




**Validation report form for
GS project activities
(Version 04.0)**

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title of the project activity	Solar water filtration units for rural areas in coastal Bangladesh
GS Reference Number	GS 11075
Scale of the project activity	<input checked="" type="checkbox"/> Large-scale <input type="checkbox"/> Small-scale
Version number of the validation report	3.0
Completion date of the validation report	01/02/2023
Version number of the PDD to which this report applies	Version 6.0 of 23/01/2023
Project participants	Value Network Ventures Advisory Services Pte. Ltd.
Host Party	Bangladesh
Applied methodologies and standardized baselines	Gold Standard methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, version 3.1
Mandatory sectoral scopes	1 & 3
Conditional sectoral scopes, if applicable	NA
SDGs targeted from the project activity	SDG 4, SDG 6, SDG 8, SDG 13 and SDG 15
Estimated amount of annual average GHG emission reductions or GHG removals by sinks	590,307 tCO _{2e}
Name of VVB	Carbon Check (India) Private Limited
Name, position and signature of the approver of the validation report	Vikash Kumar Singh, Compliance Officer 

SECTION A. Executive summary

>> Purpose and general description of the project

The purpose of the project activity is to provide safe drinking water to fresh-water scarce rural/coastal people in Bangladesh by installing low-GHG / solar PV based purification system and RO (Reverse Osmosis) system with water treatment capacity of each system ranging from 5,000 to 30,000 litres per day. Safe drinkable water will be collected in dispensers from treatment system and supplied to dedicated end users. The project is an initiative of Bangladesh Bondhu Foundation (BONDHU) a non-profit making, voluntary, non-governmental organization wherein existing water filtration systems which remained un-functional due to lack of proper operation and maintenance are planned to retrofit in addition to new installations considering carbon finance in the project activity. In the absence of the project, the targeted users would have boiled water to make it safe to drink. Thereby, the project reduces green-house gas emission from avoidance of burning of non-renewable biomass/fossil fuel to boil water for safe drinking.

Scope of the validation

The validation scope is defined as an independent and objective review of the project design document (PDD) and the GS LSC report /02/. The PDD /01/ is reviewed against the relevant criteria and decisions by the Gold standard and CDM Executive Board, including the approved baseline and monitoring methodology /04/. The validation team has, based on the recommendations in the CDM Validation and Verification Standard employed a rule-based approach, focusing on the identification of significant risks for project implementation and the generation of VERs.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design. While carrying out the validation, CCIPL determines if the project activity complies with the requirements of the applicability conditions of the selected methodology /04/, guidance issued by the Gold Standard and also assess the claims and assumptions made in the PDD /01/ without limitation on the information provided by the project participants.

The Validation team confirms the contractual relationship signed /05/ between the GS VVB (Carbon Check (India) Private Ltd.) and the Project Participant (Value Network Venture Advisory Services Pte. Ltd.). The team assigned to the validation meets the Carbon Check (India) Private Ltd.'s internal procedures including the UNFCCC/Gold Standard requirements for the team composition and competence. The projects team has conducted a thorough contract review as per UNFCCC and Carbon Check procedures and requirements.

Validation methodology

The validation has been performed as described in the VVS and constitutes the following steps:

- Document review of data and information (PDD /01/ and the relevant documents including the reference to information relating to projects or technologies similar to the proposed project activity and review based on the approved methodology /04/ being applied and of the appropriateness of formulae and accuracy of calculations).
- Cross checks between information provided in the PDD /01/ and information from other sources.
- Follow up actions for cross checking data and off-site assessment.
- Reference to available information
- Issuance of Validation Report.

Validation Process

The validation consists of the following four phases:

- I. A desk review of the project design documents
 - A review of data and information;

- Cross checks between information provided in the PDD /01/ and the information from sources with all the necessary means without limitations to the information provided by the project proponent;
- II. Off-site visit and follow-up interviews with the project stakeholders
 - Interviews with the relevant stakeholders in the host country with personnel having knowledge with the project development via telephone, email or direct on-site visits;
 - Cross checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent;
 - III. Reference to available information's relating to projects or technologies similar projects under validation and review based on the approved methodology /04/ being applied of the appropriateness of formulae and accuracy of calculations.
 - IV. The resolution of outstanding issues and the issuance of the final validation report and opinion.

The report is based on the assessment of the PDD /01/ undertaken through stakeholder consultations,

application of standard auditing techniques including but not limited to document reviews, off-site assessment, and stakeholder interviews, review of the applicable/applied methodology /04/ and its underlying formulae and calculations.

This report contains the findings and resolutions from the validation and a validation opinion on the proposed

project thus confirming the project design as document is sound and reasonable and meets the stated requirements and identified criteria.

The validation protocol describes a total of eleven (11) findings which include:

- 08 (Eight) Corrective Action Requests (CARs);
- 03 (Three) Clarification Requests (CLs);

All findings are closed, however 05 FARs are raised which to be checked during first verification.

Conclusion:

Carbon Check (India) Private Ltd. concludes the validation with a positive opinion that the Project Activity "Solar water filtration units for rural areas in costal Bangladesh" in Bangladesh, as described in the PDD /01/, meets all applicable requirements of Gold standard, relevant methodologies, tools and guidelines.

The selected baseline and monitoring methodology /04/ are applicable to the project and correctly applied.

Carbon Check (India) Private Ltd. therefore recommends the project to the Gold Standard for registration.

SECTION B. Validation team, technical reviewer and approver**B.1. Validation team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader, validator and Technical Expert	EI	Buragohain	Champok	CCIPL	√	×	√	√

B.2. Technical reviewer and approver of the validation report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Anand	Amit	CCIPL
2.	Approver	IR	Singh	Vikash Kumar	CCIPL

SECTION C. Means of validation**C.1. Desk/document review**

>> The PDD version 2.0 of 05/06/2021, version 03 of 22/07/2021, version 04 of 19/07/2022, version 05 of 06/12/2022 /01/, in particular the applicability of the methodology /04/, the baseline determination, emission reductions calculation worksheet 'GS 11075_Bangladesh calculation June 2021' and version 2 (GS 11075_Bangladesh calculation July 2021), GS 11075_Ex-ante ER Cal v.2.0 19072022.xlsx /06/, the additionality of the project activity, the starting date, the project eligibility, the monitoring plan, the sustainability indicators, the stakeholder consultation, the environment impact assessment, the emission reductions calculations were assessed as part of the validation. All documents reviewed or referenced during the validation are listed in Appendix 3.

C.2. On-site inspection

On-site visit is not done for the validation activity due to national and international restrictions on travel due to COVID-19 impact. VVB could not further postpone the site visit due to timeline agreed as per validation contract between VVB and project developer (PD). Therefore, VVB followed GS rule update 'COVID-19: Interim measures' dated 17/05/2021 /07/ and alternate measures are adopted as described below:

The validation team has carried out remote interviews and video call in order to assess the information included in the project design document, stakeholder consultation report and monitoring measurement procedures adopted for monitoring the project activity. During the desk review, the relevant records related to project design, implementation and operation were checked. Project management framework, technology details, implementation plan, interview with stakeholders engaged, implementing agency and telephonic interview with end users, video call and picture of project systems were taken. Details obtained are cross checked with documents available to cross check consistency of information.

Telephonic interview was performed by verification team as given in below table:

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Gupta	Ayushi	VNV Advisory Services	11/07/2021	PDD development, GS requirements, Emission reduction calculations, methodology applicability, start date justification etc.	Champok Buragohain
2.	Uzzaman	Khaleq	Bangladesh Bandhu Foundation	11/07/2021	Project Design, ownership details, carbon credit sharing arrangements, monitoring and reporting arrangements, QA/QC procedures, baseline assessment, project technology.	
4.	Saha	Atanu Kumar	Bangladesh Bandhu Foundation	11/07/2021		
5.	Parven	Arshada	Bangladesh Bandhu Foundation	11/07/2021		
6.	Hasan	Mahmudul	Bangladesh Bandhu Foundation	11/07/2021		
7.	Mridha	Md. Ruman	Bangladesh Bandhu Foundation	11/07/2021		
8.	Lavlu	Lutful Alam	Local Stakeholder	11/07/2021	Baseline scenario, stakeholder consultation process, project details etc.	
9.	Taleb	Md. Abu	Local Stakeholder	11/07/2021		
10.	Gazi	Ayub Ali	Local Stakeholder	11/07/2021		
11.	Rashid	Harun Ar	Local Stakeholder	11/07/2021		
12.	Selim	Md.	Local Stakeholder	11/07/2021		
13.	Goyal	Abhishek	Gold Standard - Senior	02/08/2021		

			Technical Director, Standards		Small (preliminary review) to Large (during validation is permitted?) • Whether the validation can be concluded if the SFR is still on-going?	
14.	Lohia	Rohit	Director, Climate Secure	02/08/2022	PDD development, Emission reduction calculations, methodology applicability, monitoring plan, GS review feedback	Champok Buragohain

C.4. Sampling approach

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PD's sampling approach:

PD has proposed simple random sampling plan in line with the requirement of the applied methodology TPDDTEC version 3.1 /04/. PD proposes to apply simple random plan for monitoring parameters as discussed in section D.2.10 of this report. Accordingly, project developer shall consider below sample size as stipulated in the methodology:

- Group size <300: Minimum sample size 30 or population size, whichever is smaller
- Group size 300-1000: Minimum sample size 10% of group size
- Group size >1000: minimum sample size 100

In case of monitoring water quality standard, a 90/10 precision rule must be followed in calculating the sample size required for testing water quality. This is as per the applied methodology /04/.

