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

Version 1.1 – August 2017

Gold Standard

KEY PROJECT INFORMATION

Title of Project:	Water for Climate Rwanda
Brief description of Project:	Water Access Rwanda (WAR) together with CO2logic and mkaarbon safari will implement a project to provide safe drinking water to communities in the districts of Rusizi, Ngoma, Rwamagana and Bugesera. The project consists of the repair of damaged and defunct boreholes[1]. Boreholes may be dysfunctional e.g. due to a broken or removed pump or other broken parts like plunger, chain or rising main. The rehabilitation of those boreholes reduces the need for households to boil water as a means of purification. The project reserves as an option to drill new boreholes in case that this would reveal to be more favorable than rehabilitating the existing defunct boreholes.
Expected Implementation Date: Expected duration of Project:	21/08/2018 15 years (3 cycles of each 5 years)
Project Developper:	CO2logic
Project Representative:	Mr. Herman Noppen
Project Participants and any communities involved:	Water Access Rwanda (WAR) mkaarbon safari
Version of PDD: Date of Version:	2.0 16/11/2018
Host Country / Location:	Republic of Rwanda
Certification Pathway (Project Certificatin/Impact Statements & Products	Pathway 1 (VER Project Certification)
Activity Requirements applied: (mark GS4GG if none relevant)	Community Services Activity Requirements (version 1.1)
Methodologies applied:	Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3.1
Product Requirements applied:	N/A
Regular/Retroactive:	Regular
SDG Impacts:	1 – SDG 1: No Poverty 2 – SDG 3: Good Health and Well-Being 3 – SDG 5: Gender 4 – SDG 6: Clean Water and Sanitation 5 – SDG 13: Climate
Estimated amount of SDG Impact Certified	SDG 13: 56,658 Verified Emission Reductions (VERs)/year

[1] This may also include wells.

SECTION A. Description of project

A.1. Purpose and general description of project

>> (Provide a brief description of the project including the description of scenario existing prior to the implementation of the project.)

Water Access Rwanda (WAR) together with CO2logic and mkaarbon safari will implement a project to provide safe drinking water to communities in the districts of Rusizi, Ngoma, Rwamagana and Bugesera. The project consists of the repair of damaged and defunct boreholes[2]. Boreholes may be dysfunctional e.g. due to a broken or removed pump or other broken parts like plunger, chain or rising main. The rehabilitation or new drilling of boreholes reduces the need for households to boil water as a means of purification or to consume unsafe water being the scenario prior to implementation of the project activity.

The project reserves as an option to drill new boreholes in case that this would reveal to be more favorable than rehabilitating the existing defunct boreholes.

Many existing boreholes in the districts of Rusizi, Ngoma, Rwamagana and Bugesera have fallen into disrepair because of lack of systematic maintenance programs and due to insufficient financial means in the districts. CO2logic/mkaarbon safari will work with the local implementing partner Water Access Rwanda to repair/drill and maintain around 50 boreholes[3] across the 4 districts.

The concept of suppressed demand is applied in cases where unsafe water is used because adequate safe water is not available and where treatment is not practiced due to the prevalence of barriers like e.g. the lack of firewood or not enough money to buy firewood.

A.2. Eligibility of the project under Gold Standard

>> (Describe how the project meets the eligibility criteria as per section 3.1.1 of GS4GG Principles & Requirements document and the relevant activity requirements document)

The project activity involving the rehabilitation/new drilling of boreholes is eligible under GS according to clause 3.1.1 of the GS4GG Principles and Requirements document. Sub-clause 3.1.1.1 states that '*A project type is automatically eligible for GS Certification if there are approved GS Activity Requirements and/or GS Impact Quantification Methodologies associated with it or as referenced in GS Product Requirements*'. The GS has published the Community Services Activity Requirements which include end-use energy efficiency projects, under which the project activity falls. Hence, the project activity falls under the automatic eligibility list of projects.

[2] This may also include wells.

[3] The final number of boreholes to be rehabilitated/newly drilled may be lower or higher. The exact number will be decided at a later stage depending on the available budget and investor's need on ERs.

A.3. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

>> (Justify that project owner has full and uncontested legal ownership of the products that are generated under Gold Standard Certification and has legal rights concerning changes in use of resources required to service the Project for e.g water rights, where applicable.)

The rehabilitation of boreholes does not involve any activity that causes alteration of any resource, therefore the need for acquiring any specific legal right is not applicable.

In case of new drilling of boreholes, as the borehole becomes a public asset for the users, an agreement is reached between the owner of the land where the borehole will be placed and the community at large. This agreement transfers the small piece of land into public ownership of all the residents in the area and allows users to have access to the plot at anytime. The land taken by a borehole is very small and will generally not affect the value of the original landowner's remaining land, rather it will increase the value as the landowner of the remaining land lives nearby the borehole. During this land agreement, a small payment may be given for any crops destroyed in the process of sitting the borehole.

CO2logic has full and uncontested legal ownership of the VERs that are generated from the Gold Standard Certification of this project.

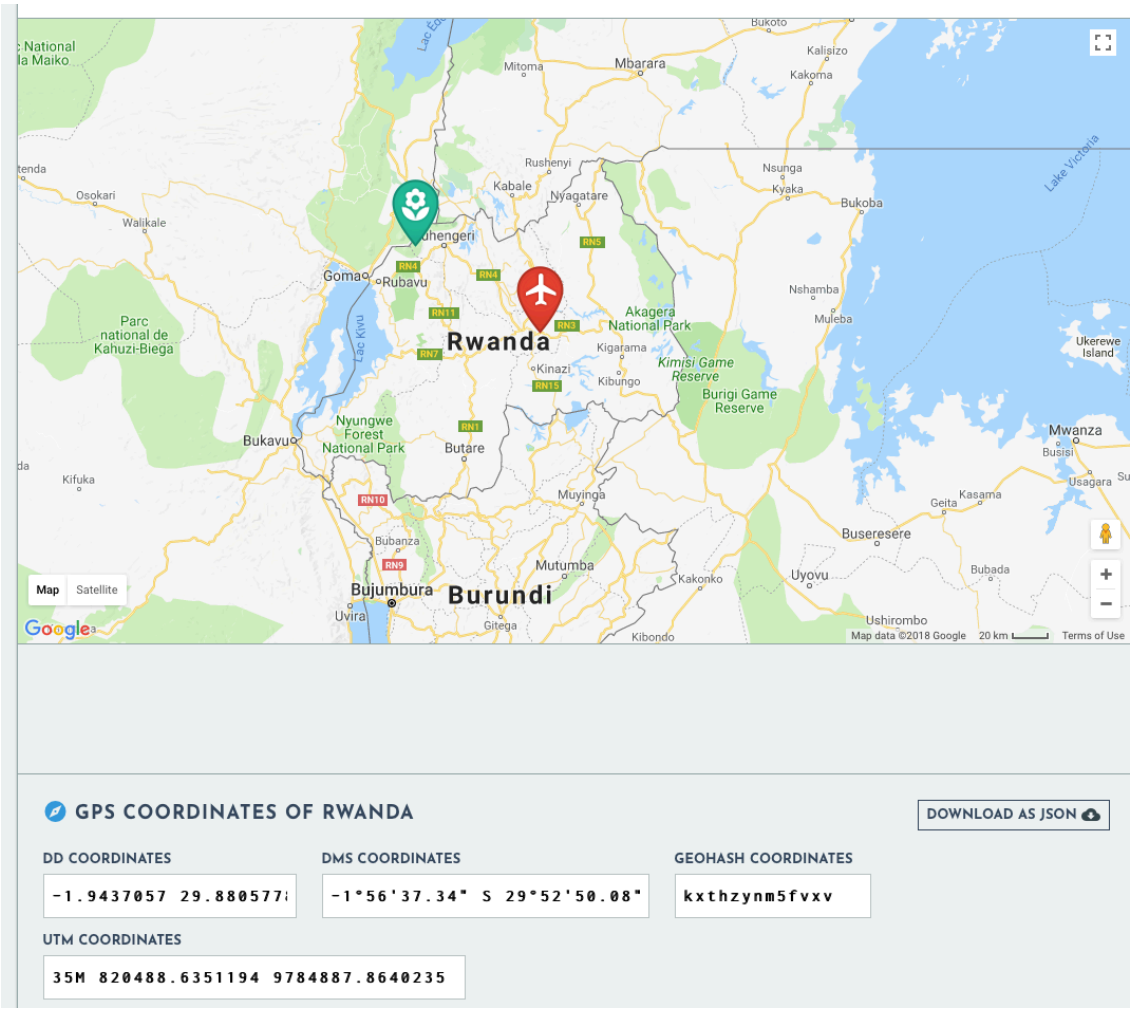
The transfer of carbon credit ownership from end-users to the project owner CO2logic will be proven with a written assertion signed by the head of the WASH committee on behalf of the communities in which the boreholes are located. The template of this assertion[4] will be provided at the project validation and the final signed version of the same at project verification.

A.4. Location of project

A.4.1. Host Country

>> Republic of Rwanda

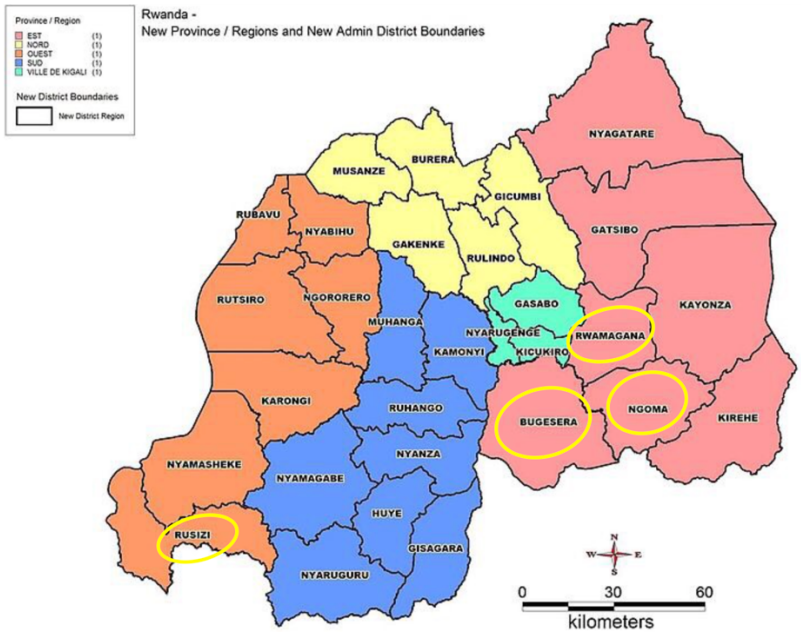
[4] See template of transfer of carbon credit ownership in ER calculation excel spreadsheet.



Data source: http://latitude.to/map/rw/rwanda (accessed on 25/07/2018)

A.4.2. Region/State/Province etc.

