day; ; the applied value is 0 as per Section B.6.2.

As a result, Bb,y = 32,063 t

**Project Scenario Fuel Consumption Calculation**

Bp,y = (1 - Cj) \* Np,y \* Wp,y \* (Qp,rawboil,y + Qp,cleanboil,y)

Where:

Bp,y Quantity of fuel f consumed in project scenario p during the year y in tons

Cj Percentage of users of project technology who were already in baseline scenario using a non boiling safe water supply; the applied value is 0 as per section B.6.2.

Np,y Number of person.days consuming water supplied by project scenario p through year y; the applied value is 11,451,000 as per Section B.7.1

Wp,y Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b in year y; the applied value is 0.0004 as per Section B.6.2.

Qp,rawboil,y Quantity of raw water boiled in the project scenario p per person per day; the applied value is 0 as per Section B.7.1.

Qp,cleanboil,y Quantity of safe water boiled in the project scenario p per person per day in year y; the applied value is 0 as per Section B.7.1.

As a result, Bp,y = 0

**Emission Reductions**

BEb,y = Bb,y \*(( fNRB,b,y \* EFb,fuel,CO2) + EFb,fuel,non-CO2) \* NCVb,fuel

PEp,y = Bp,y \* ((fNRB,p,y \* EFp,fuel,CO2) + EFp,fuel,non-CO2) \* NCVp,fuel

ERy = (ΣBEfuel,b,y - ΣPEfuel,p,y) \* Up,y - ΣLEp,y

Where:

BEb,y  Baseline emissions during year y

PEp,y Project emissions during year y

Bb,y Quantity of fuel consumed in baseline scenario b during the year in tons; the applied value is 32,063 as per calculation in this section above;

Bp,y Quantity of fuel consumed in project scenario p during the year y in tons; the applied value is 0 as per calculation in this section above;

fNRB,b,y Fraction of biomass used that can be established as non-renewable biomass in baseline scenario b during year y; the applied value is 0.9576 as per section B.6.2.

fNRB,p,y Fraction of biomass used that can be established as non-renewable biomass in project scenario p during year y; the applied value is 0.9576 as per section B.6.2.

EFb,fuel,CO2 CO2 emission factor of fuels used in the baseline scenario; the applied value is 112 as per section B.6.2.

EFb,fuel,non-CO2 Non-CO2 emission factor of fuels used in the baseline scenario; the applied value is 9.46 as per section B.6.2.

EFp,fuel,CO2 CO2 emission factor of fuels used in the project scenario; the applied value is 112 as per section B.6.2.

EFp,fuel,non-CO2 Non-CO2 emission factor of fuels used in the project scenario; the applied value is 9.46 as per section B.6.2.

NCVb,fuel Net calorific value of fuels used in the baseline scenario; the applied value is 0.0156 as per section B.6.2.

NCVp,fuel Net calorific value of fuels used in the project scenario; the applied value is 0.0156 as per section B.6.2.

ERy Overall emission reductions achieved by the project activity during year y

Up,y Cumulative usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate; the applied value is 100% as per section B.7.1.

LEp,y Leakage from project scenario p during year y; the applied value 0 as per section B.7.1.

As per the applied methodology, LEp,y is estimated as follows:

|  |  |
| --- | --- |
| Potential Influence Factor | Interpretation |
| 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. | The displaced baseline technology is three stones. It will not be reused outside the project boundary because it will still be used for cooking after the implementation of the VPA. |
| Non-project users who previously used lower emitting energy sources use the non-renewable biomass or fossil fuels saved under the project activity. | The costs of low emitting water purification technologies, such as filtration and chlorination, are much higher than boiling with wood fuel. Users of these technologies are not price sensitive. Therefore, the implementation of the VPA will not lead these users to boil water with wood fuel, even if the price of wood fuel becomes cheaper because of the reduction of demand caused by the VPA. |
| 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. | Considering that the VPA only saves 32,063tons (Bb,y) of biomass annually while the total amount of above-ground biomass of Bangladesh is 177 million tons[[12]](#footnote-12), the VPA will not affect NRB fraction. |
| 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. | The space heating effect of boiling water is negligible. Therefore it is highly unlikely that some other form of heating will be adopted for compensating the space heating effect of boiling water. |
| By virtue of promotion and marketing of new technology with high efficiency, the project stimulates substitution within households who commonly used a technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline. | The VPA will not promote any new technology with high efficiency. It will not stimulate people to boil water. |

In conclusion, LEp,y = 0

As a result, BEb,y = 58,376 tCO2e; PEp,y = 0; ERy = 58,376 tCO2e

(2) SDG 3

The outcome of SDG 3 is quantified as the reduction of waterborne illness incidence compared to baseline scenario, which is calculated as follows:

Ir,y = Ib – Ip,y

Where:

Ir,y Reduction of waterborne illness incidence in year y

Ib Waterborne illness incidence in the baseline scenario; the applied value is 62.9% as per section B.6.2.