VVB's validation sampling approach:

CC IPL has accepted the sampling plan as it is pre-defined in the applied methodology and project developer has outlined the sample plan and approach in line with the methodology requirements.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Demonstration of prior consideration of the CDM			
Identification of project type			
Description of project activity	1	2	3
Application and selection of methodologies and standardized baselines	1		
- Application of methodologies and standardized baselines		1	
- Deviation from methodology and/or methodological tool			
- Clarification on applicability of methodology, tool and/or standardized baseline			
- Project boundary, sources and GHGs			
- Baseline scenario		1	
- Demonstration of additionality		1	
- Estimation of emission reductions or net anthropogenic removals		1	

- Monitoring plan		1	2
Start date, crediting period type and duration			
Environmental impacts			
Local stakeholder consultation			
Sustainable development co-benefits	1	1	
Approval			
Authorization			
Modalities of communication			
Global stakeholder consultation			
Others (GS Preliminary review)			
Total	3	8	5

SECTION D. Validation findings

D.1. Description of project activity

Means of validation	<p>The purpose of the project activity is to provide safe drinking water to fresh-water scarce rural/coastal people in Bangladesh by installing low GHG/solar PV based purification system and RO (Reverse Osmosis) system with water treatment capacity of each system ranging from 5,000 to 30,000 litres per day. Drinkable water is to be collected in dispensers from treatment system which shall be supplied to dedicated end users. The project is an initiative of Bangladesh Bondhu Foundation (BONDHU) a non-profit making, voluntary, non-governmental organization wherein existing water filtration systems which remained un-functional due to lack of proper operation and maintenance are planned to retrofit in addition to new installations considering carbon finance in the project activity. In the absence of the project, the targeted users would have boiled water to make it safe to drink. Thereby, the project reduces green-house gas emission from burning of fire-wood/fossil fuel to boil water for safe drinking. Once a system is made ready to be operational by BONDHU it shall be handed over to a managing committee (MC) who shall operate the filtration system. BONDHU and the respective MC shall maintain all necessary records related to its maintenance and operation. Although the ownership of the filtration system shall be handed over to respective MCs on its commissioning, BONDHU will have the carbon credit rights (<i>refer FAR 01</i>).</p> <p>Scenario existing prior to the implementation of the project activity</p> <p>The project activity is a retrofit project. Validation team through interview with end user of some of the existing non-operational filtration system could confirm that in absence of a filtration system, users do boil water from its source (pond water, rain water harvesting etc.) to make it safe for drinking. This is also evident from publicly available literatures /12/, /13/. Moreover, as per Multiple Indicator Cluster Survey 2019, by Bangladesh Bureau of Statistics, Govt. of Bangladesh /19/, Approximately 81% population in Bangladesh uses solid fuel for cooking, with 39.5% of population relying on wood as their primary fuel. This substantiates that the population using solid biomass fuel is primarily relying on traditional / three stone / open fire for meeting their water boiling. As per the same survey, 98.5% (table WS 1.1, page 323) of household population have access to improved source of drinking water, the survey established that percentage of household population with E. coli contamination in household drinking water is 81.9% (table WS 1.7, page 333). ~40% households (table WS 1.8, page 334) with improved water source and more than 90% households (table WS 1.8, page 323) with unimproved water source were found to have E.Coli contamination in their household drinking water. As per table WS 1.9, page 337, only 9.7% population use appropriate treatment methods of which 5% population treats drinking water by boiling. Thus, majority of population needs water treatment to make it safe for drinking. Therefore, it is established that traditional / 3 stone fire cooking system with firewood as baseline fuel is the appropriate baseline for the project activity. Hence, it complies with the applied methodology /04/.</p> <p>Technology of the project activity:</p> <p>As per discussion with project developer, the filtration system will be either a RO</p>
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	<p>(Reverse Osmosis) system or a chemical-based purification system. The filtration system shall be powered by solar PV system for its pump operation. The technology shall be verified during first verification (refer FAR 02).</p> <p>Project Location: The water filtration systems are targeted across Bangladesh with initial identification of existing systems in six districts of Bangladesh.</p> <p>Start Date of the project activity:</p> <p>The project activity is a regular project. The start date of the project is 09/11/2022 which shall be verified during first verification (refer FAR 03).</p> <p>Crediting period and estimated Emission Reductions</p> <p>A renewable crediting period has been chosen for the project, starting from 09/11/2022 (commissioning date of first plant) or from the date registration of project at GS whichever is later.</p> <p>Avoidance of double counting of project devices with other project activities: Project developer BONDHU shall invest in retrofitting existing non-operational water filtration systems and new filtrations systems and on commissioning it shall be handed over to management committees (MCs). The carbon credit rights of the project lies with BONDHU which shall be evident once a system is commissioned and handed over to respective MCs. Therefore, the carbon credit ownership rights shall be verified during first verification (refer FAR 01). PD has provided declaration confirming the project being taken only under GS mechanism. Validation team also checked other publicly available registry such as UNFCCC, VCS and confirm that the project is not considered in other carbon credit mechanism.</p>
Findings	<p>CL 1 was raised to clarify the project implementation framework with documentary evidence and supporting documents such as maintenance plan, technical documents of each components etc. shall be provided during first verification to continue the system in the project. CAR 02 was raised for corrections in describing the project activity which has been closed as discussed in Appendix 4 of this report.</p>
Conclusion	<p>CC IPL confirms that the description of the proposed project activity, as contained in the PDD sufficiently covers all relevant elements, is accurate and complete and that it provides the reader with a clear understanding of the nature of the proposed GS project activity. However, to cross check actual implementation framework, pre-project scenario, technology of the project and start date of the project FAR 1, FAR 2 and FAR 3 are raised to cross check during first verification.</p>

D.2. Application and selection of methodologies and standardized baselines

D.2.1. Application of methodologies and standardized baselines

Means of validation	<p>The project applies Gold Standard methodology: "Technologies and Practices to Displace Decentralized Thermal Energy Consumption" Version 3.1. Annex 3 of the methodology discusses the application of the methodology to safe water supply projects.</p> <p>The applicability conditions as per the Annex 3 are discussed below:</p> <p>Applicability Condition 1:</p> <p>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 (not fossil fuel-driven) and their repair/maintenance/operation, ultraviolet radiation treatment, chlorine tablets, etc.</p> <p>VVB's Assessment -</p> <p>The project technology involves solar PV based purification system and RO (Reverse Osmosis) system) for community level service which replaces boiling water as a purification technique. Hence meets the applicability condition. As stated in the PDD, boiling of any treated water (if determined ex-post via sampling surveys) shall be discounted from emission reductions accordingly.</p>
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Applicability Condition 2:

This methodology allows for project activities to include safe water supply technologies implemented in households, commercial premises e.g. shops and institutional premises e.g. schools, prisons, army camps, refugee camps, offices, etc.

VVB's Assessment -

Since the project activity involves retrofitting of existing non-operational water treatment systems which are installed for community level service wherein households are targeted. This was verified from some of the existing system through video call and interview with end users. Hence, applicability condition is justified.

Applicability Condition 3:

Special attention is required as to the level of GHG emissions arising from production, transport, installation and delivery of the clean water supply or treatment options. This is applicable to all technologies encompassed within this methodology. Whenever such emissions are expected to be material (5% or more of the overall emissions), these must be accounted for in the project situation as part of the project emissions. In the baseline situation, the project proponent has the option to take them into account, or to neglect them altogether (as this latter case implies a conservative result).

VVB's Assessment -

The project water treatment systems are planned to be powered by solar PV systems and therefore, there will be no emissions during production of treated water. The systems are mostly existing non-operational system and therefore, it is less likely to have significant emissions from its retrofitting. Also being a community system, the users will walk in and collect safe water from its treatment place and hence no emissions are expected to arise from its supply side. VVB could anticipate emissions from these heads are not material to account as part of project emissions.

Applicability Condition 4:

The water in its improved form should be available within 1 km walking / pedalling distance from the households. There is a two-year grace period (from date of registration) for any households falling outside of this distance, however once this period is over these households would not be included in the emission reduction calculation.

VVB's Assessment -

As per the project design and discussion with end users it was noted that each system are targeting household within a distance of less than 1 km. As per the sample end user agreement copy, it can be confirmed, PD shall record the distance of end users from the improved water supply point. Therefore, from complete project database and end user details this is integrated to comply the methodology requirement.

Applicability Condition 5:

Only end users that boil water or are currently using unsafe water are eligible for crediting. The baseline scenario is the existing practice of boiling water using high emission fuels including non-renewable biomass and fossil fuels to treat it for consumption. The type of fuel and technology being used shall be determined by carrying out the baseline survey. Suppressed demand can be applied in instances where inadequate safe water is available or where treatment is not practiced.

VVB's Assessment -

The project activity is a retrofit and new installation project. Validation team through interview with end user of some of the existing non-operational filtration system could confirm that in absence of a filtration system, users do boil water from its source (pond water, rain water harvesting etc.) to make it safe for drinking. This is also evident from publicly available literatures /12/, /13/. Moreover, as per Multiple

	<p>Indicator Cluster Survey 2019, by Bangladesh Bureau of Statistics, Govt. of Bangladesh /19/, Approximately 81% population in Bangladesh uses solid fuel for cooking, with 39.5% of population relying on wood as their primary fuel. This substantiates that the population using solid biomass fuel is primarily relying on traditional / three stone / open fire for meeting their water boiling. As per the same survey, 98.5% (table WS 1.1, page 323) of household population have access to improved source of drinking water, the survey established that percentage of household population with E. coli contamination in household drinking water is 81.9% (table WS 1.7, page 333). ~40% households (table WS 1.8, page 334) with improved water source and more than 90% households (table WS 1.8, page 323) with unimproved water source were found to have E.Coli contamination in their household drinking water. As per table WS 1.9, page 337, only 9.7% population use appropriate treatment methods of which 5% population treats drinking water by boiling. Thus, majority of population needs water treatment to make it safe for drinking. Therefore, it is established that traditional / 3 stone fire cooking system with firewood as baseline fuel is the appropriate baseline for the project activity.</p> <p>The project does not deliver thermal energy in the project scenario but only displace the thermal energy supplied in the baseline scenario. The methodology states 150 kW threshold thermal output of the baseline technology. The baseline technology is justified as traditional cooking system as per government sources described above. Considering firewood consumption of 0.4 kg/l, daily water consumption cap of 7 liter/person and person served per household considering 7 (which is much higher in case of Bangladesh), total firewood consumption would be 0.0196 ton/day per household. This will require a thermal capacity of around 85 kW which is much below 150 kW. Further, the project is targeted to domestic sector with conventional/3 stone cooking system in the baseline. As per sectoral expertise of similar baseline technology, the VVB is of the opinion, that the thermal output of baseline technology is never above 150 kW. Other conditions from the applied methodology which are applicable for the project such as project boundary, avoidance of double counting mechanism and ownership rights of carbon credit are transparently discussed in the PDD.</p>
Findings	CAR 03 was raised to discuss conditions as outlined in Annex 3 of the methodology which PD has included the same in the PDD. Hence, CAR was closed.
Conclusion	CCIPL hereby confirms that the selected baseline and monitoring methodology has been approved by Gold standard and valid upto 02/08/2021 (with grace period), and is applicable to the Project, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity.

