



TEMPLATE

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.2**

RELATED SUPPORT

- TEMPLATE GUIDE Key Project Information & Project Design Document v.1.2

This document contains the following Sections

Key Project Information

0 – Description of project

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

0 – Duration and crediting period

0 – Summary of Safeguarding Principles and Gender Sensitive Assessment

0 – Outcome of Stakeholder Consultations

Appendix 1 – Safeguarding Principles Assessment (mandatory)

0 - Contact information of Project participants (mandatory)

0 - LUF Additional Information (project specific)

0 - Summary of Approved Design Changes (project specific)

KEY PROJECT INFORMATION

GS ID of Project	GS12015
Title of Project	Safe Water in Uganda
Time of First Submission Date	22/11/2022
Date of Design Certification	N/A
Version number of the PDD	01
Completion date of version	17/03/2023
Project Developer	Net Zero Danışmanlık Anonim Şirketi
Project Representative	Net Zero Danışmanlık Anonim Şirketi
Project Participants and any communities involved	ISAR İç ve Dış Ticaret Anonim Şirketi (Project Owner)
Host Country (ies)	Uganda
Activity Requirements applied	<input checked="" type="checkbox"/> Community Services Activities <input type="checkbox"/> Renewable Energy Activities <input type="checkbox"/> Land Use and Forestry Activities/Risks & Capacities <input type="checkbox"/> N/A
Scale of the project activity	<input type="checkbox"/> Micro scale <input checked="" type="checkbox"/> Small Scale <input type="checkbox"/> Large Scale
Other Requirements applied	N/A
Methodology (ies) applied and version number	Methodology for Emission Reductions from Safe Drinking Water Supply, version 1.0, dated 03/05/2021
Product Requirements applied	<input checked="" type="checkbox"/> GHG Emissions Reduction & Sequestration <input type="checkbox"/> Renewable Energy Label <input type="checkbox"/> N/A
Project Cycle:	<input type="checkbox"/> Regular <input checked="" type="checkbox"/> Retroactive

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in B.6.)	Estimated Annual Average	Units or Products
3 Good Health and Well-Being	Reduction of waterborne and airborne diseases	90	%
5 Gender Equality	Time saved collecting water	62	%
6 Clean Water and Sanitation	The total number of people benefits from borehole within a 1 km distance	72,960	person/year
8 Decent Work and Economic Growth	Number of people employed by the project	70-110	people
13 Climate Action	GHG emission reductions	45,551	tCO ₂ e
15 Life on Land	Percentage of users reported fuelwood eq savings in the project scenario	100	%

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

The project covers 61 boreholes, and the objective of the project is to reduce carbon emissions due to water treatment by drilling boreholes and to improve the living conditions of about 187,000 people living in Eastern Uganda, by providing clean drinking water within a reasonable proximity. According to the GPS data analysis the number of 187,000 people around boreholes within a 1 km distance who are living in our project boundary. Despite this is the maximum number of people who benefits from the boreholes, considering the capacities of 61 boreholes, it is seen that 72,960 number of people benefits at most. To stay conservative, we made our baseline emission calculation using the 72,960 values from the field. While 769 households benefit from each borehole in total, it has been accepted that sufficient water can be served to

capped 300 households per well. Since each household has an average of 4 people¹, the average number of beneficiaries per borehole is calculated as 1200.

Water and sanitation are human rights, fundamental to every child and adult. High population growth stressed the water and sanitation services that exist in rural Uganda. According to Water.org,² 7 million Ugandans lack access to safe water and 28 million do not have access to improved sanitation facilities.

Unequal access to safe drinking water, make thousands of children sick and at risk of death. Diarrhea alone, one of three major childhood killers in Uganda, kills 33 children³ every day. Early childhood diarrhea also affects children's cognitive development and performance at school. Lack of proper sanitation facilities in school also leads to high absenteeism and dropouts, especially for girls. In most cases, children get the disease by drinking unsafe water or coming into contact with contaminated hands that have not been washed with soap. Therefore, in addition to our project, we also provide hygiene campaigns to inform the people of the region.

Our project has been developed under the Gold Standard as a retroactive project in line with Community Water Supply Technologies and it will seek to obtain carbon revenues to reinvest in our voluntary emission reduction projects in the region. Thus, we will be able to continue the maintenance and repair processes for the long term.