Ip,y Waterborne illness incidence in the project scenario during year y; the applied value is 30% as per section B.7.1.

As a result, Ir,y = 32.9%

(3) SDG 5

The outcome of SDG 5 is quantified as percentage reduction of time spent to fetch and purify water by women and girls, which is calculated as follows:

Tr,y = (Tb - Tp,y)/Tb

Where:

Tr,y Percentage reduction of time spent to fetch and purify water by women and girls per household per day in year y

Tb  Time spent to fetch and purify water by women and girls per household per day in the baseline scenario; the applied value is 2.62 as per section B.6.2.

Tp,y Time spent to fetch and purify water by women and girls per household per day in the project scenario during year y; the applied value is 1 as per section B.7.1.

As a result, Tr,y = 61.83%

(4) SDG 6

The outcome of SDG 6 is quantified as number of persons consuming safe water supplied by the project activity, which is calculated as follows:

Py = Pp,y \* (1-Cj) \*Up,y

Where

Py Number of persons consuming safe water supplied by the project activity during year y

Pp,y Number of persons consuming water within the project area during year y; the applied value is 33,000 as per section B.7.1.

Cj Percentage of users of project technology who were already in baseline scenario using a non boiling safe water supply; the applied value is 0 as per section B.6.2.

Up,y Cumulative usage rate for technologies in project scenario p during year y; the applied value is 100% as per section B.7.1.

As a result, Py = 33,000

* + 1. Summary of ex ante estimates of each SDG outcome

**SDG 13**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Baseline estimate  (tCO2e) | Project estimate  (tCO2e) | Net benefit (tCO2e) |
| 01/10/2021-30/09/2022 | 58,376 | 0 | 58,376 |
| 01/10/2022-30/09/2023 | 58,376 | 0 | 58,376 |
| 01/10/2023-30/09/2024 | 58,376 | 0 | 58,376 |
| 01/10/2024-30/09/2025 | 58,376 | 0 | 58,376 |
| 01/10/2025-30/09/2026 | 58,376 | 0 | 58,376 |
| Total | 291,880 | 0 | 291,880 |
| Total number of crediting years | 5 | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Annual average over the crediting period** | 58,376 | 0 | 58,376 |

**SDG 3**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Baseline estimate  (Waterborne illness incidence) | Project estimate  (Waterborne illness incidence) | Net benefit (Reduction of waterborne illness incidence) |
| 01/10/2021-30/09/2022 | 62.9% | 30% | 32.9% |
| 01/10/2022-30/09/2023 | 62.9% | 30% | 32.9% |
| 01/10/2023-30/09/2024 | 62.9% | 30% | 32.9% |
| 01/10/2024-30/09/2025 | 62.9% | 30% | 32.9% |
| 01/10/2025-30/09/2026 | 62.9% | 30% | 32.9% |
| Total | - | - | - |
| Total number of crediting years | 5 | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Annual average over the crediting period** | 62.9% | 30% | 32.9% |

**SDG 5**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Baseline estimate  (Time spent to fetch and purify water by women and girls) | Project estimate  (Time spent to fetch and purify water by women and girls) | Net benefit (Percentage reduction of time spent to fetch and purify water by women and girls) |
| 01/10/2021-30/09/2022 | 2.62h | 1h | 61.83% |
| 01/10/2022-30/09/2023 | 2.62h | 1h | 61.83% |
| 01/10/2023-30/09/2024 | 2.62h | 1h | 61.83% |
| 01/10/2024-30/09/2025 | 2.62h | 1h | 61.83% |
| 01/10/2025-30/09/2026 | 2.62h | 1h | 61.83% |
| Total | **13.1h** | **5h** | - |
| Total number of crediting years | 5 | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Annual average over the crediting period** | 2.62h | 1h | 61.83% |

**SDG 6**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Baseline estimate  (Number of persons consuming safe water) | Project estimate  (Number of persons consuming safe water) | Net benefit (Number of persons consuming safe water)) |
| 01/10/2021-30/09/2022 | 0 | 33,000 | 33,000 |
| 01/10/2022-30/09/2023 | 0 | 33,000 | 33,000 |
| 01/10/2023-30/09/2024 | 0 | 33,000 | 33,000 |
| 01/10/2024-30/09/2025 | 0 | 33,000 | 33,000 |
| 01/10/2025-30/09/2026 | 0 | 33,000 | 33,000 |
| Total | **0** | **165,000** | **165,000** |
| Total number of crediting years | 5 | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Annual average over the crediting period** | 0 | 33,000 | 33,000 |