D.2.2. Deviation from methodology and/or methodological tool

Means of validation	No deviation from the applied methodology or methodological tool is applied in the project activity.
Findings	N/A
Conclusion	N/A

D.2.3. Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	No clarification on the applied methodology or methodological tool is applied in the project activity
Findings	N/A
Conclusion	N/A

D.2.4. Project boundary, sources and GHGs

Means of validation	The project boundary includes the physical, geographical sites of the low- or zero-greenhouse gas emitting technologies to treat/supply safe drinking water installed by the project activity. Therefore, all water treatment systems to be considered in across Bangladesh and end users to be covered are considered as project boundary. Emissions from burning of baseline fuel for water boiling are to be accounted for baseline emissions and projects emissions in line with the applied methodology.
Findings	CAR 04 was raised to elaborate project boundary specific to the project activity

	which PD has provided in the updated PDD and hence CAR was closed.
Conclusion	The project boundary is correctly identified in accordance with the methodology TPDDTEC (Version 3.1). All greenhouse gas emissions occurring within the proposed project activity boundary as a result of the implementation of the proposed project activity have been appropriately addressed in the PDD.

D.2.5. Baseline scenario

Means of validation	<p>As per rule update on 'application of suppressed demand, project type and applicable scale threshold' dated 13/08/2020, the project being a large-scale project can not apply Suppressed Demand scenario when establishing a baseline. A large-scale project can only account the users that boil water in the pre-project scenario.</p> <p>From literature review it is noted in Bangladesh more than 60% population has to endure unsafe drinking water. As per UNICEF safe drinking water is accessible to only 34.6% of population /12/, /13/. The rural people of Bangladesh depend both on traditional and improved stoves for cooking /18/. In this purpose they mainly use biomass (fire-wood), cow dung, crop's residue, coconut husk etc. As per Multiple Indicator Cluster Survey 2019, by Bangladesh Bureau of Statistics, Govt. of Bangladesh /19/, Approximately 81% population in Bangladesh uses solid fuel for cooking, with 39.5% of population relying on wood as their primary fuel. This substantiates that the population using solid biomass fuel is primarily relying on traditional / three stone / open fire for meeting their water boiling. As per the same survey, 98.5% (table WS 1.1, page 323) of household population have access to improved source of drinking water, the survey established that percentage of household population with E. coli contamination in household drinking water is 81.9% (table WS 1.7, page 333). ~40% households (table WS 1.8, page 334) with improved water source and more than 90% households (table WS 1.8, page 323) with unimproved water source were found to have E.Coli contamination in their household drinking water. As per table WS 1.9, page 337, only 9.7% population use appropriate treatment methods of which 5% population treats drinking water by boiling. Thus, majority of population needs water treatment to make it safe for drinking. Therefore, it is established that traditional / 3 stone fire cooking system with firewood as baseline fuel is the appropriate baseline for the project activity</p>
Findings	CL 2 was raised to clarify if project specific baseline study has been conducted to identify the baseline scenario, baseline cooking device and amount of fuel used for water boiling. PD has provided credible government study which justify the baseline scenario, baseline fuel and technology and hence CL is closed.
Conclusion	CC IPL confirms that the justification on baseline scenario is as per the applied methodology.

D.2.6. Proof of project eligibility

Means of validation	<p>ELIGIBILITY PRINCIPLES</p> <p>Principle 1: Contribution to Climate Security & Sustainable Development:</p> <ol style="list-style-type: none"> a) The project meets GS4GG community service activity requirements (version 1.2 of October 2019) as it leads to climate change mitigation by providing services/resources to households (community based safe drinking water). The project type is 'Water, sanitation and hygiene (WASH)' which is eligible under community service activity requirements. Hence, the project meets GS principle and requirement. b) Projects shall define their Baseline Scenario and Project Scenario. Baseline scenario is clearly defined as described in section D.2.5 above. Project scenario is clearly defined as described in section D.1 above. Hence, meets the GS requirements. c) Projects shall contribute positively to Climate Security & Sustainable Development. As per GS4GG requirement all Projects shall demonstrate a clear, direct contribution to sustainable development, defined as making demonstrable, positive impacts on at least three SDGs, one of which must be SDG 13 (defined herein as Emissions Reductions or Removals and/or Adaptation to climate change). The project has demonstrated one positive indicator under SDG 12 and two positive indicators under SDG 8 and one
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positive indicator under SDG 6 apart from SDG 13 outcome. The parameters, its effects and monitoring measuring mechanism are clearly defined in the PDD which has been approved during GS preliminary review. Hence, meets GS requirement.

- d) **Project eligibility:** In line with clause 4.1.3 of GS principle and requirement, the project meets GS4GG community service activity requirements (version 1.2 of October 2019) as it leads to climate change mitigation by providing services/resources to households (community based safe drinking water supply). The project type is 'Water, sanitation and hygiene (WASH)' which is eligible under community service activity requirements. Therefore, the project is automatically eligible for GS certification.

Principle 2: Safeguarding Principles:

The project transparently describes safeguarding principles and its outcomes in the PDD. These are further discussed under D.2.8.

Principle 3: Stakeholder Inclusivity:

The project developer has organized local stakeholder consultation meeting in line with GS requirements. This has been further discussed in section D.5 of this report.

Principle 4: Demonstration of real outcomes:

To demonstrate real outcome of identified SDGs under the project activity, PP has transparently developed a PDD incorporating monitoring and reporting plan.

Project Start Date:

The project activity is a regular project.. The start date is 09/11/2022 which shall be verified during first verification (*refer FAR 03*).

Development of monitoring and reporting plan:

PP has transparently developed a PDD incorporating monitoring and reporting plan. This is further discussed under section D.2.10.

Principle 5: Financial Additionality & Ongoing Financial Need:

Additionality of the project is discussed under section D.2.7 of the report.

GENERAL ELIGIBILITY CRITERIA:

Type of the project: In line with clause 4.1.3 of GS principle and requirement, the project meets GS4GG community service activity requirements (version 1.2 of October 2019) as it leads to climate change mitigation by providing services/resources to households (community based safe drinking water supply). The project type is 'Water, sanitation and hygiene (WASH)' which is eligible under community service activity requirements. Therefore, the project is automatically eligible for GS certification.

Scale of the project activity: The project activity is a type III project and with expected emission reductions of 590,307 tCO₂e per year, the project falls under large scale category.

Host country or State: The project's host Party is Bangladesh and eligible as per Gold Standard.

Eligibility project type:

Greenhouse Gases: CO₂ is considered in the project activity and the same is eligible under Gold Standard.

Legal Ownership: The project is an initiative of Bangladesh Bondhu Foundation (BONDHU) a non-profit making, voluntary, non-governmental organization wherein existing non-operational water filtration systems are targeted to operate with required new fittings (e.g. Filtration system, PV system, battery bank, pump etc.)

	<p>considering carbon finance. Once a system is made ready to be operational by BONDHU it shall be handed over to a managing committee (MC) who shall operate the filtration system. Therefore, legal ownership lies with BONDHU and respective MC which shall be verified during first verification (refer FAR 01 and FAR 04)</p> <p>Other Rights: Not applicable. The project is implementation on community land and finally handed over to managing committee. This shall be verified during first verification (refer FAR 04). Hence, no other rights are required.</p> <p>Official Development Assistance (ODA) Declaration: The project does not involve any ODA. This has been also supported with declaration of ODA as per GS requirement.</p> <p>Therefore, the proposed project activity is deemed to be eligible under gold standard GS4GG.</p>
Findings	CAR 05 was raised for corrections in PDD in terms of project eligibility, measures to avoid double counting, start date and scale of the project. The same are found corrected in the updated PDD and hence CAR is closed. FAR 04 is raised to cross check legal requirements during first verification.
Conclusion	CC IPL confirms that the project is eligible for GS4GG as per requirements of GS4GG. FAR 01 and FAR 03 are raised to cross check during first verification.

D.2.7. Demonstration of additionality

Means of validation	<p>As per Principle 5 (FINANCIAL ADDITIONALITY AND ONGOING FINANCIAL NEED) of GS4GG PP has demonstrated additionality as per paragraph 4.1.9 of GS community service activity requirements version 1.2 of October 2019. As per the paragraph “Projects that meet any of the following criteria are considered as deemed additional and therefore are not required to prove Financial Additionality at the time of Design Certification:”</p> <p>(a) Positive list (Annex B of this document) (b) Projects located in LDC, SIDS, LLDC (c) Microscale project.</p> <p>In this case, the project falls under option (b). The project host country Bangladesh is a LDC as per United Nationals list /14/ and hence the project is deemed additional.</p> <p>Prior Consideration: As per clause 4.1.49 of GS4GG principles and requirements (version 1.2 of October 2019) regular projects are exempt from any kind of prior consideration of revenues from Gold Standard certification checks. Therefore, the prior consideration is met for the project activity as per GS4GG rules.</p> <p>Ongoing Financial Need (OFN): As per clause 4.1.52 of GS4GG principles and requirements (version 1.2 of October 2019), OFN to be demonstrated at Design Certification renewal.</p>
Findings	CAR 06 was raised as additionality was wrongly presented which project developer corrected applying appropriate clause of the community service activity requirements and hence CAR is closed.
Conclusion	CC IPL confirms that conservative approach has been applied in line with the applied methodology to demonstrate additionality which is also as per GS4GG requirements and hence the project is additional.