Our Local Stakeholder Meeting was scheduled for 28/11/2022. When our retroactive project became operational, we had not done a baseline survey yet. Uganda had a nationwide curfew from March 2020 to October 2021 due to COVID-19. In this case, it was not possible for our company, which is based in Türkiye, to go to Uganda to conduct a baseline survey there. For this reason, we wanted to make a sample baseline survey in regions with similar demographic and geographical structures⁴.

¹ https://www.who.int/water_sanitation_health/diseases/WSH03.02.pdf

² <https://water.org/>

³ <https://www.unicef.org/uganda/what-we-do/wash>

⁴ Please see "Comparison Analysis of the Cities" and "Analysis of regions where boreholes are located" excel file for more detail analysis.

We have contacted the Gold Standard about whether this is possible on 29/07/2022, they informed us that we need to request clarification. Then we requested a clarification on 11/08/2022 to the Gold Standard. They replied on 25/08/2022 that we should request deviation for our situation that we stated in the clarification. Afterwards, we also requested a deviation on 05/10/2022, but we didn't directly receive any feedback⁵. We were listed on 17/12/2022 with a FAR for VVB to validate our deviation request and accordingly, this issue was transferred to VVB in the Preliminary Review Form by Gold Standard.

Project Implementation

We are carrying out the project "Safe Water in Uganda" in partnership with our local partner ISAR⁶. Safe Water in Uganda project have been supporting the provision of safe water using borehole technology to hundreds of households within the Eastern region of Uganda.

Many existing boreholes in the Eastern region of Uganda have fallen into disrepair because maintenance programs have been poorly managed or proven too expensive. We are working with our partner ISAR to identify local stakeholders' boreholes needs. The number of boreholes limited by the amount of pure water supplied by each unit; the maximum quantity of emission reductions this project generates is 60,000 tCO_{2e} per year. ISAR will implement a long-term maintenance program to ensure that the quality of the water delivered by the boreholes is fit for human drinkable consumption for the entire length of the crediting period of the project.

The project has been defined by a range of GPS coordinates and current administrative maps of the project boundary. The boreholes included in the project have been fitted with zero emission technologies such as commonly used hand pumps. The drilling

⁵ The document was shared with the Gold Standard. Also shared with VVB. See T-V5.0-Deviation-Request-Form_05102022 for more detail.

⁶ ISAR Corporation, which started its operations in Istanbul in 2017, continued its food support activities to African countries throughout 2018, and also provided financial and organizational consultancy to many companies in this field. The global experience of its founders and financiers makes ISAR strong, and with its new global business partners, it is rapidly growing and strengthening not only at the national but also at the international level. In 2020, it added broadcasting to its service area.

technology of our project is manual and deep (manually) drilling. While the depth of our manual drilled boreholes varies between 15-25 meters, the depth of our deep drilled boreholes is over 25 meters. Project technology of 8 boreholes were deep drilling and other 53 boreholes were drilled manually.

The project covers 61 boreholes. The Expected GHGs emissions reduction of our project is 45,551 tCO₂eq per year. This figure may vary according to the survey results. However, the amount of emission reduction will be capped at 60,000 tCO₂eq, due to small scale project requirements. Please see [Table3](#) for more detail in section A.2 Location of project.

A.1.1. Eligibility of the project under Gold Standard

By providing safe water through drilling of new boreholes, the project ensured that households consume less firewood by displacing the need to boil water for purification. This has resulted in a reduction of carbon dioxide emissions. The small-scale standalone project is eligible under the Gold Standard Methodology: Methodology for Emission Reductions from Safe Drinking Water Supply Version 1.0, dated 03/05/2021⁷.

The proposed project falls under section 3.1.1 of GS4GG Principles & Requirements (Version1.2)⁸ and section 3 of GS4GG Community Services Activity Requirements (Version 1.2)⁹ with the following eligibility criteria:

Eligibility Criteria	Justification
<p>a.)Types of Project</p> <p><u>Section 3.1.1 of GS4GG Principles & Requirements (V 1.2)</u></p> <p>Eligible projects shall include physical action/implementation on the ground. Preidentified eligible project types are</p>	<p>The project supports the provision of safe water using borehole technology to hundreds of households within the Eastern region of Uganda. It has not only dramatically increase access to safe drinking water but also reduced consumption for woody fuels previously required to treat drinking water.</p>

⁷ https://globalgoals.goldstandard.org/standards/429_V1.0_EE_SWS_Emission-reductions-from-Safe-Drinking-Water-Supply.pdf

⁸ https://globalgoals.goldstandard.org/standards/101_V1.2_PAR_Principles-Requirements.pdf