* 1. Monitoring plan
     1. Data and parameters to be monitored

**SDG 13**

|  |  |
| --- | --- |
| Data/parameter | Qp,y |
| 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 | Water consumption field test |
| Value(s) applied | 7 |
| Measurement methods and procedures | 1. The data applied here is from estimation. It will be determined by water consumption field test in monitoring periods through sampling survey as per the applied methodology. According to the applied methodology, the cap value for full-day premises is 7. So we will choose the smaller value between the cap value and the value from test for conservativeness. |
| Monitoring frequency | 1. At least biennially |
| QA/QC procedures | 1. Transparent data analysis and reporting |
| Purpose of data | 1. Calculation of baseline emissions |
| Additional comment | - |

|  |  |
| --- | --- |
| Data / Parameter | Qp,rawboil,y |
| Unit | Litres per person per day |
| Description | Quantity of raw or unsafe water that is still boiled after installation of the water treatment technology. |
| Source of data | Water consumption field test |
| Value(s) applied | 0 |
| Measurement methods and procedures | The data applied here is from estimation. It will be determined by water consumption field test in monitoring periods through sampling survey as per the applied methodology. |
| Monitoring frequency | At least biennially |
| QA/QC procedures | Transparent data analysis and reporting |
| Purpose of data | Calculation of baseline and project emissions |
| Additional comment |  |

|  |  |
| --- | --- |
| Data / Parameter | Qp,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 | Water consumption field test |
| Value(s) applied | 0 |
| Measurement methods and procedures | The data applied here is from estimation. It will be determined by water consumption field test in monitoring periods through sampling survey as per the applied methodology. |
| Monitoring frequency | At least biennially |
| QA/QC procedures | Transparent data analysis and reporting |
| Purpose of data | Calculation of project emissions |
| Additional comment |  |

|  |  |
| --- | --- |
| Data / Parameter | Quality of the treated water |
| Unit | Percentage |
| Description | Performance of the treatment technology – less than 1 Colony Forming Unit (CFU) of E.Coli / 100 ml of safe water – in unqualified rate |
| Source of data | Water quality test |
| Value(s) applied | 0 |
| Measurement methods and procedures | As per the local laboratories’ methods and procedures |
| Monitoring frequency | Quarterly |
| QA/QC procedures | Transparent data analysis and reporting |
| Purpose of data | Calculation of emission reductions |
| Additional comment | - |

|  |  |
| --- | --- |
| Data / Parameter | Up,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 | The data applied here is from estimation. It will be determined by usage survey in monitoring periods through sampling survey as per the applied methodology. |
| Monitoring frequency | Annually |
| QA/QC procedures | Transparent data analysis and reporting |
| Purpose of data | Calculation of emission reductions (SDG 13) and number of persons consuming safe water supplied by the project activity (SDG 6) |
| Additional comment | A single usage parameter is weighted to be representative of the quantity of project technologies of each age being credited in a given project scenario as per Section 3.1 of the applied methodology. Also used for SDG 6. |

|  |  |
| --- | --- |
| Data / Parameter | Np,y |
| Unit | Persons.days |
| Description | Number of person.days consuming water supplied by project scenario p through year y |
| Source of data | Water consumption field test |
| Value(s) applied | 11,451,000 |
| Measurement methods and procedures | Sum of the total number of people using boreholes in the VPA (33,000) multiplied by the number of borehole using days in year y (347). These two data will be determined in water consumption field test and project survey during monitoring periods. The failure days of the boreholes will be monitored for determining the number of borehole using days in year y. |
| Monitoring frequency | At least biennially |
| QA/QC procedures | Transparent data analysis and reporting |
| Purpose of data | Calculation of baseline emissions and project emissions |
| Additional comment | - |

|  |  |
| --- | --- |
| Data / Parameter | LEp,y |
| Unit | tCO2e per year |
| Description | Leakage in project scenario p during year y |
| Source of data | Baseline and monitoring surveys |
| Value(s) applied | 0 |
| Measurement methods and procedures | The result is 0 and the details are shown in Section B.6.3. |
| Monitoring frequency | Biennially |
| QA/QC procedures | Transparent data analysis and reporting |
| Purpose of data | Calculation of emission reductions |
| Additional comment | - |

**SDG 3**

|  |  |
| --- | --- |
| Data / Parameter | Ip,y |
| Unit | Percentage |
| Description | Waterborne illness incidence in the project scenario during year y |
| Source of data | Project survey |
| Value(s) applied | 30% |
| Measurement methods and procedures | The data applied here is from estimation. It will be determined by project survey in monitoring periods through sampling survey as per the applied methodology. |
| Monitoring frequency | At least biennially |
| QA/QC procedures | Transparent data analysis and reporting |
| Purpose of data | Calculation of reduction of waterborne illness incidence |
| Additional comment |  |

**SDG 5**

|  |  |
| --- | --- |
| Data / Parameter | Tp,y |
| Unit | Hour |
| Description | Time spent to fetch and purify water by women and girls per household per day in the project scenario during year y |
| Source of data | Project survey |
| Value(s) applied | 1 |
| Measurement methods and procedures | The data applied here is from estimation. It will be determined by project survey in monitoring periods through sampling survey as per the applied methodology |
| Monitoring frequency | At least biennially |
| QA/QC procedures | Transparent data analysis and reporting |
| Purpose of data | Calculation of percentage reduction of time spent to fetch and purify water by women and girls |
| Additional comment |  |