D.2.8. Sustainability assessment (SAFEGUARDING PRINCIPLES & REQUIREMENTS)

Means of validation	<p>As per GS4GG Safeguarding principles and requirements version 1.2 of October 2019, all projects shall conform to the Gold Standard for the Global Goals Safeguarding Principles & Requirements. The assessment is done as follows:</p> <p>Principle 1- Human Rights: The proposed project activity follows the human rights in accordance with the national legal framework. The project improves the livelihood of rural people and reduces the deforestation due to reduced usage of firewood which would have been used for boiling water for safe drinking. The project activity will not be put the human rights at risk. Hence, the project respects internationally proclaimed human rights including dignity, cultural property and</p>
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uniqueness of indigenous people. The project is not complicit in Human Rights abuses. Also, Bangladesh is a member of United Nations and part of UN Agreement on Human Rights.

The project activity involves community scale safe water filtration system to supply safe drinking water to households. Hence, the project does not involve and is not complicit in involuntary resettlement. The project activity does not involve alteration damage or removal of any critical cultural heritage as confirmed while discussion with PD and local stakeholders.

Principle 2 – Gender Equality and Women’s Rights:

The project does not adversely impact on gender equality and women’s rights. The project involves supply of safe drinking water at community level. The project is expected to create job at local level for operation, maintenance and day to day operation of water treatment systems. Therefore, at any level there is no scope of gender inequality or violation of women’s rights.

Principle 3 – Community Health, Safety and Working Conditions:

The project involves treatment of water for safe drinking purpose. The project needs operational of electrical equipments and regular maintenance. Moreover, the project is directly linked for community health. Therefore, to ensure community health, safety and working conditions from the project activity, project developer proposes to organize regular training pertaining to health and safety. In addition, the water quality/water standard testing and hygiene campaign shall be done with defined frequency in line with the requirements of the applied methodology. Therefore, above parameters under this principle shall be monitored by PD.

Principle 4 – Cultural Heritage, Indigenous Peoples, Displacement and Resettlement:

The water treatment systems are constructed is community land which does not involve any damage to cultural heritage or displacement and resettlement and rights of indigenous people. Hence, this parameter is safeguarded by the project activity.

Principle 5 – Corruption:

The project involves retrofitting of existing non-operational water treatment systems and new installations which shall be taken up considering carbon revenue. On commissioning, the treatment system shall be handed over to a Management committee which is formed with representative of local people, government representative and project developer. The management committee will decide the minimum fees to be collected in lieu of safe drinking water. The collected money to be used for its operation and maintenance. The project does not generate high revenue which may provide scope of corruption. Moreover, the management committee will be constituted with representative from local people, government representatives and project developer. Hence, there will be no scope for corruption.

Principle 6 – Economic Impacts:

Labour rights & negative economic consequences:

The project is not labour intensive as it doesn’t involve major construction works, employing labours is not within the scope of the project. Existing non-functional water treatment systems are targeted primarily with possibility of new installations. Once commissioned, its safe operation requires few people who are to be identified and engaged with set of terms and conditions by the management committee. Therefore, the project does not fall user the category to form labour union and its respective rights. Bangladesh has been an active member state of the ILO since 22 June 1972 and has ratified 35 ILO Conventions including seven fundamental conventions.

The project is not expected to employ forced labour or child labour in the project activity. Therefore, the safeguarding principle under discussion will not have

	<p>negative impact.</p> <p>Principle 7 – Climate and Energy: The safe drinking water to be used in households will reduce fire-wood consumption which otherwise would have been used for boiling the water for safe drinking. This will lead to overall emission reductions. The energy supply is not hampered compared to baseline.</p> <p>Principle 8 – Water: The project activity shall purify existing pond water or the ground water to purify the water which was also used in the baseline. The project activity shall only purify the water which was purified by some other means or used as such for drinking purpose. There will be no discharge water in the purification systems except for the R.O systems for saline water. The discharge water from the saline water cannot be used for irrigation hence shall be discharged into the source of the saline water. There will be no extraction of ground water to affect the pre-existing pattern of watercourses. Therefore, the project does not have any negative impact on water.</p> <p>Principle 9 – Environment, ecology and land use: The project involves retrofitting of existing non-operational water treatment systems and new water treatment installations which does not involve any landscape modification or leads to vulnerable natural disasters. It also does not involve any manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials. It will not lead to release of any pollution as the plants are to be run by solar PV systems. Hence, the principle is safeguarded by the project activity.</p>
Findings	<p>CL 03 was raised to clarify if any workplace Health & Safety trainings have been organized for the project and other clarifications on safeguarding principle 8 to which PP clarified the monitoring of safeguarding principle 3 in the updated PDD. Hence, CL is closed.</p>
Conclusion	<p>CC IPL confirms that conservative approach has been applied by PP to demonstrate sustainable development of the project activity which is in line with GS4GG requirements.</p>

D.2.9. Estimation of emission reductions or net anthropogenic removals

Means of validation	<p>The emission reductions for the project activity is estimated as per equation 13 of TPDDTEC version 3.1 as follows:</p> $ERY = \left(\sum BE_{b,y} - \sum PE_{p,y} \right) \times U_{p,y} - \sum LE_{p,y}$ <p>Where,</p> <p>BE_{b,y} = is the baseline emissions PE_{p,y} = is the project emissions LE_{p,y} = is the leakage emissions</p> <p>U_{p,y} is the cumulative usage rate for technologies in project scenario <i>p</i> during year <i>y</i> based on cumulative installation rate and drop off rate. This is to be monitored ex-post.</p> <p>BE_{b,y} (baseline emissions) are calculated as below:</p> $BE_{b,y} = B_{b,y} \times \left((f_{NRB,b,y} \times EF_{b,fuel,CO2}) + EF_{b,fuel,nonCO2} \right) \times NCV_{b,fuel}$ <p>Where, B_{b,y} = is the quantity of fuel consumed in the baseline scenario <i>b</i> during the year <i>y</i> in tons. Fuel consumption is calculated (or “back-calculated” in the case of the baseline scenario) by multiplying the safe water consumption of end users observed in the</p>
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project scenario by the amount of fuel required to boil a specific quantity of water. This is calculated following equation 11 of the applied methodology as below:

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

Where,

X_{boil} = Percentage of premises that would have used other non-GHG emitting technologies like chlorine treatment techniques, if available, in the absence of the project activity. These premises must be located in the project boundary. This parameter can be determined ex-ante using a survey. Suppressed demand has not been considered in baseline scenario the project being large scale. Hence X_{boil} has not been considered as it is only applicable in case of suppressed demand as specified on page 45 of the methodology.

C_j = Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it. Premises with a piped water supply can be excluded from the C_j factor when it can be clearly demonstrated that the piped water supply is not a clean water source. Prior to registration, the water quality of the piped water supply should be established as unsafe by carrying out water quality testing over a representative period of time or by referring to relevant third-party studies for the target area. Premises with a piped water supply that boil water or would have boiled water (suppressed demand situation) in the baseline situation are in such cases eligible and can be included in the calculation of baseline emissions from boiling water. PP shall carry out baseline surveys to demonstrate that premises do actually boil water or would indeed have boiled water to make it safe for use.

PD has considered recent national level survey 'Bangladesh Multiple Indicator Cluster Survey 2019' by Bangladesh Bureau of Statistics, Bangladesh which in Table WS1.9 on Page 337 shows 6.6% of total population use some form of non-boiling effective water treatment (Bleach/Chlorine added 0.4%, use water filter 6.1%, other 0.1%) /19/. This has been considered by PD appropriately as factor for C_j . This meets the methodology requirement and being the value provided by government source, it is credible to accept.

$N_{j,y}$ = Number of person.days consuming water supplied by project scenario p through year y . Number of person served by a single project plant shall be monitored and for ex-ante estimation this has been considered as 2500 by PP. Number of days for which technology is in use in a year has been fixed ex-ante as 346.75(=365*95%) days in a year considering a 5% O&M discount.

$W_{b,y}$ = Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b during project year y , as per Baseline Water Boiling Test. As per GS rule update on 'APPLICATION OF TPDDTEC METHODOLOGY TO SAFE WATER SUPPLY PROJECTS' dated 03/05/2021 project developer chosen to apply default value for $W_{b,y}/W_{p,y}$ to be 0.4 kg/l for woody biomass /15/.

$Q_{p,y}$ = Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day. This has been capped at 5.5 ltr/person/day and 7 ltr/person/day for half day and full day premises respectively.

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

Therefore, the modified equation for calculation of baseline emissions would be:

$$B_{b,y} = (1-C_j) * QPW_y^1 * W_{b,y}$$

Where,

QPW_y : Quantity of safe drinking water consumed in year y in the project activity.

¹ QPW_y is a function of $N_{p,y}$ and $Q_{p,y}$ as explained below

In line with the methodology, the following approach shall be used for determining water consumption (QPW_y):

QPW_y = Minimum of the following:

- (a) = $(\sum_{i=1}^n \text{Number of person serviced by system } i) * Q_{p,y,capped} * 346.75$),
- (b) = $(\sum_{i=1}^n \text{Total treatment capacity of system } i / \text{day}) * 346.75$),
- (c) = $(\sum_{i=1}^n \text{Monitored water supplied by project system } i)$

As per above, the PP shall determine QPW_y by direct measurement of water supplied by project systems using flow meters installed at each project plant as per (c) above.

This directly measured QPW_y value shall be cross-checked with (a) and (b) and lowest of the three shall be used for ER calculations.

Page 30 of the PDD, under parameter table for Q_{p,y,capped} states the following, to avoid any doubt, with respect to its usage for ER calculations.

*The project involves **direct measurement** of quantity of treated water supplied by project systems (QPW_y). As a cross check measure, it shall be ensured that the amount of water treated (QPW_y) **does not exceeds** the **capped water consumption/person/day** * number of persons served * day of operation (346.75 per year).*

Thus, is shall be ensured that the emission reductions are claimed on the basis of measured quantity of water treated by project systems and is capped as per (a) above as a conservative measure.

Calculation of f_{NRB}:

Fractional non-renewability of woody biomass fuels (f_{NRB}) is calculated following approach provided in the applied methodology TPDDTEC version 3.1.