⁹ https://globalgoals.goldstandard.org/standards/201_V1.2_AR_Community-Services-Activity-Requirements.pdf

<p>identified in the Eligibility Principles and Requirements section.</p> <p><u>Section 3.1.1 of GS4GG Community Services Activity Requirements (V 1.2)</u></p> <p>Pre-identified CSA project types are a) Renewable energy; b) End-use energy efficiency; c) Waste management and handling; d) Water, sanitation and hygiene (WASH).</p>	<p>Therefore, the project activity falls under section 3.1.1 “(b)End-Use Energy Efficiency Improvement: Project activities that reduce energy requirements as compared to baseline scenario without affecting the level and quality of services or products, where the end user of the products and services are clearly identified and when the physical intervention is required at the user end.” And “(d) Water, sanitation and hygiene (WASH): WASH activities contributing to climate change mitigation and/or adaptation benefits.” Of GS4GG Community Services Activity Requirements (V 1.2).</p> <p>As per section 4.1.3 of GS4GG Principles & Requirements (V 1.2), “A Project type is automatically eligible for Gold Standard Certification if there are Gold Standard approved Activity Requirements and/or Impact Quantification Methodologies associated with it or it’s referenced in the Gold Standard Product Requirements”. The project type is automatically eligible for Gold Standard Certification.</p>
<p>b.) Location of Project</p> <p><u>Section 3.1.1 of GS4GG Principles & Requirements (V 1.2)</u></p> <p>Projects may be located in any part of the world.</p>	<p>The project is located in the Republic of Uganda (refer to section A.2 of the PDD for detailed project area and boundary)</p>

<p><u>Section 3.1.2 of GS4GG Community Services Activity Requirements (V 1.2)</u></p> <p>Project Area and Boundary shall be defined in line with the applicable Impact Quantification Methodologies and Product Requirements.</p>	<p>and Uganda is an LDC (Least Developed Country)¹⁰.</p>
<p>c.) Project Area, Project Boundary and Scale</p> <p><u>Section 3.1.1 of GS4GG Principles & Requirements (V 1.2)</u></p> <p>The Project Area and Project Boundary shall be defined. Projects may be developed at any scale although certain rules, requirements and limitations may apply under specific Activity Requirements, Impact Quantification Methodologies and Products Requirements.</p> <p>In order to avoid double counting the Project shall not be included in any other voluntary or compliance standards programme unless approved by Gold Standard (for example through dual certification). Also, if the Project Area overlaps with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature, the project shall demonstrate that there is no double counting of impacts at design</p>	<p>The project is located in the Republic of Uganda (refer to section A.2 of the PDD for detailed project area and boundary).</p> <p>The project boundary is defined based on Methodology for Emission Reductions from Safe Drinking Water Supply (V 1.0)¹¹ and is limited to the Republic of Uganda (refer to section B.3 of the PDD).</p> <p>This standalone project is not included by any other carbon standard and will not exceed the type (iii) projects small-scale threshold of 60,000 tCO₂e per year as per CDM small-scale requirements.</p>

¹⁰ <https://www.un.org/development/desa/dpad/least-developed-country-category/lDCs-at-a-glance.html>

¹¹ https://globalgoals.goldstandard.org/standards/429_V1.0_EE_SWS_Emission-reductions-from-Safe-Drinking-Water-Supply.pdf

<p>and performance certification (for example use of similar technology or practices through which the potential arises for double counting or misestimation of impacts amongst projects).</p> <p><u>Section 3.1.2 of GS4GG Community Services Activity Requirements (V 1.2)</u></p> <p>Project Area and Boundary shall be defined in line with the applicable Impact Quantification Methodologies and Product Requirements.</p> <p>The definition of scale is the same for all Projects, except Microscale.</p>	
<p>d.) Host Country Requirements</p> <p><u>Section 3.1.1 of GS4GG Principles & Requirements (V 1.2)</u></p> <p>Projects shall be in compliance with applicable Host Country’s legal, environmental, ecological and social regulations.</p> <p><u>Section 3.1.2 of GS4GG Community Services Activity Requirements (V 1.2)</u></p> <p>Project Area and Boundary shall be defined in line with the applicable Impact Quantification Methodologies and Product Requirements.</p>	<p>The project is located in the Republic of Uganda (refer to section A.2 of the PDD for detailed project area and boundary) and Uganda is a LDC (Least Developed Country)¹².</p> <p>The project is in compliance with Host Country requirements such as WQT Regulations for Uganda¹³, Environmental Law and other related regulations.</p>