>> The project activity will be implemented in communities in the districts of Rusizi, Ngoma, Rwamagana and Bugesera. See in the following a district map with the intervention districts encircled.



A.4.3. City/Town/Community etc.

>> Communities in the districts of Rusizi, Ngoma, Rwamagana and Bugesera.

A.4.4. Physical/Geographical location

>> (*Include information allowing the unique identification of this project.)*

GPS COORDINATES OF BUGESERA DISTRICT, RWANDA

DD COORDINATES	DMS COORDINATES	GEOHASH COORDINATES
-2.23456 30.14825	-2°14'4.42" S 30°08'53.70"	kxt7q11q9pu

UTM COORDINATES

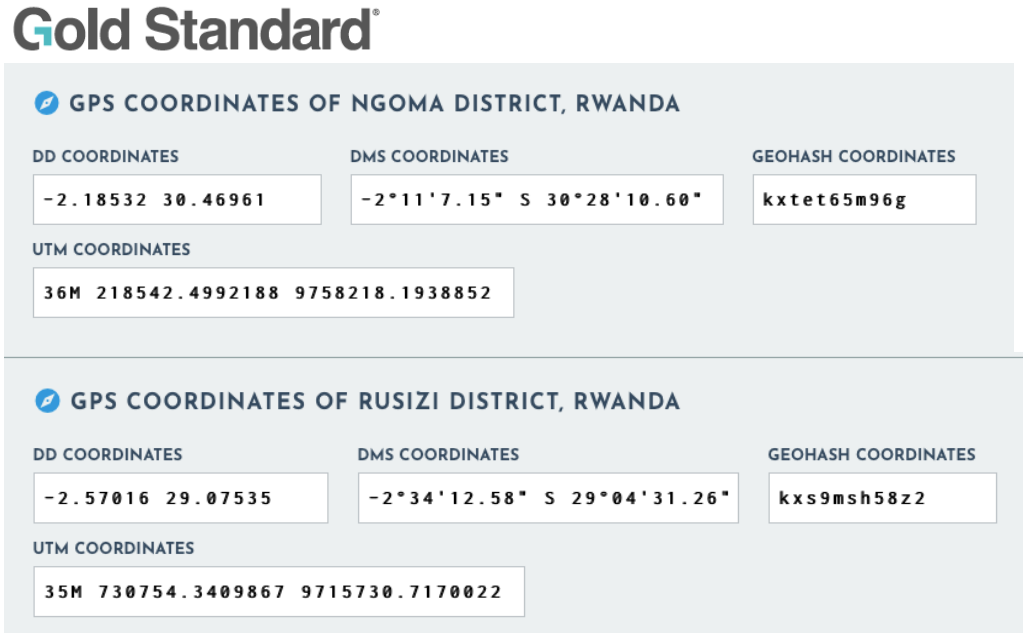
36M 182779.82984615

GPS COORDINATES OF RWAMAGANA DISTRICT, RWANDA

DD COORDINATES	DMS COORDINATES	GEOHASH COORDINATES
-1.97281 30.35428	-1°58'22.12" S 30°21'15.41"	kxtsf8z79cx

UTM COORDINATES

36M 205665.86275231



Data source:
http://latitude.to/map/rw/rwanda/regions/eastern-province/bugesera-district
http://latitude.to/map/rw/rwanda/regions/eastern-province/rwamagana-district
http://latitude.to/map/rw/rwanda/regions/eastern-province/ngoma-district
http://latitude.to/map/rw/rwanda/regions/western-province/rusizi-district
(accessed on 25/07/2018)

A.5. Technologies and/or measures

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

Any borehole/pump technology can be involved in the project activity. However, it is foreseen that the most common technologies will be of Afridev or India Mark. For some of the boreholes, solar powered pumps may be installed instead of hand-pumps and/or a tap extension may be made available for more people accessing the water point.

The rehabilitated/new boreholes will be properly maintained in form of both preventive and corrective maintenance. Water coming from the water points will be periodically tested for E.coli bacteria in order to guarantee safe and clean water at all times.

It is planned to establish a WASH committee for each borehole. These committees amongst others help to ensure that surroundings of the boreholes are kept clean and protected against animals or vandalism and notify the hand-pump mechanic immediately in case any problem with the borehole occurs. Additionally, they are community mobilizers who remind their peers of good practices to keep water safe and sensitize them on handwash practices to further reduce instances of waterborne diseases.

Afridev Hand Pump

India Mark Hand Pump

The project will contribute to social, economic and environmental benefits, the most important illustrated in the following table.

Environmental benefits
Reduces firewood/charcoal consumption for boiling water, hence will preserve forests and biodiversity, avoids soil erosion and water run-off
Reduces CO2 emissions over the project's lifetime
Social benefits
Saves time for women and children since no fuelwood for water purification has to be collected and boiling of water is not needed anymore. This frees up time for e.g. income generating activities and education. Hence it contributes to gender equality.
Reduces the incidence of water borne diseases like e.g. cholera, diarrhea, typhoid fever or Hepatitis A/E.
Avoids indoor pollution coming from smoke and particulate matters when boiling water, hence benefiting mostly women being the ones in the kitchen
Economic benefits
Provides employment in the rehabilitation, maintenance and monitoring of the boreholes
Decrease in fuel costs allows households to spend less money thus have more spendable income for other activities on e.g. health care, nutrition, education

How those aforementioned benefits translate into positive contribution of SDGs is further explained in the LSC report and in sections B.6.1 and B.7.1 of this PDD.

A.6. Scale of the project

>> (Define whether project is micro scale, small scale or others. Justify the scale referring to relevant activity requirement.)

Large-scale. The methodology TPDDTEC can be applied regardless of the scale of the project activity.

A.7. Funding sources of project

>> (Provide the public and private funding sources for the project. Confidential information need not be provided.)

The project activity is funded through private capital provided by an European company. No public or ODA funding is used for the project activity[5].

A.8. Assessment that project complies with 'gender sensitive' requirements

>> (Answer the four mandatory questions included under Step 1 to 3 in "Gold Standard Gender Equality Guidelines and Requirements" available here.)

Step 1

Question 1: Does the project reflect the key issues and requirements of gender-sensitive design and implementation as outlined in the gender policy? Explain how.

The Project takes into account gender roles and the abilities of women and men to participate in the decision/designs of the project activities. For example the stakeholder consultation made in the project design phase included both women and men participating in the consultation meeting. Moreover, for example, the future annual hygiene campaigns will be planned and organized in the way to avoid any discrimination of women or other marginalized groups. In fact, the women's participation will be essential for guaranteeing the success in improving the hygiene. The objective is to reach a 30% minimum participation for either gender for the annual hygiene campaigns.

In the overwhelming majority of households in Rwanda, water fetching, fuel collection and purification activities are handled by women. In fact, the availability of clean water in a reasonable distance is foreseen to reduce women's work load related to water purification, collection of fuel needed for boiling water and caring activities as the risk for water borne diseases will be reduced. It can be further expected that sexual harassment and violence happening during fuel collection and water fetching activities may be reduced. Hence, largely women will benefit from the project activity.

Question 2: Does the project align with existing country policies, strategies and best practices? Explain how.

Rwanda ranked fifth (!) on the World Economic Forum's Global Gender Gap Index 2016.6 Rwanda has ratified an Equal Rights Amendment into their respective constitution (Article

[5] The signed ODA declaration will be uploaded to the GS registry at the time of Design Certification.

[6] http://reports.weforum.org/global-gender-gap-report-2016/rankings/?doing_wp_cron=1527781422.3775660991668701171875

9), which guarantees equal gender rights.[7] It will be ensured that the project is committed to equal gender rights following article 9 of the constitution.

Step 2

Question 3: Does the project address the questions raised in the Gold Standard Safeguarding Principles & Requirements document? Explain how.

All assessment questions related to all relevant safeguarding principles, amongst others principle 2 'Gender Equality and Women's Rights', have been responded. See Table in section D.1 of the PDD.

Step 3

Question 4: Does the project apply the Gold Standard Stakeholder Consultation & Engagement Procedure, Requirements & Guidelines

The project has followed the GS Stakeholder Consultation & Engagement Procedure, Requirements & Guidelines when carrying out the local stakeholder consultation. See the LSC report for more details.

SECTION B. Application of selected approved Gold Standard methodology

B.1. Reference of approved methodology

>> Technologies and practices to displace decentralized thermal energy consumption (TPDDTEC), version 3.1

B.2. Applicability of methodology

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

Methodology applicability requirement	Justification related to the project activity	Confirmation
This methodology is applicable to programs or activities introducing technologies and/or practices that reduce or displace greenhouse gas (GHG) emissions from the thermal energy consumption of	This project activity consists of the rehabilitation of existing or drilling of new 'zero emission' boreholes which will reduce GHG emissions by removing the need to boil water as a form of purification before consumption. The targeted end-users	Yes

[7] https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/64236/90478/F238686952/RWA64236.pdf

households and non- domestic premises. The methodology is for project technologies/practices that introduce 'zero emission technology' for safe water, instead of boiling water as a purification technique.	are households which would use non-renewable biomass to boil water as a form of purification or are lacking the access to safe drinking water (suppressed demand) in the absence of this project activity.	
The project activity is implemented by a project proponent and can include additional project participants. The individual households and institutions do not act as project participants.	CO2logic and mkaarbon safari together with the local implementing partner Water Access Rwanda (WAR) will implement the project. The individual households and institutions will not act as project participants.	Yes
The project boundary needs to be clearly identified, and the technologies counted in the project are not included in another voluntary market or CDM project activity (i.e. no double counting takes place). In some cases there maybe another similar activity within the same target area. Project proponents must therefore have a survey mechanism in place together with appropriate mitigation measures so as to prevent any possibility of double counting.	The project activity is implemented in the districts of Rusizi, Ngoma, Rwamagana and Bugesera, all located in Rwanda. Details about the project location are provided in section A.4 of this document. The unique identification including GPS coordinates of each borehole will be recorded in mWater[8]. Moreover, the relevant online carbon registries (CDM, GS, VCS) have been checked to confirm that there are no other borehole projects in the districts where the project intervenes, hence no risk of double counting.	Yes
Technologies each have a continuous useful energy output of less than 150kW per unit (defines as total energy delivered usefully from start to end of operation of a unit divided by time of operation). For technologies or practices that do not deliver thermal energy in the project scenario	The borehole technology included in this project will not deliver any thermal energy in the project scenario but only seek to displace the use of non-renewable biomass used for boiling water in the baseline scenario and to provide the safe water for consumers without access to safe drinking water (suppressed demand).	Yes