NRB = H – MAI

Where,

H = Annual harvest of woody biomass, including forest clearance, timber extraction, consumption of wood fuels, drawn from fuel collection area A

MAI = Sum of mean annual increments of the wood species, or “re-growth” in area A

NRB = non-renewing biomass or excess harvest over and above re-growth, which is the amount of woody biomass removed with attendant CO₂ emissions which are not absorbed by re-growth

Parameter	Applied value and justification
H	27568.83 (1000 cubic meter). The value is considered from Global Forest Resource Assessment 2015, country report Bangladesh /16/. Since the report provides data upto the year 2011, applied value is extrapolated, considering the trend from 2000-2010. The latest data available has been used conservatively and hence accepted.
MAI	2.91 m3/hectare. Net annual increment of growing stock is taken for the year 2015 from Global Forest Resource Assessment 2015, country report Bangladesh /16/.
RB (Renewable biomass)	RB is calculated considering forest cover, other wooden land and protected area within forests from Global Forest Resource Assessment 2015, country report Bangladesh /16/. Latest available data has been used. The calculated value is 4315.53 (1000, cubic meter).

	<p>Therefore $NRB = H - RB$</p> <p style="text-align: center;">$= 23253.30$ (1000, cubic meter)</p> <p>$fNRB = NRB/H$ $= 23253.30 / 27568.83$ $= 0.843$</p> <p>$EF_{b,fuel,CO_2}$ = CO₂ emission factor of the fuel that is substituted or reduced. 112 tCO₂/TJ for Wood/Wood Waste is used as per default value referred in the applied methodology /04/.</p> <p>$EF_{b,fuel,non\ CO_2}$ = Non-CO₂ emission factor from use of fuels, in case the baseline fuel is biomass or charcoal. For wood 9.46 tCO₂e/TJ. The values are default value as per IPCC which has been approved by GS in its methodology Emission reductions from Safe Drinking Water Supply v.1.0 /17/.</p> <p>$NCV_{b,fuel}$ = Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton) is taken /04/.</p> <p>Project Emissions:</p> <p>$B_{p,y}$ = Number of person-days * Total volume of water boiled in project scenario (L/p/d) * Project Fuel used to boil water (T/L)</p> <p>$B_{p,y} = [(1-C_j) * N_{p,y} * (Q_{p,cleanboil,y})] * W_{p,y}$</p> <p>Where:</p> <p>$B_{p,y}$: Quantity of fuel consumed in project scenario p during the year y in tons</p> <p>$Q_{p,cleanboil,y}$: Quantity of safe water boiled in the project scenario p per person per day</p> <p>$W_{p,y}$: Quantity of wood fuel or fossil fuel in tons required to treat 1 litre of water per day using technologies representative of the project scenario p during project year y</p> <p>Ex-ante estimated $Q_{p,cleanboil,y} = 0$. As a result $B_{p,y} = 0$ and it follows that the project emissions $PE_{p,y} = 0$. However, ex-post $Q_{p,cleanboil,y}$ shall be monitored (in terms of ltr/person/day or expressed as a % of treated water consumed in the sampled households) and accordingly project emissions shall be calculated.</p> <p>Leakage Emissions:</p> <p>There is no potential source for leakage emissions applicable for the project activity. However, PP shall conduct the leakage assessment once in every two years.</p> <p>Therefore, ex-ante the emission reductions for the project activity is expected to be 432,44 tCO₂e in the first year with 206 number of filtration system with average capacity of 10,000 liter/day and targeting 2500 persons/unit. This with a target plan of 300 systems, the average annual emission reductions over the first 5 years of crediting period would be 590,307 tCO₂e.</p>
Findings	<p>CAR 07 was raised to clarify the reference value of X_{boil}, $W_{b,y}$ and C_j used for ex-ante estimation and provide fNBB calculation worksheet. fNBR is calculated as per the procedure specified in the applied methodology and appropriate justification for X_{boil}, $W_{b,y}$ and C_j are provided. Hence, CAR is closed.</p>
Conclusion	<p>Based on the calculations and results presented in the sections above the implementation of the project activity will result in an average ex-ante estimation of emission reduction conservatively calculated to be 590,307 tCO₂e per year over 5 years of crediting period. The calculation of the emission reductions has been ensured by the validation team based on the VER calculation sheet.</p> <p>The emission reductions estimation can be replicated using the data and parameter</p>

values provided in the PDD and supporting file submitted for registration.

D.2.10. Monitoring plan

Means of validation	Data and parameters fixed ex-ante:				
		Data/parameter	Unit	Value applied	Assessment
	1	Fraction of woody biomass that can be established as non-renewable biomass (f_{NRB})	%	84.3%	f_{NRB} is calculated for Bangladesh following procedure outlined in the applied methodology. Recent data referred in Global Forest Resource Assessment 2015, country report Bangladesh /16/ has been used. The value is fixed for the first crediting period.
	2	Portion of users of project safe water supply who were already in baseline using a non-boiling safe water supply (Cj)	%	6.6%	PD has considered recent national level survey 'Bangladesh Multiple Indicator Cluster Survey 2019' by Bangladesh Bureau of Statistics, Bangladesh which in Table WS1.9 on Page 337 shows 6.6% of total population use some form of non-boiling effective water treatment (Bleach/Chlorine added 0.4%, use water filter 6.1%, other 0.1%) /19/. This has been considered by PD appropriately as combined factor for Cj and Xboil. This meets the methodology requirement and being the value provided by government source, it is credible to accept.
	3	Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b ($W_{b,y} / W_{p,y}$)	tonnes/ litre	0.0004 Tonnes/litre for woody biomass	Project developer has considered to account only those households/users who uses firewood for water boiling. Therefore, the default value provided in GS rule update on 'APPLICATION OF TPDDTEC METHODOLOGY TO SAFE WATER SUPPLY PROJECTS' dated 03/05/2021 for woody biomass has been chosen to apply in the project activity /04/.

4	CO ₂ emission factor arising from use of fuels in baseline/project scenario (EF _{b,wood,CO2} /EF _{p,wood,CO2})	tCO ₂ /TJ	112	Default value as given in the applied methodology is used for the project activity. Hence accepted /04/.
5	Non-CO ₂ emission factor arising from use of fuels in baseline/project scenario (EF _{b,wood,nonCO2} / EF _{p,wood,nonCO2})	tCO ₂ /TJ	9.46 tCO ₂ e/TJ	The values are default value as per IPCC AR5 GWP which has been approved by GS in its methodology Emission reductions from Safe Drinking Water Supply v.1.0 /17/.
6	Net calorific value of the fuels used in baseline/ project scenario (NCV _{b,wood} /NCV _{p,wood})	TJ/ton	0.0156	Default value as given in the applied methodology is used for the project activity. Hence accepted /04/.

Data and parameters to be monitored:

	Parameter	Description/Assessment
1	Litres of purified water supplied by the project activity in year y (QPWy)	Monitored using flow meters at each water treatment system. This shall be also cross checked from total number of person served under the project activity in annual basis and Q _{p,y} .
3	Quantity of safe (treated, or from safe supply) water boiled in the project scenario p, after installation of project technology (Q _{p,cleanboil,y} : Litres per person per day)	To be monitored at least biennially applying questionnaire surveys.
4	Quality of the treated water in litres	Water quality test to be conducted at least quarterly to meet the Performance of the treatment technology – less than 1 colony Forming Unit (CFU) of E.coli/100 ml of safe water.
5	Usage rate in project scenario p during year y (U _{p,y})	Annual usage rate shall be accessed based on safe water distributed from the project.
6	Number of persons consuming water supplied by project scenario p through year y (N _{p,y})	The parameter shall be monitored continuously by the project team through household agreements.
7	Hygiene campaigns	Hygiene campaigns to be carried out among project technology users annually in line with the methodology requirements.
8	Treatment capacity (Liters per day)	Treatment capacity of the project technology/improved sources to be recorded as per manufacturer/design specification at the time of registration of the technology.
9	Leakage	Leakage assessment as per the PDD and methodology requirement shall be monitored.

Findings	CAR 08 was raised to as many monitoring parameters as required by the methodology were not included in the monitoring plan which PD updated in the revised PDD and hence CAR is closed.
Conclusion	CC IPL confirms that the monitoring plan mentioned in the PDD is in accordance with the requirements mentioned in the monitoring methodology and the local regulatory requirements, as well the monitoring arrangements described in the monitoring plan are feasible within the project design. CC IPL is of the opinion that the monitoring plan will give opportunity for real measurement of achieved emissions reductions for 2 years after the crediting period.

D.3. Start date, crediting period type and duration

Means of validation	A renewable crediting period has been chosen for the project, starting from 09/11/2022 or from the date commissioning of project system whichever is later. The project is a regular project and crediting period shall start from the date of registration of the project.
Findings	N/A
Conclusion	CC IPL confirms that that duration and crediting period considered for the project activity meets the requirement of GS4GG.

D.4. Environmental impacts

Means of validation	The project does not have any negative environmental impact and does not require any specific licence/approval from host country. Other positive environmental impacts are discussed in section D.2.8 above.
Findings	N/A
Conclusion	CC IPL confirms that the project does not result any negative environmental and social impact and meets the sustainable development criteria as defined by GS requirements.

D.5. Local stakeholder consultation

Means of validation	The local stakeholder consultation is found conducted following guideline as outlined in GS4GG 'stakeholder consultation & Engagement procedure, requirement and guidelines' and a stakeholder consultation report is prepared /02/. VVB cross checked the information provided in the stakeholder report during off-site assessment and other documents. The stakeholder meeting was held on 21/01/2021 at Upozila Auditorium, Shyamnagar, Bangladesh. The stakeholders were invited via local newspaper advertisement published on 19/12/2020 and personal invitations and the documents were made available to VVB /02/. The same also confirmed from stakeholders during off-site interview. All the steps found performed as per the guideline. No negative comment or grievance found recorded during the stakeholder meeting. It is also noted that a continuous grievance mechanism as detailed during stakeholder meeting is found in practice. Stakeholders are found aware of continuous grievance mechanism system. It is also noted from PP, the feedback round started on 05 July 2021 and completed on 04 September 2021 as per GS stakeholder consultation & Engagement procedure, requirement and guidelines version 1.2. PD incorporated the SFR details in the PDD and LSCR appropriately. As per details made available to VVB, no comment found received as part of the feedback round.
Findings	During preliminary review of the project, GS raised couple of questions which are discussed and closed as detailed in Appendix 4 of this report.
Conclusion	CC IPL confirms that the stakeholder consultation process held for the project activity meets the requirement of GS4GG. The SFR is completed as per GS stakeholder consultation & Engagement procedure.