¹² <https://www.un.org/development/desa/dpad/least-developed-country-category/lpcs-at-a-glance.html>

¹³ https://members.wto.org/crnattachments/2017/TBT/UGA/17_2749_00_e.pdf

<p>e.) Contact Details</p> <p><u>Section 3.1.1 of GS4GG Principles & Requirements (V 1.2)</u></p> <p>As part of the Project Documentation the Project Developer shall provide (I) name and (ii) contact details of all Project Participants; AND in case of an organization (iii) the legal registration details and (iv) documentation by the governing jurisdiction that proves that the entity is in good standing (defined as being a legal or other appropriate entity registered in or allowed to operate within the required jurisdiction and with no evidence of insolvency or legal/criminal notices placed against it or any of its Directors). Gold Standard retains the right (at its own discretion) to refuse use of the Standard where reputational concerns are highlighted.</p>	<p>The Project Participants’ contact details are provided in Appendix 2. Contact information of project developer and project owner of this PDD.</p> <p>ISAR Corporation, which started its operations in Istanbul in 2017, continued its food support activities to African countries throughout 2018, and also provided financial and organizational consultancy to many companies in this field. The global experience of its founders and financiers makes ISAR strong, and with its new global business partners, it is rapidly growing and strengthening not only at the national but also at the international level. In 2020, it added broadcasting to its service area.</p> <p>Net Zero Türkiye, based in İstanbul, is an environmental consultancy company providing strategic carbon solutions and aiming to achieve a sustainable, greener, and net-zero future.</p> <p>Net Zero Türkiye strive to resolve risks that companies and our planet confront all at once with dedicated team of experts. Carbon management compliant to global standards reduces corporate risks and helps reduce environmental risks, such as the climate crisis.</p>
<p>f.) Legal Ownership</p>	<p>In agreement with ISAR, as a carbon consultant and representative Net Zero</p>

<p><u>Section 3.1.1 of GS4GG Principles & Requirements (V 1.2)</u></p> <p>Full and uncontested legal ownership of any Products that are generated under Gold Standard Certification, (for example carbon credits) shall be demonstrated. Where such ownership is transferred from project beneficiaries this must be demonstrated transparently and with full, prior and informed consent (FPIC).</p> <p>Note that for certain Project types there is a requirement for full and uncontested legal land title/tenure to be demonstrated. These are contained within specific Activity or Product Requirements. All projects shall immediately report to Gold Standard any land title/tenure disputes arising.</p>	<p>Türkiye have legal ownership of the carbon credits produced as a result of the project activity. Since the GS account belongs to Net Zero Türkiye. ISAR maintains the right to operate the projects & boreholes in the host country, Uganda. Boreholes are managed by ISAR. The project ensured that it complies with Uganda’s legal, environmental, health and social regulations.</p> <p>There are no disputes or contested rights that have been identified in relation to rights relevant to the project activity.</p> <p>The transfer of product ownership discussed during local stakeholder consultation physical meeting which hold on 28/11/2022 for the project activity.</p>
<p><u>Section 3.1.4 of GS4GG Community Services Activity Requirements (V 1.2)</u></p> <p>Projects involving the distribution of a large number of devices for services such as heating, cooking, lighting, electricity generation, water treatment technology such as water filter, etc. shall provide a clear description of the ownership of the Products that are generated under Gold Standard Certification all along the investment chain.</p>	<p>Then a carbon ownership transfer form¹⁴ signed with the representatives of the communities for transferring the ownership of the carbon credits to project implementers. An elected representative from each water resource committee responsible for a water point</p>

¹⁴ Please see “Carbon Transfer Forms” file for all signed transfer forms.