[8] http://www.mwater.co

but only displace thermal energy supplied in the baseline scenario, the 150kW threshold applies to the displaced baseline technology.	The useful energy output per single unit in the baseline scenario is less than 150kW. This has been demonstrated with the calculations (see tab 'Energy output'/ER calculation spreadsheet).	
The use of baseline technology as backup or auxiliary technology in parallel with the improved technology introduced by the project activity is permitted as long as a mechanism is put into place to encourage the removal of the old technology (e.g. discounted price for the improved technology) and the definitive discontinuity of its use. The project documentation must provide a clear description of the approach chosen and the monitoring plan must allow for a good understanding of the extent to which the baseline technology is still in use after the introduction of the improved technology. For example, whether the existing baseline technology is not surrendered at the time of the introduction of the improved technology, or whether a new baseline technology is acquired and put to use by targeted end users during the project crediting period. The success of the mechanism put into place must therefore be monitored and the approach must be adjusted if proven unsuccessful. If an old technology remains in use in parallel with the improved	Hygiene campaigns including the education of local people on the extensive health and environmental benefits (see section B.7 of this PDD) of using safe water supply sources will encourage the removal of the old technology. The success of this mechanism will be monitored and adjusted if proven unsuccessful. The proportion of end-users that are still boiling water fetched from the borehole in the project scenario will be monitored (via Water Consumption Field Test as described in Section B.7 of this PDD) and accounted for to calculate the fuel consumption and the corresponding project emissions.	Yes

technology, the corresponding emissions must be accounted for as part of the project emissions.		
The project proponent must clearly communicate to all project participants the entity that is claiming ownership rights of and selling the emission reductions resulting from the project activity. For technology producers and the retailers of the improved technology or the renewable fuel in the project situation, this must be communicated by contract or clear written assertions in the transaction paperwork. If the claimants are not the project technology end-users, the end-users should be informed and notified that they cannot claim for emission reductions from the project. For example, leaflets distributed with the products alerting the end-users to the waiving of their carbon rights in exchange for pricing or the improved technology, which discounts its true cost (waivers forms signed by end- users are another example).	Legally-binding contractual agreements between the project owner (CO2logic) and the local implementing partner (WAR) as well as CO2logic and mkaarbon safari are in place. As part of this agreement, the ownership and selling rights of the emission reductions resulting from the project activity are clearly defined, defining CO2logic as the entity claiming ownership rights of and selling the emission reductions resulting from the project activity. The transfer of carbon credit ownership from end-users to the project owner CO2logic will be proven with a written assertion signed by the head of the WASH committee on behalf of the communities in which the boreholes are located. The template of this assertion will be provided at the project validation and the final signed version of the same at project verification. Moreover, the end-users will be informed about the transfer of carbon credit ownership through sensitization meetings.[9]	Yes
Project activities making use of a new biomass feedstock in the project situation (e.g. shift from non-renewable to green charcoal, plant oil or renewable biomass briquettes) must	No new biomass feedstock will be used in the project situation and therefore this condition is not applicable.	Yes

[9] This will be evidenced either 1) through participants lists in which each of the participants of the sensitization meeting confirm that it was informed about the transfer of carbon credit ownership or 2) through a sensitization meeting protocol which describes the content of the sensitization/WASH meeting including the transfer of carbon credit ownership and which is signed by the WASH committee head/member and at least 3 witnesses (end-users).

comply with relevant Gold standard specific requirements for biomass related project activities, as defined in the latest version of the Gold standard rules14.		
The water in its improved form should be available within 1 km walking/pedaling distance from the households.	The households included in this project are located within the 1 km walking/pedaling distance from the respective borehole (see Section B.7 of this PDD for further details). There is, anyhow, a two-year grace period (from date of project design certification) for any household falling outside of this distance, however once this period is over these households would not be included in the emission reduction calculations anymore.	Yes
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.	Since the project activity involves the rehabilitation of existing boreholes/drilling of new boreholes. No significant GHG emissions arising from production, transport, installation and delivery of clean water supply or treatment options are expected.	Yes
Only end users that boil water or are currently using unsafe water are eligible for crediting. Suppressed demand can be applied in instances where inadequate safe water is available or where treatment is not practiced.	The project activity will claim credits only for end-users that boil water or which due to suppressed demand consume inadequate safe water and for which treatment is not practiced. The same is confirmed through the baseline survey.	Yes

B.3. Project boundary

>> (Present a flow diagram of the project boundary, physically delineating the project, based on the description provided in section A.5 above.)

The project boundary is the physical, geographical sites of the project technologies, in other words, the physical location of the boreholes and the locations of the households

consuming the water within 1 km radius of each borehole. However in the first two years after the date of project design certification, the 1 km radius criterion is not relevant and the locations of all households consuming the water from the borehole make part of the project boundary.

The target area are the locations of the households consuming the water within 1 km radius of each borehole. However in the first two years after the date of project design certification, the 1 km radius criterion is not relevant and the locations of all households consuming the water from the borehole are included in the target area.

The fuel collection area is defined as the locations from where households source their biomass used for boiling water.

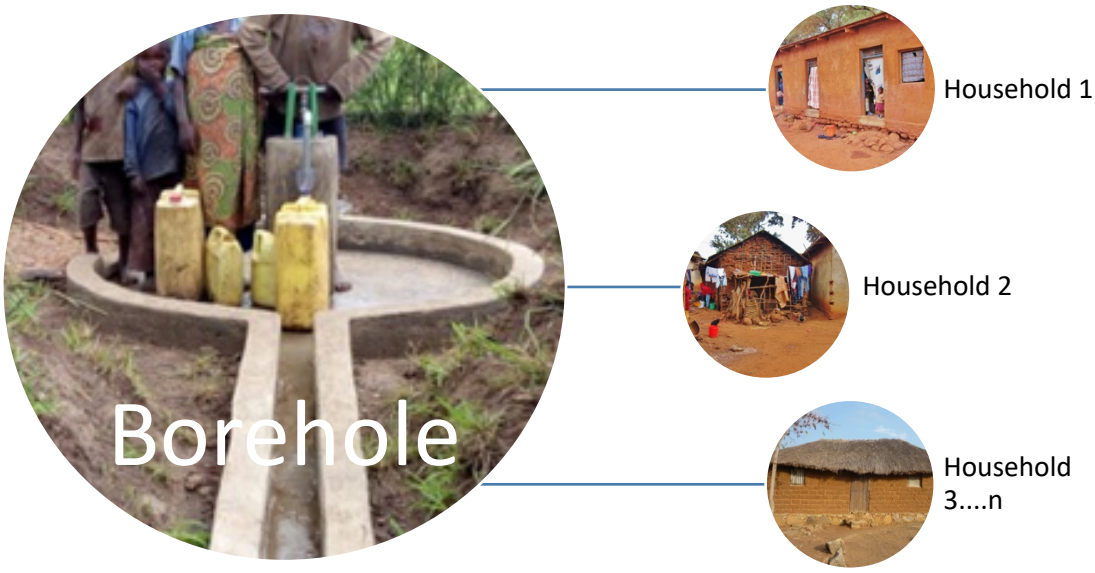


Diagram: Project boundary and target area of the project activity

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Heat delivery	CO_2	Yes	Important source of emissions as CO2 is emitted any time biomass or fossil fuels are burned.
		CH_4	Yes	Important source of emissions released during partial or incomplete combustion of biomass during water boiling.
		N_2O	Yes	Important source of emissions released during partial or incomplete combustion of biomass during water boiling.
Project scenario	Heat delivery	CO_2	Yes	Important source of emissions as CO2 is emitted any time biomass or fossil fuels are burned.
		CH_4	Yes	Important source of emissions released during partial or incomplete combustion of biomass during water boiling.
		N_2O	Yes	Important source of emissions released during partial or incomplete combustion of biomass during water boiling.

B.4. Establishment and description of baseline scenario

>> (Explain how the baseline scenario is established in accordance with guidelines provided in GS4GG Principles & Requirements and the selected methodology(ies). In case suppressed demand baseline is used then same should be explained and justified.)

A baseline survey including at least 100 households is still on-going. Baseline survey including its results will be presented to the DOE at the time of validation.

B.5. Demonstration of additionality

>> (If the proposed project is not a type of project that is deemed additional, as stated below, then follow guidelines in section 3.5.1 of GS4GG Principles & Requirements to demonstrate additionality.)

The table below is only applicable if the proposed project is deemed additional, as defined by the applied approved methodology or activity requirement or product requirement.

Specify the methodology or activity requirement or product requirement that establish deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	Community Services Activity Requirements (Version 1.1), paragraph 2.5.2: "Projects that meet any of the following criteria are considered as deemed additional and therefore are not required to prove Financial Additionality at the time of Design Certification: (a) Positive list (Annex B) (b) Projects located in LDC, SIDS, LLDC (c) Micro-scale projects
Describe how the proposed project meets the criteria for deemed additionality.	The project activity meets the criterion (b) "Projects located in LDC, SIDS, LLDC"of the section 2.5.2 of the Community Services Activity Requirements since it is located in an LDC: Republic of Rwanda. The Community Services Activity Requirements include end-use energy efficiency projects, under which the project activity falls.

B.6. Sustainable Development Goals (SDG) outcomes

B.6.1. Relevant target for each of the three SDGs

>> (Specify the relevant SDG target for each of three SDGs addressed by the project. Refer most recent version of targets here .)

SDG	Chosen SDG target
Goal 1 – No poverty	1.4. By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.

Goal 3 – Good health and well being	3.9. By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
Goal 5 - Gender	5.4. Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.
Goal 6 – Clean water and sanitation	6.2. By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
Goal 13 - Climate	13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

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

>> (Explain how the methodological steps in the selected methodology(ies) or proposed approach for calculating baseline and project outcomes are applied. Clearly state which equations will be used in calculating net benefit.)

The outcome for SDG 13 will be quantified as CO_2 emission reductions by applying the GS TPDDTEC methodology. The SDG 13 outcome will be certified as 'Certified SDG 13 Impact Statement' allowing the generation of carbon credits (VERs).

The other SDG impacts of this project activity (SDG 1, SDG 3, SDG 5 and SDG 6) will not be certified as 'Certified Impact Statements' and therefore, for these SDG impacts no specific methodologies for estimation and monitoring will be applied.

<u>Methodological choices/approaches related to SDG 13</u>

According to Annex 3 of the applied TPDDTEC methodology, emission reductions calculation for safe water supply projects can be conducted as follows:

Baseline Scenario Fuel Consumption Calculation

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

Where:

$B_{b,y}$	Quantity of fuel consumed in baseline scenario b during the year in tons (L/p/d)
X_{boil}	Percentage of premises that in the absence of the project activity would have used non-GHG emitting emitting technologies like chlorine treatment techniques (if available) in the project boundary
C_j	Percentage of users of project safe water supply who were already in baseline using a non boiling safe water supply
$N_{p,y}$	Number of person.days consuming water supplied by project scenario p through year y
$W_{b,y}$	Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b in year y as per Baseline Water Boiling Test.
$Q_{p,y}$	Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day in year y
$Q_{p,rawboil,y}$	Quantity of raw water boiled in the project scenario p per person per day

The total safe water consumed in the project scenario is the amount of safe water supplied by the project technology and consumed in the project scenario, plus the amount of raw water boiled after introducing the project technology (respectively represented above as Qp,y + Qp,rawboil,y). This total is assumed to be equivalent to the water boiled in the baseline. If the total of these two volumes exceed the cap stipulated in the below table (in line with the page 48 of the applied TPDDTEC methodology), the project proponent's claim for emission reductions may not exceed the cap.