D.6. Sustainable development co-benefits

Means of validation		Parameter	Description/Assessment
		1	Clean Water and Sanitation (SDG 6)

	2	Decent Work and Economic Growth (SDG 8)	<p>Monitoring parameter: Employment generation from the project and quality trainings to employees</p> <p>Way of monitoring: PP shall keep employment records, payment records, training records as part of monitoring this parameter.</p>
	3	Ensure sustainable consumption and production patterns (SDG 15)	<p>Monitoring parameter: Amount of fuelwood avoided from water boiling due to the project activity.</p> <p>Way of monitoring: Calculated annually based on amount of safe water consumed annually applying default value of fuel quantity required to boil per litre of water.</p>
<p>Safeguarding principle to be monitored: Principle 3 – Community Health, Safety and Working Conditions: Workplace Health & Safety trainings will be conducted regularly during the project operation by project developer.</p> <p>Mechanism to input continuous grievances: As part of continuous grievance mechanism PD has highlighted the mechanism in stakeholder consultation report/02/ and also in the PDD. A grievance register shall be kept at each water filtration system to record any grievance raised by stakeholders. Since, the project is yet to be implemented, other contact details shall be made available to stakeholders before operation of the project which can be verified during first verification. The stakeholders found aware of the grievance mechanism system as discussed during remote interview. Therefore, the continuous grievance input mechanism is in place.</p>			
Findings	N/A		
Conclusion	CCIPL confirms that sustainability monitoring plan and indicators included in the PDD confirm to the sustainable development requirements of GS4GG.		

SECTION E. Internal quality control

>>The draft final validation report before being submitted to the client is subjected to an independent technical review to confirm that all validation activities has been completed according to the pertinent CCIPL's procedures. The technical review is performed by a technical reviewer(s) qualified in accordance with the CCIPL's qualification procedure.

SECTION F. Validation opinion

>>

Carbon Check (India) Pvt. Ltd. has performed validation of the project activity "Solar water filtration units for rural areas in costal Bangladesh" in Bangladesh, with regard to the relevant requirements for GS VER activities.

The review of the project design document and the subsequent follow-up interviews have provided CCIPL with sufficient evidence to determine the fulfilment of the stated criteria.

The project correctly applies the approved Gold Standard methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, version 3.1.

The project activity is to provide safe drinking water to fresh-water scarce coastal people in Bangladesh by installing solar PV based purification system and RO (Reverse Osmosis) system, which results in reduction of fire-wood consumption otherwise would have been used for water boiling for safe drinking, resulting reduction of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project "Solar water filtration units for rural areas in costal Bangladesh" are estimated to be on average 590,307 tCO₂e per year over the selected 5 years

renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan provides for the monitoring of the project's emission reductions and of the sustainable development indicators. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is CCIPL's opinion that the project participants are able to implement the monitoring plan.

In conclusion, it is CCIPL's opinion that the project activity "Solar water filtration units for rural areas in costal Bangladesh" in Bangladesh, as described in the PDD, version 6.0 of 23/01/2023 meets all relevant GS4GG requirements for the GS VER and all relevant host Party criteria and correctly applies the Gold Standard methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption, version 3.1.


Hence, CCIPL request registration of the project under Gold Standard.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CC IPL	Carbon Check India Pvt. Ltd.
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CDM-PCP	Clean Development Mechanism Project Cycle Procedure
CDM-PS	Clean Development Mechanism Project Standard
CDM-VVS	Clean Development Mechanism Validation and Verification Standard
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reductions
ER	External Resources
ERPA	Emission Reduction Purchase Agreement
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GS4GG	Gold Standard for Global Goals
GWP	Global Warming Potential
ICS	Improved Cooking Stoves
IPCC	Intergovernmental Panel on Climate Change
LDC	Least Developed Country
LoA	Letter of Approval
LSC	Local Stakeholder Consultation
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-governmental Organization
NRB	Non-renewable Biomass
ODA	Official Development Assistance
PD	Project Developer
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Participant(s)
Ref.	Document Reference
RETS	Renewable Energy Test Station
SD	Sustainability Development
SDG	Sustainable Development Goals

SMP	Sustainability Monitoring Plan
SS(s)	Sectoral Scope(s)
UNFCCC	United Nations Framework Convention on Climate Change
VER	Voluntary Emission Reduction
VNV	Value Network Ventures Advisory Services Pte. Ltd.
VVB	Validation and Verification Body
VVS	Validation and verification standard

Appendix 2. Competence of team members and technical reviewers



Carbon
CHECK

Carbon Check (India) Private Ltd.

Champok Buragohain

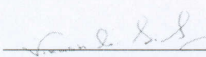
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

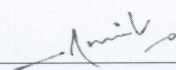
For following functions:

Validator Team Leader Technical reviewer
 Verifier Technical Expert Local Assessor¹

In the following Technical Areas:

TA 1.1 TA 3.1 TA 5.2 TA 9.2 TA 13.2
 TA 1.2 TA 4.1 TA 8.1 TA 10.1 TA 14.1
 TA 2.1 TA 5.1 TA 9.1 TA 13.1


 Mr. Vikash Kumar Singh
 Compliance Officer


 Mr. Amit Anand
 CEO

Date of Approval
 24/12/2020

Valid Till
 24/12/2021

Revision History of the Document	
26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2017	Annual Revision
24/12/2017	Annual Revision
24/12/2018	Annual Revision
24/12/2019	Annual Revision
01/03/2020	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision

¹ Please state the name of countries for which the candidate is qualified as local assessor.
 CARBON CHECK (INDIA) PRIVATE LIMITED
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Carbon Check (India) Private Ltd.

Amit Anand

has been qualified as per CCIPL’s internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator Team Leader Technical reviewer
 Verifier Technical Expert Local Assessor¹

In the following Technical Areas:

TA 1.1 TA 3.1 TA 5.2 TA 9.2 TA 13.2
 TA 1.2 TA 4.1 TA 8.1 TA 10.1 TA 14.1
 TA 2.1 TA 5.1 TA 9.1 TA 13.1

Mr. Vikash Kumar Singh
Compliance Officer

Date of Approval
24/12/2020

Valid Till
24/12/2021

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26/12/2014	Initial Adoption
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¹ India and South Africa

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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
01	VNV Advisory Services	GS4GG key project information and project design document (PDD) for the project activity 'Solar water filtration units for rural areas in costal Bangladesh'	Version 2.0 of 05/06/2021, version 3.0 of 22/07/2021, version 4 of 19/07/2022, version 5 of 06/12/2022 version 6 of 23/01/2023	PP
02	VNV Advisory Services	GS4GG stakeholder consultation report for 'Solar water filtration units for rural areas in costal Bangladesh'	Version 3.1 of 26/12/2022	PP
03	VNV advisory Services	Preliminary review under GS4GG for the project activity 'Solar water filtration units for rural areas in costal Bangladesh' GS 11075	Review form	PP
04	Gold Standard	Gold Standard methodology: Technologies and Practices to Displace Decentralized Thermal Energy Consumption	version 3.1	Publicly available
05	Carbon Check & VNV	GS validation and verification contract for the project 'Solar water filtration units for rural areas in costal Bangladesh'	24/06/2021	VVB
06	VNV Advisory Services	Emission reduction worksheet (GS 11075_Bangladesh calculation June 2021) GS 11075_Bangladesh calculation July 2021	Version 01 Version 02 version 3 of 06/12/2022	PP
07	Gold Standard	COVID-19: Interim Measures	Dated 18/12/2020, valid upto 30/06/2021	Publicly available
08	UNFCCC	Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities	Ver. 4.0, EB86, Annex 4	Publicly available
09	UNFCCC	Standard for Sampling and surveys for CDM project activities and programmes of activities	Version 08	Others
10	Gold Standard	PRINCIPLES & REQUIREMENTS	Version 1.2 of October 2019	Publicly available
11	UNFCCC	Information note: Default values of fraction of non-renewable biomass for least developed countries and small island developing States	Annex 22, EB 67	Publicly available
12	The Water Project	Water in crisis-spotlight on Bangladesh	https://thewaterproject.org/water-crisis/water-in-crisis-bangladesh	Publicly available
13	UNICEF	Better access to safe drinking water	https://www.unicef.org/bangladesh/en/better-access-safe-drinking-water	Publicly available
14	UNCTAD	UN list of least developed countries	https://unctad.org/topic/least-developed-	Publicly available

			countries/list	
15	Gold Standard	GS rule update on 'APPLICATION OF TPDDTEC METHODOLOGY TO SAFE WATER SUPPLY PROJECTS'	Dated 03/05/2021	Publicly available
16	FAO	Global Forest Resource Assessment 2015, country report Bangladesh	http://www.fao.org/3/az161e/az161e.pdf	Publicly available
17	Gold Standard	GS methodology 'Emission reductions from Safe Drinking Water Supply'	Version 1.0	Publicly available
18	The World Bank	Bangladesh- Beyond connections- Energy access diagnostic report based on the multi-tier framework	November 2019	Publicly available
19	Bangladesh Bureau of Statistics, Govt. of Bangladesh	Multiple Indicator Cluster Survey 2019, Survey Findings Report	December 2019	Publicly available

Appendix 4. Clarification requests, corrective action requests and forward action requests

FARs from GS preliminary review:

FAR ID	01	Section no.	From GS Preliminary review	Date:	08/07/2021
Description of FAR					
1.	Given the SFR after consultation process is yet to be organized, and please make sure its completion and availability in LSC report when the validation/design review held for post-Covid period				
2.	It shall be confirmed at the time of validation whether the stakeholders are aware of the continuous input/grievance mechanism and the various modes through which comments/grievances may be submitted. Now it is largely open issue reflected in the PDD.				
3.	As the current form and a couple of comments on the stakeholder consultation process (which is generally insufficient), please pay special attention to check the key aspects for integrity when validating the Project				
4.	Please double check the monitoring parameters for the purpose of SDG 8 and SDG 6 and whether they can be feasibly done in real practice				
Project participant response				Date:	
				18/07/2021	
1.	<i>The process for the SFR has started on 05 July 2021. The information related to SFR shall be made available once the process is complete.</i>				
2.	<i>The stakeholders were informed about the LSC regarding the grievance mechanism. Since activity is a regular project hence once the project is initiated the grievance book shall be placed at each plant and stakeholders will be informed.</i>				
3.	<i>The stakeholder consultation report is submitted to GS.</i>				
4.	<i>PD expect SDG 8 and SDG 6 monitoring parameters are feasible to monitor</i>				
Documentation provided by project participant					
<i>Proof of initiation of SFR has been provided i.e. copy of email sent.</i>					
VVB assessment				Date:	
				02/08/2021	

1. VVB noted the live stakeholder consultation process happened on 21/01/2021 and stakeholder feedback round started on 05 July 2021 which was verified from e-mail invitations. The 60 days period of SFR shall complete on 4 September 2021. By the time GS registration process shall complete the feedback round comments shall be checked and updated accordingly.
2. The PDD describes the continuous grievance mechanism which has been found discussed with local stakeholders as per the details provided in the stakeholder consultation report.
3. The SRF round is in process and live stakeholder consultation process is conducted as per GS guideline and requirements. The PDD is validated considering the project design and requirements of the applied methodology.
4. For SDG 8, employment generation is considered as monitoring parameter which in VVB's opinion is correctly chosen as the project will generate employment in operation and maintenance of the project water treatment systems. For SDG 6, proportion of people access to clean water is considered to be monitored which in VVB's opinion is correctly chosen as the project is mean to directly impact this parameter.