**SDG 6**

|  |  |
| --- | --- |
| Data / Parameter | Pp,y |
| Unit | Number |
| Description | Number of persons consuming water within the project area during year y |
| Source of data | Project survey |
| Value(s) applied | 33,000 |
| Measurement methods and procedures | Head of village and district officer or water management committee |
| Monitoring frequency | At least biennially |
| QA/QC procedures | Transparent data analysis and reporting |
| Purpose of data | Calculation of number of persons consuming safe water supplied by the VPA |
| Additional comment |  |

|  |  |
| --- | --- |
| Data / Parameter | Hygiene campaigns |
| Unit | - |
| Description | Hygiene campaigns carried out among project technology users to make the users be aware of water safety. |
| Source of data | Annual hygiene campaigns results |
| Value(s) applied | - |
| Measurement methods and procedures | - |
| Monitoring frequency | Annually |
| QA/QC procedures | - |
| Purpose of data | Assessment of achievement of SDG 6 |
| Additional comment | - |

|  |  |
| --- | --- |
| Data / Parameter | Safety of water disinfectants used in the VPA |
| Unit | - |
| Description | Water disinfectants used in the VPA should obtain international or domestic certificate, such as CE certificate, US FDA certificate or Bangladesh national authority’s certificate. |
| Source of data | - |
| Value(s) applied | - |
| Measurement methods and procedures | - |
| Monitoring frequency | Annually |
| QA/QC procedures | - |
| Purpose of data | Assessment of achievement of SDG 6 |
| Additional comment | - |

* + 1. Sampling plan

>>

(1) Target population

The target population are boreholes maintained by the VPA and households consuming safe water provided by the VPA.

(2) Sampling method and size

Since VPA07-10 of PoA GS 10959 are in the same district, using same technologies and sharing same baseline scenario, representative and random cross VPA sampling will be applied in these VPAs.

As per the applied methodology, the following guidelines will be applied to calculate the sample size:

Group size < 300: Minimum sample size 30 or population size, whichever is smaller;

Group size 300 to 1,000: Minimum sample size 10% of group size;

Group size > 1,000: Minimum sample size 100.

As per “Standard: Sampling and surveys for CDM project activities and programmes of activities (Version 09 .0)” and “Guidelines for sampling and surveys for CDM project activities and programmes of activities (Version 04.0)”, the 95/10 rule should be applied for cross VPA sampling.

(3) Data to be collected

The following parameters may be determined by sampling:

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Description | Confidence/ Precision | Frequency |
| Cj | Percentage of users of project technology who were already in baseline using a non-boiling safe water supply | 95/±10 | One-time measurement ex-ante |
| Xboil | Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary. | 95/±10 | One-time measurement ex-ante |
| Ib | Waterborne illness incidence in the baseline scenario | 95/±10 | One-time measurement ex-ante |
| Tb | Time spent to fetch and purify water by women and girls per household in the baseline scenario | 95/±10 | One-time measurement ex-ante |
| Qp,y | Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day | 95/±10 | At least biennially |
| Qp,rawboil,y | Quantity of raw or unsafe water that is still boiled after installation of the water treatment technology | 95/±10 | At least biennially |
| Qp,cleanboil,y | Quantity of safe (treated, or from safe supply) water boiled in the project scenario p, after installation of project technology | 95/±10 | At least biennially |
| Up,y | Usage rate in project scenario p during year y | 95/±10 | Annually |
| Ip,y | Waterborne illness incidence in the project scenario during year y | 95/±10 | Annually |
| Tp,y | Time spent to fetch and purify water by women and girls per household in the project scenario during year y | 95/±10 | Annually |
| Water Quality | Performance of the treatment technology – less than 1 Colony Forming Unit (CFU) of E.Coli / 100 ml of safe water – in unqualified rate | 95/±10 | Quarterly |

Besides the above parameters, the following data need to be collected as per the applied methodology:

* Address or location and telephone number (mobile or landline where possible)
* The number of people served by the baseline technology and typical usage patterns and tasks (e.g. commercial, institutional, domestic, etc.)
* Types of baseline technologies used and estimated frequency
* Types of fuels used and estimated quantities
* Seasonal variations in baseline technology and fuel use
* Sources of fuels (purchased or hand-collected, etc.) and prices paid or effort made (e.g. walking distances, persons collecting, opportunity costs)

(4) Implementation plan

The main survey methods applied in the sampling plan include hardcopy questionnaires, face to face interview and telephone interview. The potential of refusals and other means of non-responses will be taken into account for calculation of sample size. Meanwhile, in order to minimize the rates of non-response and answer bias, the questionnaires will be designed by professional team and widely tested before use. In addition, baseline and project water consumption field test will be conducted as per the applied methodology.