Type of Premises	Default value (litres/person/day)	Capped value (litres/person/day)	Applicability	Reference
Full-day premises	4	7	Premises like households etc.	WHO TechnicalNotes for Emergencies, Technical Note No. 9, Minimum Water Quantity Needed

Project Scenario Fuel Consumption Calculation

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

Where:

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

C_j	Percentage of users of project safe water supply who were already in baseline using a non boiling safe water supply
$N_{p,y}$	Number of person.days consuming water supplied by project scenario p through year y
$W_{b,y}$	Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b in year y as per Baseline Water Boiling Test.
$Q_{p,rawboil,y}$	Quantity of raw water boiled in the project scenario p per person per day
$Q_{p,cleanboil,y}$	Quantity of safe water boiled in the project scenario p per person per day in year y

Emission Reductions

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

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

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

Where:

$BE_{b,y}$	Emissions for baseline scenario b during year y in tCO2e
$PE_{p,y}$	Emissions for project scenario p during year y in tCO2e
f_{NRB}	Fraction of biomass used that can be established as non-renewable biomass
$EF_{fuel,CO2}$	CO2 emission factor of the fuel that is substituted or reduced
$EF_{fuel,non-CO2}$	Non-CO2 emission factor arising from use of fuels in baseline scenario
$NCV_{b,fuel}$	Net calorific value of the fuels used in the baseline
$NCV_{p,fuel}$	Net calorific value of the fuels used in the project
ER_y	Emission reduction for total project activity in year y (tCO2e/yr)
$U_{p,y}$	Cumulative usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate
$LE_{p,y}$	Leakage from project scenario p in year y (tCO2e/yr)

B.6.3. Data and parameters fixed ex ante for monitoring contribution to each of the three SDGs

(Include a compilation of information on the data and parameters that are not monitored during the crediting period but are determined before the design certification and remain fixed throughout the crediting period like IPCC defaults and other methodology defaults. Copy this table for each piece of data and parameter.)

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	C_j
Unit	Percentage
Description	Percentage of users of project safe water supply who were already in the baseline using a non-boiling safe water supply
Source of data	Baseline Survey[10]
Value(s) applied	10% (preliminary estimate)
Choice of data or Measurement methods and procedures	Note: The baseline study with 100 households is still on-going. Baseline survey results will be presented at the time of DOE validation.
Purpose of data	Estimation of emission reductions
Additional comment	Transparent data analysis and reporting.

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	X_{boil}
Unit	Percentage
Description	Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary.
Source of data	Baseline Survey
Value(s) applied	10% (preliminary estimate)
Choice of data or Measurement methods and procedures	Note: The baseline study with 100 households is still on-going. Baseline survey results will be presented at the time of DOE validation.

[10] See baseline survey report being made available at the time of DOE validation.

Purpose of data	Estimation of baseline emissions
Additional comment	Transparent data analysis and reporting. This parameter is only applied for premises that are under suppressed demand situation.

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	$W_{b,y}$
Unit	Tons/Litre
Description	Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representatives of baseline scenario b during year y
Source of data	Baseline Water Boiling Test (BWBT)[11]
Value(s) applied	0.0007
Choice of data or Measurement methods and procedures	The BWBT is conducted to calculate the quantity of fuel required to purify by boiling one litre of water for 10 minutes. The BWBT was conducted on cooking devices representative of the results found in the baseline survey.
Purpose of data	Estimation of baseline emissions
Additional comment	Transparent data analysis and reporting. Baseline only; Should be updated if ongoing monitoring surveys show that baseline water boiling technologies change over time.

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	$W_{p,y}$
Unit	Tons/Litre
Description	Quantity of wood fuel or fossil fuel required to boil 1 litre of water using technologies representatives of project scenario b during year y
Source of data	Baseline Water Boiling Test (BWBT)
Value(s) applied	0.0007

[11] See BWBT excel spreadsheet being made available at the time of DOE validation.

Choice of data or Measurement methods and procedures	Ex ante assumption is that the same water boiling technologies are prevalent in the baseline and project scenarios and therefore $W_{b,y}$ and $W_{p,y}$ are equal.
Purpose of data	Estimation of project emissions
Additional comment	Transparent data analysis and reporting. If the later monitoring surveys reveal that the same water boiling technologies are prevalent in the baseline and project scenarios, $W_{b,y}$ and $W_{p,y}$ are equal. Should be updated whenever new water boiling technologies are introduced over time.

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	$EF_{b,CO2}$
Unit	tCO_2/TJ
Description	CO_2 emission factor arising from use of fuels in baseline scenario
Source of data	IPCC default value for wood
Value(s) applied	112
Choice of data or Measurement methods and procedures	Deemed valid by TPDDTEC Methodology
Purpose of data	Estimation of baseline emissions
Additional comment	If EF is in units of tCO2/t_fuel, remove NCV term from emission calculations. Term can include a combination of emission factors from fuel production, transport and use in line with the emission sources included in the project. CO_2-emission factors for charcoal may be estimated from project specific monitoring or alternatively by researching a conservative wood to charcoal ratio (from IPCC, credible published literature, project-relevant measurement reports, or project-specific monitoring) and multiplying this value by the pertinent EF for wood.

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	$EF_{b,non-CO2}$
Unit	tCO_2/TJ
Description	CO_2 emission factor arising from use of fuels in project scenario
Source of data	IPCC default value for wood
Value(s) applied	8.692
Choice of data or Measurement methods and procedures	Deemed valid by TPDDTEC Methodology
Purpose of data	Estimation of baseline emissions
Additional comment	If EF is in units of tCO2/t_fuel, remove NCV term from emission calculations. Term can include a combination of emission factors from fuel production, transport and use in line with the emission sources included in the project. CO_2-emission factors for charcoal may be estimated from project specific monitoring or alternatively by researching a conservative wood to charcoal ratio (from IPCC, credible published literature, project-relevant measurement reports, or project-specific monitoring) and multiplying this value by the pertinent EF for wood.

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	$EF_{p,CO2}$
Unit	tCO_2/TJ
Description	CO_2 emission factor arising from use of fuels in project scenario
Source of data	IPCC default value for wood
Value(s) applied	112
Choice of data or Measurement methods and procedures	Deemed valid by TPDDTEC Methodology
Purpose of data	Estimation of project emissions

Additional comment	If EF is in units of tCO2/t_fuel, remove NCV term from emission calculations. Term can include a combination of emission factors from fuel production, transport and use in line with the emission sources included in the project. CO_2-emission factors for charcoal may be estimated from project specific monitoring or alternatively by researching a conservative wood to charcoal ratio (from IPCC, credible published literature, project-relevant measurement reports, or project-specific monitoring) and multiplying this value by the pertinent EF for wood.

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	$EF_{p,non\text{-}CO2}$
Unit	tCO_2/TJ
Description	Non-CO_2 emission factor arising from use of fuels in project scenario
Source of data	IPCC default value for wood
Value(s) applied	8.692
Choice of data or Measurement methods and procedures	Deemed valid by TPDDTEC Methodology
Purpose of data	Estimation of project emissions
Additional comment	If EF is in units of tCO_2/t_fuel, remove NCV term from emission calculations. Term can include a combination of emission factors from fuel production, transport and use in line with the emission sources included in the project. Non-CO_2-emission factors for charcoal may be estimated from project specific monitoring or alternatively by researching a conservative wood to charcoal ratio (from IPCC, credible published literature, project-relevant measurement reports, or project-specific monitoring) and multiplying this value by the pertinent EF for wood.

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	$f_{NRB,i,y}$
Unit	Fraction
Description	Non-renewability status of woody biomass fuel in scenario I during the year y
Source of data	Standardized baseline PSB0045
Value(s) applied	0.84
Choice of data or Measurement methods and procedures	Standardized baseline on sustainable charcoal production in Rwanda[12] See Email from SDM-SSU-Methworkflows (23/07/2018)
Purpose of data	Estimation of emission reductions
Additional comment	The value of fNRB is fixed ex-ante for entire crediting period even though the project proponent may at any time choose to re-examine the fNRB during the crediting period. In case of renewable of the crediting period and as per GS rules, the NRB fraction must be reassessed as any other baseline parameters and updated in line with most recent data available.

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	$NCV_{b,fuel}$
Unit	TJ/ton
Description	Net calorific value of the fuels used in the baseline
Source of data	IPCC default value for wood
Value(s) applied	0.0156
Choice of data or Measurement methods and procedures	Deemed valid by TPDDTEC Methodology
Purpose of data	Estimation of baseline emissions

[12] https://cdm.unfccc.int/methodologies/standard_base/2015/sb117.html

Additional comment	Fixed for the entire crediting period If EF is in units of tCO_2/t_fuel, remove NCV term from emission calculations

Relevant SDG Indicator	SDG 13, Climate action
Data/parameter	$NCV_{p,\ fuel}$
Unit	TJ/ton
Description	Net calorific value of the fuels used in the project
Source of data	IPCC default value for wood
Value(s) applied	0.0156
Choice of data or Measurement methods and procedures	Deemed valid by Methodology
Purpose of data	Estimation of project emissions
Additional comment	Fixed for the entire VPA crediting period If EF in units of tCO_2/t_fuel, remove NCV term from emission calculations. This has same values as NCVbaseline in projects which reduce use of the same fuel.

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

>> (Provide a transparent ex ante calculation of baseline and project outcomes (or, where applicable, direct calculation of net benefit) during the crediting period, applying all relevant equations provided in the selected methodology(ies) or as per proposed approach. For data or parameters available before design certification, use values contained in the table in section B.6.3 above. For data/parameters not available before design certification and monitored during the crediting period, use estimates contained in the table in section B.7.1 below)

Ex-ante calculations related to the outcome for SDG 13

The transparent ex-ante calculations of the outcome for SDG 13 (i.e. CO2e reductions) are provided in a separate Excel Spreadsheet uploaded to GS Registry. For data/parameters available at the time of design certification, values contained in section B.6.3 and for data/parameters only available after monitoring the estimates contained in section B.7.1 have been used.