The stakeholder feedback round completed on 04 September 2021 and as per details made available to VVB, no comment found received as part of the feedback round. Hence, FAR is closed.

Table 1. CL from this verification

CL ID	01	Section no.	D.1	Date: 08/07/2021
Description of CL				
<ol style="list-style-type: none"> 1. PP is requested to provide documents pertaining to the implantation framework of the project activity. 2. Supporting evidence for technical life of the project technology needs to be provided as specified in section A.3 of the PDD. 3. PP is requested to provide supporting documents to justify the ownership rights of carbon credit from the project activity. 				
Project participant response				Date: 18/07/2021
<ol style="list-style-type: none"> 1. <i>Since the regular project activity, the implementation shall start once the activity is registered.</i> 2. <i>Since the refurbishing of the plant shall start once the activity is registered. The technical information and proofs shall be provided to the VVB before the first verification.</i> 3. <i>The cover letter has been provided.</i> 				
Documentation provided by project participant				
Cover letter				
VVB assessment				Date: 24/07/2021
<ol style="list-style-type: none"> 1. Since the project is yet to be implemented, the implementation framework could not be verified. FAR 06 is raised to cross check the same in line with the description of PDD during first verification. 2. The technical life of the project shall be available once retrofitting equipments shall be procured. Since the project is yet to be started, the technical life shall be available to verify during first verification. FAR 07 is raised. 3. For rights of carbon credit, FAR 02 is raised. <p>Here, the CL is closed.</p>				

CL ID	02	Section no.	D.2.5	Date: 08/07/2021
Description of CL				
<ol style="list-style-type: none"> 1. PP is requested to clarify why project specific baseline study is not used to establish baseline boiling technology and quantity of baseline fuel required to boil water? 2. PP is also requested to clarify how the principle of suppressed demand is applicable for the project in line with GS4GG Principle and Requirements? 				
Project participant response				Date: 18/07/2021
<ol style="list-style-type: none"> 1. <i>There is complete lockdown state in the Bangladesh due the pandemic Covid – 2019. Hence it was difficult to conduct the Baseline survey as of now. The value has been taken from Gold Standard default value now.</i> 2. <i>Since this is large scale project activity the suppressed demand has been removed as per the GS4GG requirements. The real case scenario has been provided for the baseline in the PDD.</i> 				
Documentation provided by project participant				

VVB assessment	Date: 02/08/2021
<p>1. The baseline scenario although explained in the PDD, a project specific baseline study in line with GS requirements and data parameters used shall be done by PD once COVID situation in the host country improves and hence the baseline shall be cross checked during first verification. FAR 01 is raised.</p> <p>2. PD has revised the baseline justification and suppressed demand is removed. PD shall account only users who boil water in the pre-project scenario. FAR 01 is raised.</p> <p>The project scale is changed from small-scale to large scale although the project completed its GS preliminary review as small-scale project. VVB accepted this on confirmation from GS representative (Mr. Abhishek Goyal) over telephonic call on 02/08/2021.</p> <p>Hence, CL is closed.</p>	

CL ID	03	Section no.	D.2.8	Date: 08/07/2021
Description of CL				
<p>1. PP is requested to clarify of any Workplace Health & Safety trainings have been organized for the project and provide supporting documents for the same.</p> <p>2. As part of safeguarding principle 8.1, PP plans to use discharge water in irrigation. However, the monitoring and measurement procedure is not outlined in section D.1 of the PDD.</p> <p>3. PP is requested to clarify why principle 8.2 is not considered to be impacted by the project activity?</p>				
Project participant response				Date: 18/07/2021
<p>1. <i>The project activity has not started until now. The workplace Health and safety trainings shall be organised as and when the refurbishment process shall start. Proper data shall be maintained will be produced to the VVB.</i></p> <p>2. <i>The monitoring of discharge water has been added in the monitoring plan in the PDD.</i></p> <p>3. <i>Principle 8.2 is marked relevant. Since the pond water or ground water is currently used for the drinking purpose after boiling and the same water sources are used for purification and hence no additional damage or erosion shall disrupt natural pattern.</i></p>				
Documentation provided by project participant				
VVB assessment				Date: 24/07/2021
<p>1. Since the project is yet to be implemented, the workplace Health & Safety trainings shall be conducted post implementation. Therefore this has been considered as monitoring parameter. Hence, issue is closed.</p> <p>2. The monitoring of discharge water has been added in monitoring plan and hence this issue is closed.</p> <p>3. Impact on water is considered as relevant principle for the project which has been impacted. However, the impact is not negative. PD shall use ground water, water stored from rain or in pond for filtration. In case saline water is treated, the backwater shall be released to its original source and hence there will be no impact on natural source or pattern of water. Hence, issue is closed.</p> <p>In summary, the CL is closed.</p>				

Table 2. CAR from this verification

CAR ID	01	Section no.	C.4	Date: 08/07/2021
Description of CAR				
<p>1. The sample plan in section B.7.2 of the PDD does not cover specifically the below details:</p> <p>a) The specific parameters to be monitored using sampling approach which are directly affecting emission reductions and other SDGs</p> <p>b) The sample method (random, stratified, cluster, multi-stage etc.)</p> <p>c) Target population and sampling frame</p> <p>d) The sample size based on desired confidence/precision.</p> <p>e) The QA/QC procedures</p> <p>2. The section specifies minimum sample size in line with the methodology, however the same is only applicable for Baseline survey and not for monitoring.</p> <p>3. The section does not refer UNFCCC approved 'Guidelines for sampling and surveys for CDM project activities and programme of activities' and sampling standard as recommended in the methodology.</p>				
Project participant response				Date: 18/07/2021

1. The sample plan under B.7.2 has been revised in the PDD. As suggested by VVB above.	
2. It specifies the monitoring surveys along with the baseline survey.	
3. The guideline has been revised in the PDD.	
Documentation provided by project participant	
Updated PDD	
VVB assessment	Date: 24/07/2021
1. The sample plan is revised and found to be in line with the methodology requirements. The sample size and required confidence precision as required for specific monitoring parameter are added in the sampling plan and hence issue is closed.	
2. The sample size stipulated in the PDD applied for both baseline project monitoring. This is as per the applied methodology. Hence, issue is closed.	
3. PD has referred guideline and requirements of sample plan as per the applied methodology and hence issue is closed.	
In summary, CAR is closed.	

CAR ID	02	Section no.	D.1	Date: 08/07/2021
Description of CAR				
1. The product requirement specified on cover page of the PDD is not correct as per claimed SDGs				
2. Kindly provide the basis on which it is estimated the benefit of SDG 12 to be 321000 tonnes of fuel wood saved per annum.				
3. At what level and how the employment generation of 150-200 per annum are expected under SDG 8? Is it expected to generate annually over the life of the project?				
4. Section A.1 of the PDD lack in describing the implementation framework, agencies involves, the project technology in brief, expected estimation of SDGs positively impacted by the project activity.				
5. Under section A.2 of the PDD, geographical co-ordinates of districts considered under the project is not provided.				
6. PP is requested to clarify under section A.3 of the PDD, whether the project system is limited to 5000 litre saline water tank and 5400 Wp solar PV system?				
Project participant response				Date: 18/07/2021
1. The product requirement has been corrected.				
2. It is estimated that for boiling of per litre of water the 0.000148 tonnes of fuelwood is used and hence for 218000 liters of water per day ($0.000148 \times 218000 \times 365 = 117714$ tonnes of wood) shall be saved. The same has been corrected from the PDD.				
3. There are approx. 150 systems expected to be refurbished. During the construction phase 15-20 employments are expected to be generated per plant. After the constructions starts there shall be one lady appointed for distribution of water from every purification system. And one engineer shall be appointed for the maintenance against 10 plants. In addition to that few daily wage labour shall be appointed as and when required for the maintenance and cleaning of purification systems.				
4. The Bangladesh Bondhu Foundation shall be the agency which shall be refurbishing the water purification plants.				
5. The same has been provided in the PDD.				
6. No, there are different capacity systems are available as per the community requirement and location availability. The detail has been provided in a separate excel sheet.				
Documentation provided by project participant				
Updated PDD and ER worksheet				
VVB assessment				Date: 24/07/2021
1. The product requirement of the project is corrected as GHG Emissions Reduction & Sequestration, hence accepted.				
2. The explanation on the basis of firewood saved is explained. The parameter shall be monitored and hence, issue is closed.				
3. The explanation of estimation of SDG 8 is accepted. Moreover, the parameter is to be monitored. Hence, issue is closed.				
4. Appropriate FAR is raised for implementation framework, technology etc. and hence issue is closed here.				
5. Geographical co-ordinates are provided for all districts covered and hence issue is closed.				
6. Depending on the size of filtration system, appropriate capacity of solar system, pumps etc. shall be installed. This is acceptable and shall be verified during first verification. Hence, issue is closed here.				
In summary, CAR is closed.				