* + 1. Other elements of monitoring plan

>>

Social Aid is in charge of the implementation of the monitoring plan and reporting to the CME. The executive director of Social Aid is responsible for supervising the whole monitoring procedure. The water and environment department is responsible for conducting baseline and project surveys as well as reporting to the executive director. The CME is in charge of designing the monitoring plan and completing the monitoring report.

Training about monitoring plan will be provided to Social Aid, including survey method, data record and analysis. The monitoring plan will be carried out by qualified personnel trained for quality assurance and quality control. The CME will inspect Social Aid to confirm that the personnel are qualified and the monitoring plan has been properly implemented.

1. DURATION AND CREDITING PERIOD
   1. Duration of project
      1. Start date of project

>>

Estimated to be 01/02/2022, to be decided according to the date when the first borehole is maintained by the VPA as per Paragraph 4.1.40 of Principles & Requirements (Version 1.2)

* + 1. Expected operational lifetime of project

>>

15 years 0 month

* 1. Crediting period of project
     1. Start date of crediting period

>>

Estimated to be 01/02/2022, to be decided according to the date of the implementation of the first unit (i.e. the maintenance of the first borehole) under the VPA as per Paragraph 4.1.40 of Principles and Requirements (Version 1.2)

* + 1. Total length of crediting period

>>

5 years, twice renewable to a total of 15 years

1. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT
   1. Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is in [Appendix 1](#_APPENDIX_1_–), ongoing monitoring is summarised below.

|  |  |
| --- | --- |
| Principles | Mitigation Measures added to the Monitoring Plan |
| Principle 9.5  Hazardous and Non-hazardous Waste | Water disinfectants used in the VPA should obtain international or domestic certificate, such as CE certificate, US FDA certificate or Bangladesh national authority’s certificate. |
|  |  |
|  |  |

* 1. 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 VPA aims to be gender sensitive in design without excluding marginalised members of society. The VPA seeks to promote gender equality at all levels. The implemented activities including the stakeholder consultation as well as the future implementation of the project activities take into the account gender roles and the abilities of women and men to participate in the decision/designs of the project activities.  For the majority of households in Bangladesh, water fetching, fuel collection and purification activities are handled by women. In fact, the availability of clean water in a reasonable distance is foreseen to reduce women’s work load related to water purification, collection of fuel needed for boiling water and caring activities as the risk for water borne diseases. It can be further expected that sexual harassment and violence happening during fuel collection and water fetching activities may be reduced. Hence, largely women will benefit from the project activity. |  |
| Question 2 - Explain how the project aligns with existing country policies, strategies and best practices | Project activities are in line with the goals of Bangladesh national policies. Bangladesh has ratified an  Equal Rights into their respective constitution (National Women's Development Policy), which guarantees equal gender rights.[[13]](#footnote-13) The project activities take into the account national policies, in fact the aim is to improve the conditions of the local women and girls by providing access to clean and safe water. |  |
| Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements? | Members of women organizations were invited to attend the stakeholder consultation including discussion on Safeguarding Principles & Requirements. No other expert is required for the Safeguarding Principles & Requirements. |  |
| Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation? | Members of women organizations were invited to attend the stakeholder consultation. No other expert is required to assist with Gender issues at the Stakeholder Consultation. |  |

1. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

The below is a summary of the 2 step GS4GG Consultation for monitoring purposes. Pleaserefer to the separate Stakeholder Consultation Report for a complete report on the initial consultation and stakeholder feedback round.

* 1. Summary of stakeholder mitigation measures

>>

The stakeholder consultation meeting was held on 10/06/2021. No mitigation measures are required according to the local stakeholder consultation. Please refer to the stakeholder consultation report for more details.

* 1. 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) | Middle Meronglua beside Bypass Bus Station Ramu  Futkhali,Muhuri Para, behind the Cox's Bazar Govt College.Cox's Bazar Sadar  150ft sculpture, Sa Bagan,Ramu  Deil Para,beside Gonosastho Kendro, khurushkul, Cox's Bazar Sadar  Ghunar Para beside Rangkut,Ramu  SOCIAL AID, Arif Market, 3 rd Floor, Link Road-4701, Cox’s Bazar Sadar, Cox’s Baz |
| GS Contact (mandatory) | [help@goldstandard.org](mailto:help@goldstandard.org) |
| Email | Mr. Ji BAO: [baoji@icebergchina.com](mailto:baoji@icebergchina.com)  Engr. Md. Babul Aktar: ed@socialaid.org.bd |
| Cell Phone | Engr. Md. Babul Aktar: +88-01712080178  Md Maruf: 01887670849  Md Rashel: 01889528429  Md Rashed: 01827-041033  Nuri Akter: 01839566480  Md Kamal Uddin: 01818138805 |