Ex-ante calculations related to the outcomes of SDG 1

N/A

Ex-ante calculations related to the outcomes of SDG 3

N/A

Ex-ante calculations related to the outcomes of SDG 5

N/A

Ex-ante calculations related to the outcomes of SDG 6

N/A

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

Ex-ante estimation of SDG 13 Outcome:

Year	Baseline estimate	Project estimate	Net benefit
2019-2020	67.687 tCO_2e	11.060 tCO_2e	56.627 tCO_2e
2020-2021	67.872 tCO_2e	11.090 tCO_2e	56.782 tCO_2e
2021-2022	67.687 tCO_2e	11.060 tCO_2e	56.627 tCO_2e
2022-2023	67.687 tCO_2e	11.060 tCO_2e	56.627 tCO_2e
2023-2024	67.687 tCO_2e	11.060 tCO_2e	56.627 tCO_2e
Total	67.687 tCO_2e	11.060 tCO_2e	56.627 tCO_2e
Total number of crediting years	5		
Annual average over the crediting period	**67,724** tCO_2e	**11,066** tCO_2e	**56,658** tCO_2e

Ex-ante estimation of SDG 1 Outcome

$Q_{tot,p,y}$ = 68,985,000 l/year

Where:

$Q_{tot,p,y}$	Total quantity of safe water in litres per year supplied by the rehabilitated boreholes of the project to the communities in year y

Ex-ante estimations of SDG 3 Outcome

$P_{IWBD, y}$ = 80%

Where:

$P_{IWBD, y}$	Proportion of households perceiving less often incidence of water borne diseases like cholera, diarrhea, typhoid fewer or Hepatitis A/E since the start of the project in year y

Ex-ante estimations of SDG 5 Outcome

$P_{ITEC, y}$ = 90%

Where:

$P_{ITEC, y}$	Proportion of households perceiving reduced amount of time and effort spent for collecting water and wood fuel since the start of the project in year y

$P_{F, HYG, y}$ = 30%

$P_{M, HYG, y}$ = 30%

Where:

$P_{F, HYG, y}$	Participation of either gender across all annual hygiene campaigns organized by the project in year y
$P_{M, HYG, y}$	

Ex-ante estimations of SDG 6 Outcome

$N_{WASH, y}$ = 50

Where:

$N_{WASH, y}$	Number of organized Water Sanitation and Hygiene trainings in year y

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

(Include specific information on how the data and parameters that need to be monitored in the selected methodology(ies) or proposed approaches or as per mitigation measures

from safeguarding principles assessment or as per feedback from stakeholder consultations would actually be collected during monitoring. Copy this table for each piece of data and parameter.)

Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter	$N_{p,y}$
Unit	Persons.days
Description	Number of person.days consuming water supplied by project scenario p through year y
Source of data	Lists supplied by the WASH committee responsible for the water supply and treatment system
Value(s) applied	Ex-ante estimation: 10,950,000 (10,980,000 in the leap year 2020)
Measurement methods and procedures	As per FT updates
Monitoring frequency	At least biennially
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Estimation of emission reductions
Additional comment	Calculated ex-ante: 50 boreholes x 600 people/borehole x 365 days/year (366 days in leap year 2020)

Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter	$Q_{p,y}$
Unit	Liters per person per day (l/person/day)
Description	Quantity of safe water supplied in the project scenario p during the year y, using the "zero or low" emissions' clean water supply technology
Source of data	Water Consumption Field Test (WCFT)
Value(s) applied	Ex-ante estimation: 6.3
Measurement methods and procedures	As per FT updates
Monitoring frequency	At least biennially
QA/QC procedures	Transparent data analysis and reporting

Purpose of data	Estimation of baseline emissions
Additional comment	Ex-ante estimation is made based on the cap value of 7 litres as per page 48 of the applied methodology and a conservative deduction of 10 %.

Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter	$Q_{p,y,\ rawboil,y}$
Unit	Litres per person per day (l/person/day)
Description	Quantity of raw or unsafe water that is still boiled after installation of the water treatment technology.
Source of data	Water Consumption Field Test (WCFT)
Value(s) applied	Ex-ante estimation: 0.5
Measurement methods and procedures	As per WCFT
Monitoring frequency	At least biennially
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Estimation of emission reductions
Additional comment	

Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter	$Q_{p,cleanboil,y}$
Unit	Litres per person per day (l/person/day)
Description	Quantity of safe (treated, or from safe supply) water boiled in the project scenario p, after installation of project technology
Source of data	Water Consumption Field Test (WCFT)
Value(s) applied	Ex-ante estimation: 0.5
Measurement methods and procedures	As per WCFT
Monitoring frequency	At least biennially
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Estimation of project emissions
Additional comment	

Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter	$U_{p,y}$
Unit	Percentage
Description	Usage rate in project scenario p during year y
Source of data	Annual usage survey
Value(s) applied	Ex-ante estimation: 95%
Measurement methods and procedures	Field survey
Monitoring frequency	Annual or more frequently, in all cases on time for any request for issuance
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Estimation of emission reductions
Additional comment	A single usage parameter is weighted to be representative of the quantity of project technologies of each age being credited in a given project scenario – see section 3.1 of the core methodology.

Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter	$LE_{p,y}$
Unit	tCO2e /year
Description	Leakage in project scenario p during year y
Source of data	Baseline and monitoring surveys
Value(s) applied	Ex-ante estimation: 0
Measurement methods and procedures	Field survey
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Estimation of emission reductions
Additional comment	Aggregate leakage can be assessed for multiple project scenarios

Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter	Quality of the treated water
Unit	As appropriate in alignment with QA/QC procedures

Description	Performance of the treatment technology – less than 1 Colony Forming Unit (CFU) of E.Coli / 100 ml of safe water[13]
Source of data	Water quality test
Value(s) applied	Ex-ante estimation: Zero Colony Forming Units (CFU) of E.Coli / 100 ml of safe water
Measurement methods and procedures	As per the local loboratory/hospital porecedures or alternatively conducted via field tests like IDEXX presence/absence tests in 100 ml for E. Coli.
Monitoring frequency	Quarterly
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Estimation of emission reductions
Additional comment	mWater E.coli presence/absence tests in 100 ml water are conducted by the project proponent, once in a year (during seasons of high contamination) in the presence of the local health authorities. Every 2nd year an accredited laboratory must perform E.coli tests in parallel.[14]

Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter	Hygiene campaigns
Unit	-
Description	Hygiene campaigns carried out among project technology users. The description of the campaigns is provided in Section B.7.3
Source of data	Annual hygiene campaigns results
Value(s) applied	Report of the annual hygiene campaign
Measurement methods and procedures	-
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Estimation of emission reductions
Additional comment	Prior to the project the local communities received no regular training on water, sanitation and health related issues

[13] See the National Water Quality Standard Rwanda uploaded to GS registry

[14] The same approach has been approved by GS for project https://mer.markit.com/br-reg/public/master-project.jsp?project_id=103000000004445. A formal request for deviation will be submitted to GS.

Relevant SDG Indicator	SDG 13, Climate action
Data / Parameter	Capacity
Unit	Litres per day
Description	Treatment capacity of the project technology/improved sources
Source of data	Manufacturer specification/design specification
Value(s) applied	Ex-ante estimation : 16,200
Measurement methods and procedures	A rehabilitated borehole/new borehole can supply in average 16,200 l/day[15]. Hence, the capacity would be sufficient to provide at least 7 l/p/day (cap value) to 2,314 people.
Monitoring frequency	Once at the time of registration or at inclusion of new technology.
QA/QC procedures	-
Purpose of data	Estimation of emission reductions
Additional comment	The water volume values used in the calculations of emission reductions must be justified in terms of capacity of the project technology/improved sources.

Relevant SDG Indicator	SDG 1, No poverty
Data / Parameter	$Q_{tot,p,y}$
Unit	l/y (litres/year)
Description	Total quantity of safe water in litres per year supplied by the rehabilitated/newly drilled boreholes of the project to the communities in year y
Source of data	Water Consumptions Field Test (WCFT) Lists supplied by the WASH committee responsible for the water points
Value(s) applied	Ex-ante estimation: 68,985,000

[15] Assuming a discharge of 1,350 litres per hour and 12 hours pumping activities per day (see http://skipumps.com/afridev/?gclid=CjwKCAjwzenbBRB3EiwAItS-u0JGsfE_xZmmGggj6hscw8R2WeLb-ilE0mmaTOoK3Rv9ZOVxulvMYBoCq64QAvD_BwE, accessed on 23/08/2018).

Measurement methods and procedures	Calculated as: $Q_{tot,p,y} = N_{p,y} * Q_{p,y}$ Where $N_{p,y}$ = Number of person.days consuming water supplied by project scenario p through year y $Q_{p,y}$ = Quantity of safe water supplied in the project scenario p during the year y, using the "zero or low" emissions' clean water supply technology
Monitoring frequency	At least biennially
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	Estimation of SDG impact
Additional comment	Applied values for ex-ante estimation: $N_{p,y}$ = 30,000 people (50 boreholes each 600 people) * 365 days (366 days in leap year) $Q_{p,y}$ = 6.3 l/person/day

Relevant SDG Indicator	SDG 3, Good health and well-being
Data / Parameter	$P_{IWBD, y}$
Unit	Fraction
Description	Proportion of households perceiving less often incidence of water borne diseases like cholera, diarrhea, typhoid fewer or Hepatitis A/E since the start of the project in year y
Source of data	Monitoring Surveys
Value(s) applied	Ex-ante estimation: 80%
Measurement methods and procedures	The measurement of the parameter is based on qualitative information collected during Monitoring Surveys. The end users are asked whether, since the start of the project, incidence of water borne diseases like cholera, diarrhea, typhoid fewer or Hepatitis A/E occurs more often, less often among the family members or the situation has not changed.
Monitoring frequency	Annual
QA/QC procedures	The data will be analyzed in the monitoring report and raw data of the Monitoring surveys will be made available for review.
Purpose of data	Calculation of the parameter "Proportion of households perceiving less often incidence of water borne diseases like cholera, diarrhea, typhoid fewer or Hepatitis A/E"

Additional comment	N/A

Relevant SDG Indicator	SDG 5, Gender
Data / Parameter	$P_{ITEC, y}$
Unit	Fraction
Description	Proportion of women in households perceiving reduced amount of time and effort spent for collecting water and wood fuel since the start of the project in year y
Source of data	Monitoring Surveys
Value(s) applied	Ex-ante estimation: 90%
Measurement methods and procedures	The measurement of the parameter is based on qualitative information collected during Monitoring Surveys. The end users are asked whether, since the start of the project, they spent more, less time to collect water and wood fuel or the situation has not changed.
Monitoring frequency	Annual
QA/QC procedures	The data will be analyzed in the monitoring report and raw data of the Monitoring surveys will be made available for review.
Purpose of data	Calculation of the parameter "Proportion of women in households perceiving reduced amount of time and effort spent collecting water and wood fuel since the start of the project"
Additional comment	N/A