<p>In line with the FPIC requirement, the proofs that end-users are aware of and willing to give up their rights on Products shall be provided.</p> <p>The transfer of Product ownership shall be discussed during local stakeholder consultations for projects.</p>	<p>signed a form on behalf of all users thereof.</p>
<p>g.)Other Rights</p> <p><u>Section 3.1.1 of GS4GG Principles & Requirements (V 1.2)</u></p> <p>As well as legal title and ownership, the Project Developer shall also demonstrate where required uncontested legal rights and/or permissions concerning changes in use of other resources required to service the Project (for example, access rights, water rights etc.). Any known disputes or contested rights must be declared immediately to Gold Standard by the Project Developer and resolved prior to further project implementation in affected areas.</p>	<p>There are no disputes or contested rights that have been identified in relation to rights relevant to the project activity.</p>
<p>h.)Official Development Assistance (ODA) Declaration</p> <p><u>Section 3.1.1 of GS4GG Principles & Requirements (V 1.2)</u></p> <p>All Project Developers applying for project activities located in a country named by the OECD Development Assistance Committee’s ODA recipient list and seeking Gold Standard Certification for carbon credits shall declare the Official</p>	<p>The project owner has signed the ODA declaration template and confirms that no ODA is provided under the condition that the credits generated by the project will be transferred, either directly or indirectly, to the donor country providing ODA support.</p>

<p>Development Assistance (ODA) support. The Project Developer shall follow the GHG Emissions Reduction & Sequestration Product Requirements and submit the declaration at the time of Design Certification.</p>	
<p>i.) Suppressed Demand</p> <p><u>Section 3.1.3 of GS4GG Community Services Activity Requirements (V 1.2)</u></p> <p>Certain Impact Quantification methodologies allow projects to account Suppressed Demand scenario when establishing a baseline. In such cases, the application of Suppressed Demand baseline is limited to Small Scale and Microscale Projects. Where a Suppressed Demand baseline is applied, it is not possible to 'stack' Gold Standard Certified Impact Statements or Products as the definition of the baseline may be contradictory.</p>	<p>The project is a Small Scale project, therefore it is eligible to allow for suppressed demand in the baseline scenario.</p> <p>The baseline scenario is assessed in terms of suppressed demand. Suppressed demand is determined through a set of questions in the Baseline Project Survey that establish the method that households use to purify their water, if any, and how they would choose to purify if they were not subject to monetary and access barriers.</p> <p>No Gold Standard Certified Impact Statements or Products are intended to be stacked in case of suppressed demand baseline.</p>

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

The project is carried out in partnership with ISAR and Net Zero Türkiye. Net Zero Türkiye is the project developer, project representative and owner of the carbon credits. Our project is funded by ISAR, the project owner. ISAR is responsible for the operational processes of the project (such as drilling boreholes or maintenance of boreholes), while Net Zero Türkiye is responsible for the carbon project development and carbon credits processes. To be more clear, the project's all carbon certification, operation, and

maintenance of boreholes, surveys conducted, tests of water quality and consultation costs have been financed by ISAR.

In agreement with ISAR, as a carbon consultant and representative Net Zero Türkiye have legal ownership of the carbon credits produced as a result of the project activity, since the GS account belongs to Net Zero Türkiye. ISAR maintains the right to operate the projects & boreholes in the host country, Uganda. Carbon rights have been transferred to ISAR in line with the contract between Net Zero Türkiye and ISAR. Carbon revenues will later be reinvested in our voluntary emission reduction projects in the region to facilitate more people's access to clean drinking water in Uganda. In addition, ISAR will be able to continue the maintenance and repair processes throughout the crediting period, drill new boreholes, organize hygiene campaigns and conduct water quality tests periodically. Therefore, these revenues will help us explore much of the positive impact we can have in Uganda, increase the overall impact of our projects and be a source of a much-needed asset.

Carbon Ownership Transfer

Ownership is transferred from project beneficiaries demonstrated transparently through signed forms/agreements as in line with the GS Requirements. The transfer of product ownership discussed during local stakeholder consultation physical meeting which hold on 28/11/2022 for the project activity. Then a carbon transfer ownership form signed with the representatives of the communities for transferring the ownership of the carbon credits to project implementers¹⁵. An elected representative from each borehole committee responsible for a water point signed a waiver form Carbon Ownership Transfer Form on behalf of all users thereof.

ISAR provides clean drinking water by drilling boreholes on behalf of a charity in many parts of Africa with donations as a service provider. The boreholes in our project were also financed with these revenues. These donors informed to ensure our rights to carbon revenues. In addition, the contract between the charity association receiving the donations and ISAR, which provides borehole-drilling services to this organization, will

¹⁵ Signed Carbon Transfer Forms shared with VVB. Please see Carbon Transfer Forms” file and “Carbon Transfer Forms List” excel file for more detail.

also be shared as objective evidence of this. If required, an exemption as an elected representative of donors from the charity association that the donors of the boreholes in our project will not claim any rights from the carbon revenues will be presented as well.

A.2 Location of project

The project is located in the Eastern region of Uganda. Please see the region details with boreholes locations in [Figure1](#) and [Figure2](#) below.