CAR ID	03	Section no.	D.2.1	Date: 08/07/2021
Description of CAR				

Section B.2 of the PDD should also elaborate its compliance to Annex 3 of the methodology.	
Project participant response	Date: 18/07/2021
<i>The section B.2 has been revised.</i>	
Documentation provided by project participant	
<i>Updated PDD</i>	
VVB assessment	Date: 24/07/2021
Annex 3 of the methodology specifies the 'Application of the methodology to safe water supply project' and hence conditions as per the annex are discussed and justified. For some conditions appropriate FAR has been raised. Hence, CAR is closed.	

CAR ID	04	Section no.	D.2.4	Date: 08/07/2021
Description of CAR				
<ol style="list-style-type: none"> Section B.3 of the PDD states paragraphs specified in the methodology instead of precisely stating the project specific boundary. The table of emission sources provided in section B.3 of the PDD states project emissions to be accounted which is contradicting with other sections of the PDD. 				
Project participant response				Date: 18/07/2021
<ol style="list-style-type: none"> <i>Section B.3 has been revised to describe project specific boundary in the PDD.</i> <i>The project emissions if any shall be accounted if any. But there are no emissions in the project case scenario.</i> 				
Documentation provided by project participant				
<i>Updated PDD</i>				
VVB assessment				Date: 24/07/2021
The project boundary has been described in detailed in line with the methodology requirements. The emission sources under the project boundary are presented correctly. Hence, CAR is closed.				

CAR ID	05	Section no.	D.2.6	Date: 08/07/2021
Description of CAR				
<ol style="list-style-type: none"> The section A.1.1 of the PDD only describes the general eligibility criteria as per GS4GG principles and requirements, however eligibility principle and requirements as per section 4 of GS4GG principles and requirements are not discussed. The measures in place to avoid double counting is not discussed appropriately in section A.1.1 of the PDD. PP is requested to justify the start date of the project activity in line with the definition of start date of project activity as per GS. PP is requested to clarify the scale of the project activity in line with GS4GG rules and requirements referring 'GHG EMISSIONS REDUCTION & SEQUESTRATION PRODUCT REQUIREMENTS'. 				
Project participant response				Date: 18/07/2021
<ol style="list-style-type: none"> <i>The same has been included in the revised PDD.</i> <i>The discussion on double counting has been included in section B.2.</i> <i>This is the regular project activity. The first action related to project is taken as LSC. Hence the same has been mentioned as start date of project activity.</i> <i>The scale of the project activity has been changed to large scale as per 'GHG EMISSIONS REDUCTION & SEQUESTRATION PRODUCT REQUIREMENTS'.</i> 				
Documentation provided by project participant				
<i>Updated PDD</i>				
VVB assessment				Date: 24/07/2021
<ol style="list-style-type: none"> The project eligibility and its compliance to the mandatory principles are specified in GS4GG principle and requirements are correctly discussed, hence issue is closed. The measures to avoid double counting are discussed and actual documents to be verified during first verification. Hence, issue is closed here. The project is yet to be implemented and start date not yet realized. It is expected to be in the year 2022 and the same shall be verified during first verification. Hence, issue is closed here. The scale of the project is corrected to large-scale and accordingly the justification of baseline and other requirements are discussed in the PDD. The scale is correct as per GS guidelines and hence accepted. <p>In summary, the CAR is closed.</p>				

CAR ID	06	Section no.	D.2.7	Date: 08/07/2021
Description of CAR				

The additionality justification in section B.5 of the PDD refers Annex B-Positive List of GS4GG COMMUNITY SERVICES ACTIVITY REQUIREMENTS. PP is requested to clarify how the project meets the said requirement. PP is also requested to justify how the projects meets clause 1.1.1 of Annex B-Positive List given the technology options in the list does not meet the project technology.	
Project participant response	Date: 18/07/2021
<i>The project activity is now a large scale project activity and hence the justification for the additionality has been revised accordingly in the PDD.</i>	
Documentation provided by project participant	
<i>Updated PDD</i>	
VVB assessment	Date: 24/07/2021
The additionality of the project is correctly discussed as per paragraph 4.1.9 of GS community service activity requirements version 1.2 of October 2019. The project is deemed to be additional since, the project is located in LDC. This is discussed in section D.2.7 of this report. Hence, CAR is closed.	

CAR ID	07	Section no.	D.2.9	Date: 08/07/2021
Description of CAR				
<ol style="list-style-type: none"> 1. The reference for the value used for 'Xboil', 'Wb,y' needs to be provided. Also clarify the choice of the value in line with the methodology requirement. 2. As per methodology, Cj value needs to be sourced either from baseline study or Credible literature, studies, survey, reports relevant to the project target area. Please clarify. 3. Clarify why methodology specified default value is not used for NCVb,wood 4. Please provide fNRB calculation details (worksheet) as per methodology requirement. 				
Project participant response				Date: 18/07/2021
<ol style="list-style-type: none"> 1. 'Wb,y' - <i>The reference value has been taken as per the default value provided in the methodology rule update.</i> 'Xboil' – <i>The value has been taken as 0 as per the preliminary assessment. The baseline survey shall be conducted before first verification to monitor the value of 'Xboil'.</i> 2. Cj - <i>The value has been taken as 0 as per the preliminary assessment. The baseline survey shall be conducted before first verification to monitor the value of 'Cj'.</i> 3. <i>The default value for NCVb,wood has been now updated oin the PDD and the ER sheet for the calculation of Emission reduction units.</i> 4. <i>The fNRB detailshas been provided in the ER calculation sheet.</i> 				
Documentation provided by project participant				
<i>Updated PDD, ER calculation sheet – NRB assessment</i>				
VVB assessment				Date: 24/07/2021
<p>Wb,y value is considered from default value as provided in GS rule update on 'APPLICATION OF TPDDTEC METHODOLOGY TO SAFE WATER SUPPLY PROJECTS' dated 03/05/2021. Hence, accepted.</p> <p>Xboil, and Cj value shall be established as part of project specific baseline study and FAR is raised accordingly.</p> <p>For NCV of wood biomass is corrected in line with the applied methodology and hence accepted.</p> <p>fNRB is calculated as per the provided in the applied methodology. The data source has been correctly considered from latest available source and calculation found appropriately done. Hence, fNRB value is accepted.</p> <p>In summary, CAR is closed.</p>				

CAR ID	08	Section no.	D.2.10	Date: 08/07/2021
Description of CAR				
<ol style="list-style-type: none"> 1. The applied methodology requires to monitor parameter 'Qp,y', 'Qp,rawboil,y' and 'Nj,y' which PP has proposed to use by monitoring total Quantity of purified water consumed in year with total sales record. PP is requested to clarify the appropriateness of the approach in line with the methodology and conservativeness to be adopted as provided in the methodology page 48 and 49. 2. Other monitoring parameters as required by the methodology (e.g. Water quality must be tested every quarter, with the first test within 6 months of the stated project start date, Hygiene campaign, Usage rate in project scenario p during year y, Treatment capacity etc.) are not included in the monitoring plan. 				
Project participant response				Date: 18/07/2021

1. This is the community level bulk distribution of the purified water. Hence the total sale of purified water shall be monitored. The amount purified water shall be used in to calculate the Emission reduction units. 'Qp,y', 'Qp,rawboil,y' and 'Nj,y' shall also be monitored to check the conservativeness and appropriateness of the calculation.
2. The other monitoring parameters have been included in the PDD as per the requirements of the methodology.
Documentation provided by project participant
Updated PDD
VVB assessment Date: 24/07/2021
Project developer has kept all monitoring parameters as required by the applied methodology. Moreover, for simplification, PD will monitor the safe drinking water distributed at the distribution point which will represent Qp,y', 'Qp,rawboil,y' and 'Nj,y'. Therefore, from total volume of water sold the other parameters can be cross checked for conservativeness. Hence, response is accepted and CAR is closed.

Table 3. FARs from this validation

FAR ID	01	Section no.	D.1	Date: 23/07/2021
Description of FAR				
<i>The project ownership rights, and carbon credit ownership rights shall be cross checked during first verification of the project activity which shall be also checked to all parties involves such as O&M party, technology supplier, end users etc.</i>				
Project participant response				Date: 26/07/2021
<i>FAR is accepted.</i>				
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

FAR ID	02	Section no.	D.1	Date: 23/07/2021
Description of FAR				
<i>The technology of the project as discussed in the PDD shall be cross checked during first verification of the project activity</i>				
Project participant response				Date: 26/07/2021
<i>FAR is accepted</i>				
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

FAR ID	03	Section no.	D.1	Date: 23/07/2021
Description of FAR				
<i>The start date of the project activity shall be cross checked by the verification team during first verification of the project activity.</i>				
Project participant response				Date: 26/07/2021
<i>FAR is accepted.</i>				
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

FAR ID	04	Section no.	D.2.1	Date: 23/07/2021
Description of FAR				
<ul style="list-style-type: none"> - <i>The implementation framework of the project specially the roles and responsibilities of agencies involved need to be verified during first verification of the project in line with the descriptions provided in the PDD.</i> - <i>The project involves pumping of saline water for purification. The verifier shall cross check adequate licenses obtained by project developer to extract or pump water for purification under the project activity</i> 				
Project participant response				Date: 26/07/2021

<i>FAR is accepted.</i>	
Documentation provided by project participant	
DOE assessment	Date: DD/MM/YYYY

FAR ID	05	Section no.	D.2.1	Date: 23/07/2021
Description of FAR				
<i>A maintenance plan and technical documents of water system components for each water treatment system to be in place once a plant is put in operation and to be followed to ensure the continuation of the plant in the project.</i>				
Project participant response				Date: 26/07/2021
<i>FAR is accepted.</i>				
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
04.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN); • Make editorial improvements.
03.1	11 January 2018	Editorial revision to remove an erroneously included instruction paragraph in section D.2 (Identification of project type).
03.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
02.0	22 July 2016	EB 90, Annex 3 Revision to include provisions related to automatically additional project activities.
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory
 Document Type: Form
 Business Function: Registration
 Keywords: project activities, validation report