Relevant SDG Indicator	SDG 5, Gender
Data / Parameter	$P_{F, HYG, y}$ $P_{M, HYG, y}$
Unit	Fraction
Description	Participation of either gender across all annual hygiene campaigns organized by the project in year y
Source of data	Participation lists
Value(s) applied	Ex-ante estimation: (i) Female at least 30%; (ii) Male at least 30%
Measurement methods and procedures	The measurement of the parameter is based on the gender specified for each participant on the participation lists of the annual hygiene campaigns organized in the different villages within the project boundary.
Monitoring frequency	Annual

QA/QC procedures	The data will be analyzed in the monitoring report and participation lists will be made available for review.
Purpose of data	Calculation of the parameter "Gender participation of hygiene campaigns"
Additional comment	N/A

Relevant SDG Indicator	SDG 6, Clean water and sanitation
Data / Parameter	$N_{WASH, y}$
Unit	Number
Description	Number of organized Water Sanitation and Hygiene trainings in year y
Source of data	Reports regarding the Water Sanitation and Hygiene trainings
Value(s) applied	Ex-ante estimation : 50 (one training per borehole)
Measurement methods and procedures	The list of Water Sanitation and Hygiene trainings during the corresponding monitoring period
Monitoring frequency	Annual
QA/QC procedures	The data will be analyzed in the reports regarding the Water Sanitation and Hygiene trainings, which will be made available for review.
Purpose of data	Calculation of the parameter "Number of organized Water Sanitation and Hygiene trainings"
Additional comment	N/A

B.7.2. Sampling plan

>> (If data and parameters monitored in section B.7.1 above are to be determined by a sampling approach, provide a description of the sampling plan.)

The sampling approach is to be used for following surveys and tests as summarized below:

Project Survey (PS) of end-user characteristics

- The Project Survey has the same requirements as the Baseline Survey (described in Section 2.4 of the applied methodology), but it is conducted with end-users representative of the project scenario target population and currently using the safe water project technology. Guidance on representativeness and sample sizing (i.e.

at least 100 households needs to be sampled when the target groups size is > 1000) is the same.

- When applicable the Project Survey and the Usage Survey will be implemented together using the same sample.

Baseline Water Boiling Test

The BWBT should be conducted using the 90/30 rule for selection of samples, accounting for variability in the types of prevalent baseline technologies in line with the TPDDTEC methodology. The Baseline Water Boiling Test does not make part of the monitoring but is conducted prior to design certification.

Water Consumption Field Test (WCFT)

Two valid options are allowed for the statistical analysis of the WCFT. In all cases, the sample size must be greater than 20:

a. 90/10 rule. When the sample size is large enough to satisfy the "90/10 rule", i.e. the endpoints of the 90% confidence interval lie within +/- 10% of the estimated mean, overall emission reductions can be calculated on the basis of the estimated MEAN of each of the respective variables measured through the WCFT.

b. When the sample size is such that the results do not meet the "90/10 rule", the result used for each of the respective variables measured through the WCFT is not the mean (or average) test result, but a lower value, i.e. the lower bound of the one-sided 90% confidence interval (in order to reach a conservative estimate) is used for the paramters and $Q_{p,y}$ and $Q_{p,y,\ rawboil,y}$ and a higher value, i.e. the upper bound of the one-sided 90% confidence interval (in order to reach a conservative estimate) is used for the parameter $Q_{p,cleanboil,y}$.

Water quality testing

The samples for water quality tests will be collected at the soure, i.e. the boreholes. The 90/10 precision rule must be followed in calculating the sample size required for testing water quality.

Usage Survey

The minimum total sample size for Usage Survey is 100, with at least 30 samples for project technologies of each age[16] being credited. The majority of interviews in a usage survey must be conducted in person. Thus if technologies of age 1-5 are credited, the usage survey must include 30 representative samples from each age for total of 150 samples. The

[16] The age is being determined based on the date of borehole rehabilitation/drilling of borehole.

resulting usage parameter should be weighted based on the proportion of technologies in the borehole database of each age.

In line with the applied TPDDTEC methodology, any sampling methods can be used, provided that the sample is selected randomly. If sampling approach other than simple random sampling is applied, 'Guidelines for sampling and survey for CDM project activities and program of activities'[17] must be followed.

When applicable the Usage Survey and the Project Survey will be implemented together using the same sample.

Leakage Assessment

Leakage assessment regarding the potential leakage sources will be completed every other year together with the Usage Survey and therefore no separate sampling approach is used for the leakage assessment.

B.7.3. Other elements of monitoring plan

>>

The project proponent must maintain an accurate and complete electronic database for enabling the unique identification of the project water supply systems. It is envisaged that the database will include at least the following information:

- Unique identification number of each borehole;
- Date of rehabilitation/drilling of each borehole;
- GPS location of each borehole;
- Model of the pump used for each borehole;
- The total number of households and/or people obtaining their water from each borehole.

The total number of households and/or people using each borehole will be determined through the lists supplied by the WASH committee for that borehole. Using this method, the total number of people using each borehole can be determined and hence a figure for person days can be calculated. Moreover, this list will be used for confirming that the end-user households locate within 1 km from the water source after 2 years from the date of design certification.

As per the applied methodology, the project proponent must conduct the following studies for each project scenario:

[17] https://cdm.unfccc.int/Reference/Guidclarif/index.html

A. Project Non-Renewable Biomass (NRB) Assessment – at least at renewal of crediting period

In accordance with the TPDDTEC methodology, non-renewable biomass fraction is fixed for the entire crediting period based on the results of the NRB assessment. Over the course of a project activity, the project proponent may at any time choose to re-examine renewability by conducting a new NRB assessment. In case of a renewal of the crediting period and as per Gold Standard rules, the NRB fraction must be reassessed as any other baseline parameters and updated in line with most recent data available.

B. Project Survey (PS) of end-user characteristics – completed annually

The safe water project survey has the same requirements as the baseline survey (see section 2.4 of the methodology) but is conducted with end-users representative of the project scenario target population and currently using the safe water project technology.

In the guidance data collected, questions about end-user characteristics and baseline technology and fuels should be treated as specific to safe water supply and boiling. These questions should be asked twice, first in regards to the baseline scenario water supply and water treatment, including boiling technologies, and second in regards to the project scenario clean water supply, including treatment and boiling technologies.

It is envisaged that the Project Survey and the below described Usage Survey will be implemented together.

C. Baseline Water Boiling Test (BWBT) - completed at least once

The BWBT has been performed ex-ante. If the later monitoring surveys reveal that the same water boiling technologies are prevalent in the baseline and project scenarios, Wb,y and Wp,y are equal. The BWBT should be updated if monitoring surveys show that water boiling technologies change over time.

D. Water Consumption Field Test (WCFT) - completed at least biennially

The project proponent will carry out the WCFT to determine the actual safe water consumption and boiling volumes (both of raw/unsafe water and safe water) for each project scenario. The WCFT is to be completed prior to first verification and then at least every two years after with randomly selected end-users representative of the project scenario target population and currently using the project technology following the WCFT Procedure designed for the project[18].

[18] WCFT procedure will be presented to the DOE at the time of validation and uploaded to the GS registry at the time of GS project design review

Three different volumetric variables are measured:

Q_p	Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day
$Q_{p,rawboil,y}$	Quantity of raw or unsafe water boiled in the project scenario p per person per day
$Q_{p,cleanboil,y}$	Quantity of safe (treated, or from safe supply) water boiled in the project scenario p per person per day

E. On-going Monitoring Studies: Usage rates, leakage, water quality

Water quality testing – completed every quarter

The quality of the treated water will be assessed to ensure that it is fit for human consumption. In line with the national standard, no E.coli is permitted in drinking water, hence must be nil Colony Forming Unit (CFU) of E.Coli / 100 ml of safe water[19]. The water quality must be tested every quarter, with the first test within 6 months of the stated project start date. In addition project participants shall ensure that water quality is tested at least once during season where there is a high chance of contamination, for example the rainy season.

It is envisaged that mWater E.coli presence/absence tests in 100 ml water are conducted by Water Access Rwanda, once in a year (during seasons of high contamination) in the presence of the local health authorities. At least once every two years, accredited laboratories must perform the water quality testing. If accredited laboratory results differ materially from non-accredited laboratory results, testing with the aberrant non-accredited laboratory must be discontinued.

Also, the monitoring of hygienic use of water at the end-user end shall further complement the testing process.

Usage Survey – completed at least annually

The Usage Survey is completed annually, or more frequently, and all cases on time for any request of issuance. The usage survey provided a single usage parameter that is weighted based on drop off rates that are representative of age distribution for project technologies in the sales/distribution/construction record.

A usage parameter must be established to account for drop off rates as project technologies age are replaced. Prior to verification, a usage parameter is required that is

[19] See the document RS_435_revised_2011 uploaded to the GS registry

weighted to be representative of the quantity of project technologies of each age being credited in a given project scenario. For example if only technologies in the first year of use (age0-1) are being credited, a usage parameter must be established through a usage survey for technologies age 0-1. If an equal number of technologies in the first year of use (age0-1) and second year of use (age1-2) are credited, a usage parameter is required that is weighted to be equally representative of drop off rates for technologies age 0-1 and age 1-2. To ensure conservativeness, the usage survey with technologies in the first year of use (age0-1) must have technologies that have been in use on average longer than 0.5 years. For technologies in the second year of use (age1-2), the usage survey must be conducted with technologies that have been in use on average at least 1.5 years, and so on.

Leakage Assessment – completed every other year

As the leakage risks related to the safe water supply and treatment technologies can be deemed very low, the leakage can be ignored and leakage is expected to be 0. However, to confirm that leakage can be deemed very low, the below described leakage assessment regarding the potential leakage sources (listed in the methodology TPDDTEC, page 15) shall be completed every other year in line with Annex 5 of the applied TPDDTEC methodology.

a) The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project.

Not applicable. In this project the baseline technologies are referring to the devices used for water boiling which are three stone fires, traditional cookstoves and to a minor extent improved cookstoves. As these baseline devices will be continued to be used by the families for cooking activities (even though the project will replace the need for boiling the water), it's not foreseen that the project would lead to the displacement of the baseline technologies outside the project boundary. Hence, no leakage has to be accounted for.

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

Not applicable. The energy source used in the baseline for water boiling is firewood. It is very unlikely that users who previously (in the baseline) used for example non-GHG emitting methods like chlorine treatment for water purification would switch to boiling drinking water because another 'zero emission' technology is promoted by the project. Hence, no leakage has to be accounted for.

c) The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario.

Not applicable. There are currently no other CDM or VER projects in the project area. Due to the relatively small size of the project, it's not expected that it will have significant influence on the national NRB fraction. Hence, no leakage has to be accounted for.

d) The project population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology.