### Appendix 1 - Safeguarding Principles Assessment

Complete the Assessment below and copy all Mitigation Measures for each Principle into [SECTION D](#check1) above. Please refer to the instructions in the [Guide to Completing](https://globalgoals.goldstandard.org/standards/TGuide-PreReview_V1.2-Project-Design-Document.pdf) 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 | 1.No  2.No | 1. Bangladesh has ratified many UN Human Rights Conventions.[[14]](#footnote-14) The CME and the VPA will respect related laws of People's Republic of Bangladesh and will not lead to violations of human rights or discrimination of any kind.  2. The VPA is set up to include people of all genders, races, religions, educational backgrounds or any other aspects. The VPA will not discriminate with regards to participation and inclusion as the safe water supply is free to be used for everybody. | 1.N/A  2.N/A |
| **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. Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking. 3. Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls. 4. Restriction of women’s rights or access to resources (natural or economic). 5. Recognise women’s ownership rights regardless of marital status – adopt project measures where possible to support to women’s access to inherit and own land, homes, and other assets or natural resources. 6. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work 7. Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities. 8. Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status. 9. Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits. 10. The Project shall refer to the country’s national gender strategy or equivalent national commitment to aid in assessing gender risks 11. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s) | 1.No  2.No  3.No  4.No | 1.(a) The VPA will not directly or indirectly lead or contribute to adverse impacts on gender equality or the situation of women. In fact, the access to clean and safe water are foreseen to improve the general conditions of women and not to lead to any risk of contributing issues like sexual harassment, sexual exploitation, violence, human trafficking  1.(b) The VPA will not directly or indirectly lead to/contribute to slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls. In contrast, the VPA will contribute to health and well-being of women and girls.  1.(c) Boreholes are usually located in the public place of villages for everyone to use. No one can restrict women to access or control the natural resources. The VPA will benefit to local community regardless of gender. All inhabitants of  Bangladesh may turn to Committee on Economic, Social and Cultural Rights of the United Nations for women’s rights violations.[[15]](#footnote-15)  1.(d) The VPA will not have any impact on women’s ownership rights to inherit and own land, homes and other assets. Bangladesh's progressive land ownership policy will be applied to everybody irrespective of gender.[[16]](#footnote-16)  2.(a) For maintenance work and any other eventual paid or volunteer work in the VPA, the principle of the equal pay for equal work will be applied and organized in way to provide the conditions for equitable participation of men and women.  2.(b) The VPA applies the principles of nondiscrimination and equal treatment. Pregnancy or marital status does not affect the ability of a person to engage in the VPA.  2.(c) Equal participation of women and men in the VPA activities, like using the clean and safe water and participating in the annual hygiene campaigns, is guaranteed.  3. Bangladesh has ratified an  Equal Rights into their respective constitution (National Women's Development Policy), which guarantees equal gender rights.[[17]](#footnote-17) The VPA will abide by the national gender strategy. So the VPA does not involve and is not complicit in any form of discrimination based on gender difference.  4. Not applicable as no opinion or recommendation is received from expert stakeholder. | 1.N/A  2.N/A  3.N/A  4. N/A |
| **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 activities do not pose risks to the health of the community. In fact, the VPA will reduce the risk of water borne illness for local communities and indoor air pollution caused by boiling water for purification. Local communities will benefit from clean and safe water. | N/A |
| **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 | There are no sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture in the Project Area. | N/A |
| >> |
| **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 activity consists of introducing clean and safe water and therefore no physical or economic relocation of people is involved. | N/A |
| >> |
| **Principle 4.3 Land Tenure and Other Rights** | | | |
| Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership? | No | The VPA rehabilitates existing boreholes that have been in place for many years. No changes to land tenure arrangements and/or rights are required. | N/A |
| >> |
| **Principle 4.4 Indigenous Peoples** | | | |
| 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 | There are no indigenous people present within the area of influence of the VPA. The VPA is not located on territory claimed by indigenous people. | N/A |
| >> |
| **Principle 5. Corruption** | | | |
| 1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects | No | The VPA does not involve or inadvertently contribute to or reinforce or is not complicit in any corruption. Bangladesh has ratified the UN Convention against Corruption[[18]](#footnote-18) which the VPA will obey. | N/A |