Not applicable. It is unlikely that households would had used the boiling of drinking water for space heating. In addition, end-users retain use of the baseline technologies for cooking and the difference in heat effects from no longer boiling water can be considered minimal. Any retaining use of inefficient technology for water boiling will, anyhow, be covered in the results of the water consumption field test (WCFT). Hence, no leakage has to be accounted for.

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

Not applicable. The technologies used in the baseline for water boiling are three stone fires, traditional cookstoves and to a minor extent improved cookstoves using non-renewable biomass and/or the end-users are lacking access to safe water. It is very unlikely that users who previously (in the baseline) used for example non-GHG emitting methods like chlorine treatment for water purification would switch to boiling drinking water because another 'zero emission' technology is promoted by the project. Hence, no leakage has to be accounted for.

F. Hygiene Survey – completed annually

Community wide trainings are led by one or two trainers from Water Access Rwanda and the 5 trained trainers in the village. The mWater field book[20] and the resource packet (visual diagrams of lessons) is used with more attention given to hard to implement lessons while easy to implement lessons are given less focus.
Several focus groups are created with each trainer leading one to talk about one of the lessons or to do the requested activity.
It is sometimes not easy to secure the community's availability during these trainings; thus they are dividing into two sessions of a maximum 4 hours/per each training day.
During these times the following WASH Facilities may be set-up in a model house

- A pit latrine
- A tippy-tap handwashing facility
- An utensils drying rack

[20] The mWater field book is available to DOE and GS upon request.

- A fence to keep animals out of key places (this will always be done for the borehole).
- A garbage disposal pit

At the end of the training, a WASH committee is either created, or the existing one presented to the village. The WASH Committee of five people should have at least one community-health worker.
Created or reactivated WASH committee will have an active exercise to conduct a supervision aiming to assess hygiene and sanitation status in their own communities. The results of that assessment are to upgrade water, hygiene and sanitary facilities to be improved in all village where local leaders will contribute by organizing community workers to help vulnerable households as well the promise of sustainability of water point/borehole since it will be rehabilitated.

Yearly refresher trainings will receive input form the WASH Committee on which practices the community is struggling to implement. Those will be the focus of the refresher trainings and the field book with the resource package will be used during these refresher trainings.

Water Access Rwanda will conduct ongoing monitoring activities to measure the impacts of WASH training in the communities. All the agents conducting the usage survey or other project monitoring activities will communicate WASH related information.

The success of education on hygiene issues will be monitored through the WCFT which will study the ratio of end-users that are still boiling their drinking water in the project scenario and through the usage/monitoring survey to check on the use of clean/safe containers and devices for transport and storage of water used for drinking, cooking, food preparation and basic personal hygiene.

SECTION C. Duration and crediting period

C.1. Duration of project

C.1.1. Start date of project

>> (Specify start date of the project, in the format of DD/MM/YYYY. Describe how this date has been determined as per the definition of start date provided in section 3.4.3 of GS4GG Principles & Requirements document and provide evidence to support this date.)

21/08/2018
The project start date is defined as the date when the first borehole has been rehabilitated.

C.1.2. Expected operational lifetime of project

>> (Specify in years)

15 years

C.2. Crediting period of project

C.2.1. Start date of crediting period

>> (Specify in dd/mm/yyyy. This can be start of project operation or two years prior to the date of Project Design Certification, whichever is later.)

01/03/2019[21]

C.2.2. Total length of crediting period

>> (Specify the total length of crediting period sought in line with GS4GG Principles & Requirements or relevant activity requirements.)

5 years. The crediting period may be renewed twice in line with the Community Services Activity Requirements.

[21] The PP may decide later on to postpone the starting date of the crediting period. In this case, GS Secretariat would be informed accordingly.

SECTION D. Safeguarding principles assessment

D.1. Analysis of social, economic and environmental impacts

>> (Refer the GS4GG Safeguarding Principles and Requirements document for detailed guidance on carrying out this assessment.)

Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes/ potentially/ no)	Justification	Mitigation measure (if required)
Social & Economic Safeguarding Principles				
1. Human Rights	1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights.	No	The project is implemented on the ground by the social enterprise Water Access Rwanda (www.warwanda.com)[22] in collaboration with CO2logic and mkaarbon safari, both specialised companies in carbon project development. The project developers take care that the project respect internationally proclaimed human rights and is no complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights.	N/A

[22] WARwanda is committed to increasing access to clean water for all Rwandan people.

			Rwanda has ratified many UN Human Rights Conventions.[23]	
	2. The Project shall not discriminate with regards to participation and inclusion.	No	The project will not discriminate with participation and inclusion as the safe water points can be used by everybody[24]. However, in case that the borehole becomes too crowded and people have to wait for a long time to access water, the project might decide to exclude those households which live more than 1 km from the waterpoint. Anyway, the applied carbon methodology TPDDTEC only allows households to be credited which live within 1 km walking/pedalling distance from the water point.	N/A
2. Gender Equality and Women's Rights *Requirement 1*	1. The Project shall complete the following gender assessment questions in order to inform Requirements 2-4, below: Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and	No	The project activity doesn't endorse any form of discrimination based on gender. Rwanda has ratified ILO Conventions 100 (Equal Remuneration Convention) and 111 (Discrimination (employment and occupation) Convention). [25] All inhabitants of Rwanda may turn to ECOSOC for	N/A

[23] http://www.claiminghumanrights.org/rwanda.html?&L=0

[24] Water can be used either for free in the first few months and after having established the WASH committees against payment of a minimal fee. However, the same rules for everybody apply and there is no discrimination with regards to participation and inclusion.

[25] http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11200:0::NO::P11200_COUNTRY_ID:103460

	benefits?		women's rights violations.[26] The safe water points can be used by everybody and will therefore not put at risk women's or any other marginalised groups access to or control to water resources. It's not foreseen either any reduction or risk related to any other resource, entitlement or benefit. On the contrary, women/children (being the ones mostly fetching the water) are able to reach the water point at a shorter time since the distance is shorter than before.	
	Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)?	No	It is not either foreseen that the Project would adversely affect man and women in marginalised or vulnerable communities.	N/A
	Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, child care duties, low literacy or educational levels,	No	The Project takes into account gender roles and the abilities of women and men to participate in the decision/designs of the project activities. For example the stakeholder consultation made in the project	N/A

[26] http://www.claiminghumanrights.org/rwanda.html?&L=0

or societal discrimination)?		design phase included both women and men participating in the consultation meeting. Moreover, for example, the future annual hygiene campaigns will be planned and organized in the way to avoid any discrimination of women or other marginalized groups. Infact, the women's participation will be essential for guaranteeing the success in improving the hygiene. The objective is to reach a 30% minimum participation for either gender for the annual hygiene campaigns.	
Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)?	No	In addition, the design of the hygiene campaigns as well as other project activities will take into account gender roles and the abilities of women and men to participate and benefit from the project activities.	N/A
Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities?	No	The project is not contributing to an increase in women's workload or preventing them from engaging in other activities. In fact, the availability of clean water in a reasonable distance is foreseen to reduce women's work load related to water purification,	N/A

		collection of fuel needed for boiling water and caring activities as the risk for water born diseases will be reduced.	
Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits?	No	The project is not foreseen to reproduce or depend discrimination against women. The women will have the same possibilities to access clean and safe drinking water, the hygiene campaigns and for giving feedback regarding the project as any other community member.	N/A
Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services?	No	The project is not foreseen to limit women's ability to use, develop and protect natural resources. Instead the project gives an easy access to clean and safe drinking water.	N/A
Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?	No	It's not either likely that the project activity would expose women or girls to further risks or hazards as the project boreholes are located in quite easily accessible locations and to be reached within a reasonable amount of time. Moreover, the clean/ safe water and improved hygiene are foreseen to improve the conditions of women and girl. The use of a clean/safe water	N/A

			source is voluntarily.	
Requirement 2	2. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. Specifically, this shall include (not exhaustive): Sexual harassment and/or any forms of violence against women - address the multiple risks of gender-based violence, including sexual exploitation or human trafficking.	No	The Project will not directly or indirectly lead or contribute to adverse impacts on gender equality or the situation of women. In fact, the access to clean and safe water are foreseen to improve the general conditions of women and not to lead to any risk of contributing issues like sexual harassment/ exploitation, violence or human trafficking.	N/A
	Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.	No	The Project will not directly or indirectly lead or contribute to adverse impacts on gender equality or the situation of women. In fact, the access to clean and safe water are foreseen to improve the general conditions of women and not to lead to any risk of contributing issues like slavery, imprisonment, drudgery or coercion of women and girls.	N/A
	Restriction of women's rights or access to resources (natural or economic).	No	The project's boreholes can be accessed by everybody. It will not restrict women's rights or access to the safe/clean water points.	N/A
	Recognise women's ownership rights regardless of marital status – adopt project	No	It will not have any impact on women's ownership rights to inherit and own	N/A

	measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources.		land, homes and other assets. Rwanda's progressive land ownership policy will be applied to everybody irrespective of gender[27].	
Requirement 3	3. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work, specifically: Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities.	No	The Project applies the principles of nondiscrimination and equal treatment and, in fact, the access to clean and safe water is given to everybody.	N/A N/A
	Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status.	No	For rehabilitation, maintenance work and for any other eventual paid or volunteer work the principle of the equal pay for equal work will be applied and organized in way to provide the conditions for equitable participation of men and women.	N/A
	Ensure that these conditions do not limit the access of women or men, as the case	No	Project activities, like using the clean and safe water and participating in the	N/A

[27] http://rema.gov.rw/rema_doc/Policies/National_land_policy_english_version_.pdf

	may be, to Project participation and benefits.		annual hygiene campaigns, are planned in way that the participation of both women and men is guaranteed. There are no limitations on participation or benefiting from the Project depending on the pregnancy, maternity/paternity leave or marital status.	
Requirement 4	4. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.	No	The Project will not include any specific gender related risks. Rwanda ranked fifth (!) on the World Economic Forum's Global Gender Gap Index 2016.[28] Rwanda has ratified an Equal Rights Amendment into their respective constitution (Article 9), which guarantees equal gender rights.[29] It will be ensured that the project is committed to equal gender rights following article 9 of the constitution.	N/A
Requirement 5	5. Based on the Preliminary Review assessment of Requirement 1, above, Gold Standard may require that the Project seek the input of an Expert Stakeholder and to include their	No	Not applicable.	N/A

[28] http://reports.weforum.org/global-gender-gap-report-2016/rankings/?doing_wp_cron=1527781422.3775660991668701171875