| **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:      1. Working hours (must not exceed 48 hours per week on a regular basis), AND      2. Duties and tasks, AND      3. Remuneration (must include provision for payment of overtime), AND      4. Modalities on health insurance, AND      5. Modalities on termination of the contract with provision for voluntary resignation by employee, AND      6. 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](https://globalgoals.goldstandard.org/glossary/) opinion)   5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures | 1.No  2.No  3.No  4.No  5. No | 1. The CME follows the labour laws and policies of Bangladesh. Bangladesh has ratified many ILO Conventions, including convention 87 (Freedom of Association and Protection of the Right to Organise Convention), convention 98 (Right to Organise and Collective Bargaining Convention), convention 29 (Forced Labour Convention) and 105 (Abolition of Forced Labour Convention).[[19]](#footnote-19)  2. The CME does not restrict workers to be able to establish or join Labour organisations.  3. The CME does not hire local employees. The CME will supervise local partners to follow the labour laws of Bangladesh about the employees’ working hours, remuneration, annual leave and so on. All employees of the CME’s local partners will work voluntarily and attend trainings on health & safety. The employment model related to the VPA will be also locally and culturally appropriate.  4. The age of all the staffs hired by local partners of the CME will be checked through ID cards to make sure that no one is below 18. Bangladesh has ratified ILO Conventions 182 (Worst Forms of Child Labour Convention)[[20]](#footnote-20) which the CME and all its local partners will obey.  5. All the work will be done by appropriate equipment with properly trained workers. Emergency preparedness and response measures have been set up and all the accidents and incidents will be recorded and reported. | 1.N/A  2.N/A  3.N/A  4.N/A  5. N/A |
| **Principle 6.2 Negative Economic Consequences** | | | |
| * 1. Does the project cause negative economic consequences during and after project implementation? | No | 1.a) At the beginning, the CME will provide fund to cover the operation cost of the VPA including expenditures beyond the project certification cycle, e.g. maintenance of boreholes, hygiene campaigns and monitoring. After the successful sale of carbon credits generated from the VPA, the carbon market will provide financial sustainability of the VPA.  1.b) The VPA provides clean and safe water free for everybody and therefore the VPA benefits local communities.The VPA has positive economic benefit due to less expenditure on firewood for water boiling and more job opportunities for borehole maintenance. | N/A |
| >> |
| **Principle 7.1 Emissions** | | | |
| Will the Project increase greenhouse gas emissions over the Baseline Scenario? | No | GHG emissions will be reduced through replacing water purification using firewood with access to safe water. | N/A |
| >> |
| **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 VPA will reduce consumption of biomass through the reduced need to boil water. Safe water will be supplied by boreholes with hand pumps thus the VPA will not use energy from a local grid or power supply. | N/A |
| >> |
| **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? | No | The VPA does not impact natural water patterns and flows. It uses existing aquifers and does not affect the volume of water consumed by villagers. | N/A |
| >> |
| **Principle 8.2 Erosion and/or Water Body Instability** | | | |
| Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? | No | The water is taken from existing boreholes that are rehabilitated mainly for domestic use. The VPA will not cause additional erosion and/or water body instability or disrupt the natural pattern of erosion. | N/A |
| >> |
| **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 | The VPA provides safe and clean water and does not involve use of land and soil for production or crops or other products. | N/A |
| >> |
| **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 | This VPA does not have any impacts that may affect vulnerability to these natural disasters. | N/A |
| >> |
| **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, or take place in facilities or farms that include GMOs in their processes and production)? | No | The VPA is not relevant to the use of genetically modified organisms or GMOs since it is a borehole maintenance project. | N/A |
| >> |
| **Principle 9.4 Release of pollutants** | | | |
| Could the Project potentially result in the release of pollutants to the environment? | No | The purpose of the VPA is to provide clean water for community residents through boreholes. The VPA is not potentially resulting in release of pollutants to the environment. | N/A |
| >> |
| **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? | Potential | If water quality cannot meet the requirements after borehole maintenance, chemical disinfection will be applied. So water disinfectants containing chlorine may be used in the VPA. | Water disinfectants used in the VPA should obtain international or domestic certificate, such as CE certificate, US FDA certificate or Bangladesh national authority’s certificate. |
| >> |
| **Principle 9.6 Pesticides & Fertilisers** | | | |
| Will the Project involve the application of pesticides and/or fertilisers? | No | No pesticides and/or fertilisers will be used in the VPA. | N/A |
| >> |
| **Principle 9.7 Harvesting of Forests** | | | |
| Will the Project involve the harvesting of forests? | No | The VPA reduces the consumption of firewood, therefore having a positive impact on forest conservation. | N/A |
| >> |
| **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 | The VPA does not have any expected effects on modification of the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives. | N/A |
| >> |
| **Principle 9.9 Animal husbandry** | | | |
| Will the Project involve animal husbandry? | No | The VPA does not involve animal husbandry. | N/A |
| >> |
| **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 | The VPA will not cause any risk to HCV ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified. In fact, the VPA benefits biodiversity of forest by reducing the use of firewood for water boiling. | N/A |
| >> |
| **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 | There are no endangered species identified as potentially being present within the project boundary. The VPA is not expected to potentially impact other areas where endangered species may be present through transboundary affects. | N/A |
| >> |

### Appendix 2- Contact information of VPA Implementer

|  |  |
| --- | --- |
| Organization name | Guangzhou Iceberg Environmental Consulting Services Co., Ltd. |
| Registration number with relevant authority | 91440101MA5D7TPW6A |
| Street/P.O. Box | No.106 Fengze East Road, Nansha District |
| Building |  |
| City | Guangzhou |
| State/Region |  |
| Postcode | 511458 |
| Country | The People's Republic of China |
| Telephone | +86-13560420840 |
| E-mail | baoji@icebergchina.com |
| Website | www.icebergchina.com |
| Contact person | Ji BAO |
| Title | General Manager |
| Salutation | Mr. |
| Last name | BAO |
| Middle name |  |
| First name | Ji |
| Department |  |
| Mobile | +86-13560420840 |
| Direct tel. |  |
| Personal e-mail | baoji@icebergchina.com |

|  |  |
| --- | --- |
| Organization name | Social Aid |
| Registration number with relevant authority |  |
| Street/P.O. Box | Arif Market, 3rd Floor, Link Raod- 4701, Cox's Bazar Sadar |
| Building |  |
| City | Cox's Bazar, |
| State/Region |  |
| Postcode |  |
| Country | The People's Republic of Bangladesh |
| Telephone | +88-01712080178 |
| E-mail | [ed@socialaid.org.bd](mailto:ed@socialaid.org.bd) |
| Website | [www.socialaid.org.bd](http://www.socialaid.org.bd/) |
| Contact person | Babul Aktar |
| Title | Executive director |
| Salutation | Engr. Md. |
| Last name | Aktar |
| Middle name |  |
| First name | Babul |
| Department |  |
| Mobile |  |
| Direct tel. |  |
| Personal e-mail |  |

### Appendix 3-Summary of Approved Design Changes

Please refer to Annex A of [Principles and Requirements](https://globalgoals.goldstandard.org/101-par-principles-requirements/) for more information on procedures governing Design Changes

##### Revision History

|  |  |  |
| --- | --- | --- |
| **Version** | **Date** | **Remarks** |
| 1.1 | 7 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](https://globalgoals.goldstandard.org/standards/TGuide-PreReview_V1.1-VPA-Design-Document.pdf) to help the user understand detailed rules and requirements |
| 1.0 | 10 July 2017 | Initial adoption |

1. https://www.who.int/bangladesh/news/detail/22-03-2021-world-water-day-2021 [↑](#footnote-ref-1)
2. https://unctad.org/topic/vulnerable-economies/least-developed-countries/list [↑](#footnote-ref-2)
3. http://extwprlegs1.fao.org/docs/pdf/bgd146075.pdf [↑](#footnote-ref-3)
4. IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2, Energy, Chapter 1, Introduction, Page 1.19, Table 1.2 [↑](#footnote-ref-4)
5. [Heavy Vehicles and Characteristics](http://cta.ornl.gov/data/chapter5.shtml) [Archived](https://web.archive.org/web/20120723162849/http:/cta.ornl.gov/data/chapter5.shtml) 2012-07-23 at the [Wayback Machine](https://en.wikipedia.org/wiki/Wayback_Machine) Table 5.4 [↑](#footnote-ref-5)
6. https://www.sciencedirect.com/topics/engineering/diesel-fuel#:~:text=The%20density%20of%20petroleum%20diesel,0.70%E2%80%930.75%20kg%2Fl. [↑](#footnote-ref-6)
7. IPCC 2006 Guidelines for National Greenhouse gas Inventories Chapter 2: Stationary Combustion Page 2.23 Table 2.4 [↑](#footnote-ref-7)
8. IPCC 2006 Guidelines for National Greenhouse gas Inventories Chapter 1: Introduction Page 1.18 Table 1.2 [↑](#footnote-ref-8)
9. https://unctad.org/topic/vulnerable-economies/least-developed-countries/list [↑](#footnote-ref-9)
10. https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29\_1.pdf [↑](#footnote-ref-10)
11. https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29\_1.pdf [↑](#footnote-ref-11)
12. Table 18, Global Forest Resources Assessment 2015 [↑](#footnote-ref-12)
13. https://mowca.portal.gov.bd/sites/default/files/files/mowca.portal.gov.bd/policies/64238d39\_0ecd\_4a56\_b00c\_b834cc54f88d/National-Women%20Development%20Policy-2011English.pdf [↑](#footnote-ref-13)
14. https://www.ohchr.org/EN/UDHR/Documents/UDHR\_Translations/bng.pdf [↑](#footnote-ref-14)
15. https://www.ohchr.org/en/countries/asiaregion/pages/bdindex.aspx [↑](#footnote-ref-15)
16. https://mof.portal.gov.bd/sites/default/files/files/mof.portal.gov.bd/budget\_mof/799b4a82\_f259\_4fd4\_98ba\_a1b17af0e9b5/G-3\_17\_146\_Land\_English.pdf [↑](#footnote-ref-16)
17. https://mowca.portal.gov.bd/sites/default/files/files/mowca.portal.gov.bd/policies/64238d39\_0ecd\_4a56\_b00c\_b834cc54f88d/National-Women%20Development%20Policy-2011English.pdf [↑](#footnote-ref-17)
18. <https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XVIII-14&chapter=18&clang=_en> [↑](#footnote-ref-18)
19. https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200\_COUNTRY\_ID:103500 [↑](#footnote-ref-19)
20. https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200\_COUNTRY\_ID:103500 [↑](#footnote-ref-20)