[29] https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/64236/90478/F238686952/RWA64236.pdf

	recommendations in the Project design.			
3. Community Health, Safety and Working Conditions	1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community.	No	The project activity doesn't expose the community to increased health risks and is not adversely affecting the health of workers and the community. For example the workers participating in the project activity are not exposed to unsafe or unhealthy work environments as the rehabilitation or maintenance of boreholes or the monitoring activities of the project will not include any hazardous chemicals or other hazardous material. Acccidents on fiels during rehabilitation process	N/A
4. Cultural Heritage, Indigenous Peoples, Displacement and Resettlement	*Sites of Cultural and Historical Heritage* Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or practices)?	No	The project activity doesn't include sites, structures or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture. The Project will introduce clean and safe water sources in several villages across four districts in Rwanda and it does not require alteration, damage or removal of any historical, artistic, traditional, religious or cultural heritage issues.	N/A

	Forced Eviction and Displacement Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project activity consists of introducing clean and safe water sources and therefore no physical or economic relocation of people is involved. The use of a clean/safe water source is voluntarily.	N/A
	Land Tenure and Other Rights 1. Does the Project require any change to land tenure arrangements and/or other rights? 2. For Projects involving land-use tenure, are there any uncertainties with regards land tenure, access rights, usage rights or land ownership?	No	The project doesn't require any change to land tenure arrangements and/or other rights. In case of new drilling of boreholes, as the borehole becomes a public asset for the users, an agreement is reached between the owner of the land where the borehole will be placed and the community at large. This agreement transfers the small piece of land into public ownership of all the residents in the area and allows users to have access to the plot at anytime. The land taken by a borehole is very small and will generally not affect the value of the original landowner's remaining land, rather it will increase the value as the landowner of the remaining land lives nearby the borehole. During this land agreement, a small	N/A

			payment may be given for any crops destroyed in the process of sitting the borehole.	
	Indigenous Peoples Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	There are no indigenous people present within the area of influence nor the project is located on territory claimed by indigenous people.	N/A
5. Corruption	1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	No	The Project doesn't involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects. The project is, in fact, implemented on the ground by the social enterprise Water Access Rwanda (WAR) in collaboration with CO2logic and mkaarbon safari. The ethical codes of WAR and other project partners are against corruption. Moreover, Rwanda has ratified the UN Convention against Corruption.[30]	N/A
6. Economic Impacts	*Labour rights*			

[30] https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XVIII-14&chapter=18&clang=_en

	1. The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. Where these are contradictory and a breach of one or other cannot be avoided, then guidance shall be sought from Gold Standard.	No	The project is implemented on the ground by the social enterprise Water Access Rwanda (WAR) in collaboration with CO2logic and mkaarbon safari. The employees' rights are a cross-cutting issue and respected in all of the projects of WAR and other project partners. Rwanda has ratified many ILO Conventions, amongst others convention 87 (Freedom of Association and Protection of the Right to Organise Convention) and convention 98 (Right to Organise and Collective Bargaining Convention).[31] All employees will work voluntarily for the project, no forced labour is used and all employment is in compliance with national laws and consistence with the principles and standards of the ILO conventions. In fact, Rwanda has ratified many ILO Conventions, amongst others convention 29 (Forced Labour Convention) and 105 (Abolition of Forced Labour Convention).[32]	N/A

[31] http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11200:0::NO::P11200_COUNTRY_ID:103460

[32] http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11200:0::NO::P11200_COUNTRY_ID:103460

	2. Workers shall be able to establish and join labour organisations.	No	The workers are able to establish and join labour organizations.	N/A
	3. Working agreements with all individual workers shall be documented and implemented. These shall at minimum comprise: (a) Working hours (must not exceed 48 hours per week on a regular basis), AND (b) Duties and tasks, AND (c) Remuneration (must include provision for payment of overtime), AND (d) Modalities on health insurance, AND (e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND (f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave.	No	The working agreements with the individual workers will be documented and implemented and the minimum requirements stated in section 3.6.1. of GS4GG Safeguarding Principles & Requirements (version 1.1) will be respected whenever applicable.	N/A
	4. The Project Developer shall justify that the employment model applied is locally and culturally appropriate.	No	The employment model applied will be also locally and culturally appropriate.	N/A
	5. Child labour, as defined by the ILO Minimum Age Convention is not allowed.	No	Moreover, all the possible staff hired has a minimum age of 18. Rwanda has	N/A

	The Project Developer shall use adequate and verifiable mechanisms for age verification in recruitment procedures. Exceptions are children for work on their families' property as long as: (a) Their compulsory schooling (minimum of 6 schooling years) is not hindered, AND (b) The tasks they perform do not harm their physical and mental development, AND (c) The opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as being included in the Project design.		ratified ILO Conventions 138 (Minimum Age Convention) and 182 (Worst Forms of Child Labour Convention).[33]	N/A
	6. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.	No	All the works will be made by using appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.	N/A
	Negative Economic Consequence 1. The Project Developer shall demonstrate the financial sustainability of the Projects implemented, also including	No	Project activity related costs, like e.g. for rehabilitation, maintenance of the water points, hygiene campaigns,	N/A Employment guide

[33] http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11200:0::NO::P11200_COUNTRY_ID:103460

	those that will occur beyond the Project Certification period.		monitoring etc. will be covered by an European company being the investor into the project. The use of the safe and clean water is free for the first few months and once the WASH committees are established, a system of revenue collection will be set-up. This system will be discussed with the district taking into account local context. A monthly minimal usage fee will be collected and somebody stationed at the borehole to make sure that the borehole is not getting harmed. The fee would be used to keep the borehole and its surroundings clean and protected (e.g. through a fence). The fee is in line with Rwanda's most recent policy to charge a minimal fee for water[34]. The price setting will be done in consultation with the districts and will make sure that no one is excluded. The safe water supply and the foreseen improved hygiene knowledge via the annual campaigns are assumed to last	code to protect the locals

[34] http://www.mininfra.gov.rw/fileadmin/user_upload/new_upload/NATIONAL_WATER_SUPPLY_POLICY__DECEMBER_2016.pdf, see page 12, which mentions the following: 'Cost recovery and financial sustainability: Operation and maintenance costs of water supply infrastructure shall be borne by the users, in order to ensure sustainable service delivery. Affordability shall be addressed by the choice of appropriate technologies and by enhancing efficiency, not usually by granting subsidies.'

			beyond the Project Certification period.	
	2. The Projects shall consider economic impacts and demonstrate a consideration of potential risks to the local economy and how these have been taken into account in Project design, implementation, operation and after the Project. Particular focus shall be given to vulnerable and marginalised social groups in targeted communities and that benefits are socially-inclusive and sustainable.	No	The use of clean and safe drinking water is accessible to everybody and therefore the project benefits can be considered socially-inclusive. Water is pumped manually from the rehabilitated boreholes and operated by the local population. No electricity/fossil fuels have to be used, hence not causing additional costs and can be considered sustainable. There are not expected any direct economic impact or potential risks to the local economy.	N/A N/A
Environmental & Ecological Safeguarding Principles				
1 – Climate and Energy	*Emissions* Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project will reduce the GHG emissions as it will be monitored and verified in line with the GS4GG.	N/A N/A
	Energy Supply			

	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	Water is pumped manually from the rehabilitated boreholes and operated by the local population and therefore no electricity/fossil fuels have to be used, hence neither energy nor fuel resources are necessary.	N/A
2. Water	*Impact on Natural Water Patterns/Flows* Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The rehabilitated water points will use groud-water but will not negatively affect natural or pre-existing pattern of watercourses, ground-water and/or watersheds.	N/A
	Erosion and/or Water Body Instability 1. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? If 'Yes' or 'Potentially' proceed to question 2. 2. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No NO N/A	The project will not cause additional erosion and/or water body instability of or disrupt the natural pattern of erosion. N/A	N/A N/A

3 – Environment, ecology and land use	*Landscape Modification and Soil* Does the Project involve the use of land and soil for production of crops or other products?	No	The Project provides safe and clean water and doesn't involve the use of land and soil for production of crops ar other projects.	N/A
	Vulnerability to Natural Disaster Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The Project provides supply of safe and clean water and is not susceptible to or will lead to increased vulnerability to any extreme climatic conditions.	N/A
	Genetic Resources Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?	No	The Project provides safe and clean water and doesn't involve / or be negatively impacted by the use of genetically modified organisms or GMOs.	N/A
	Release of pollutants Could the Project potentially result in the release of pollutants to the environment?	No	The Project is not potentially resulting in release of pollutants to the environment.	N/A

	Hazardous and Non-hazardous Waste Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The Project is not involving the manufacture, trade, release, and/or use of hazardous chemicals and or materials.	N/A
	Pesticides & Fertilisers Will the Project involve the application of pesticides and/or fertilisers?	No	The Project doesn't involve the application of pesticides and/or fertilisers.	N/A
	Harvesting of Forest Will the Project involve the harvesting of forests?	No	No harvesting of forests is involved.	N/A
	Food Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The Project doesn't modify the quantity or nutritional quality of food available.	N/A
	Animal husbandry		The Project doesn't involve animal	

	Will the Project involve animal husbandry?	No	husbandry.	N/A
	High Concervation Value Areas and Critical Habitats Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites[12] identified?	No	The project is not located in an area within a high conservation value area or within critical natural habitats. Furthermore, the aim of the project is to reduce the quantity of firewood consumed in the project area for boiling the water (for purifying) which may save the natural resources.	N/A
	Endangered Species 1. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)?	No	The project boundary is the physical, geographical sites of the project technologies, in other words, the physical location of the rehabilitated boreholes. There are no endagered species identified as potentially being present the project boundary.	N/A
	2. Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No	The safe water supply points are not expected either potentially impact other areas where endangered species may be present through transboundary affects.	N/A

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from stakeholders

>> (Describe how stakeholder consultation was conducted in accordance with GS4GG Stakeholder Procedure Requirements and Guidelines.)

The PP carried out a local stakeholder consultation in each of the districts included in the project boundary: (i) Rwamagana: 12/06/2018; (ii) Ngoma: 13/06/2018; (iii) Bugesera: 14/06/2018; and (iv) Rusizi: 19/06/2018. A wide range of different groups of stakeholders have been invited comprising of end-users, leaders of women groups active at district levels, leaders of Youth groups active at district level, heads of villages, national and local policy makers, representatives of Universities in the district, health centre leaders in the district, DNA representative, local NGOs, international development organisations, research institutes, GS representatives and GS international NGO supporters.

E.2. Summary of comments received

>> (Provide a summary of key comments received during the consultation process.)

See section C.3.iii of LSC report

E.3. Report on consideration of comments received

>> (Describe how the comments have been addressed by providing a clarification to the stakeholder or by altering the design of the project or by proposing to monitor any anticipated negative impacts etc.)

All the questions and comments raised by the stakeholders during the consultation have been discussed with the participants and project developers, and answered. Since no major negative comment has been raised. The stakeholder's comments did not lead to major changes in the project design.

Appendix 1. Contact information of project participants

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Appendix 2. Summary of post registration design changes

Revision History

Version	Date	Remarks
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1	10 July 2017	Initial adoption