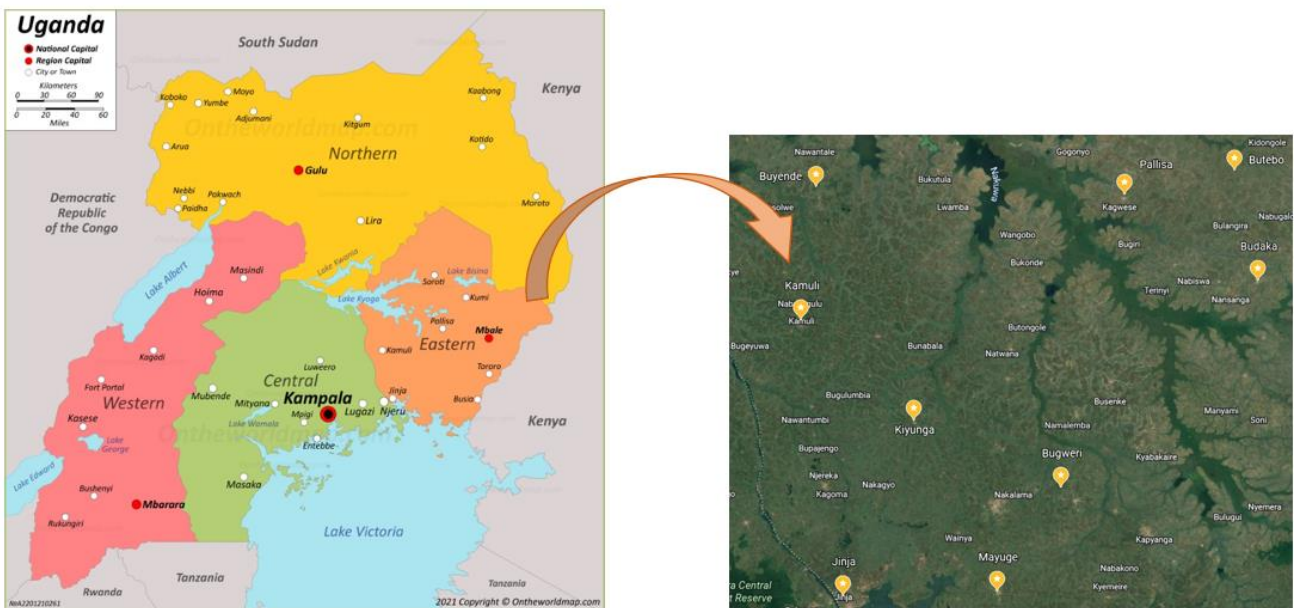


Figure 1: Target Area of the Project

Detail coordinate information of the project area is given in [Table2](#) while borehole location information are given in [Table3](#).

Table 2: Project Area Coordinates¹⁶

Project Area Coordinates	
Latitude	Longitude
1.3733° N	32.2903° E

Table 3: Borehole Locations¹⁷

City	Region
Bugweri	Eastern
Kamuli	Eastern
Pallisa	Eastern
Jinja	Eastern
Mayuge	Eastern
Luuka	Eastern
Iganga	Eastern
Buyende	Eastern
Butebo	Eastern
Budaka	Eastern

A.3 Technologies and/or measures

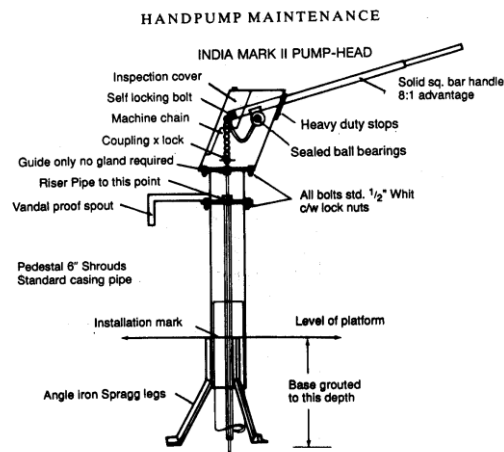
The drilling technology of our project is manual and deep drilling. The depth of our boreholes varies between 15-25 meters. The pump type that used is "India Mark II". The origin of the pumps used in India. Their internal structure is concrete masonry, and their external structure is brick and reinforced concrete. The construction period of drilling boreholes ranges from 1 to 2 months.

Please see "Hand Pumps for Safe Drinking Water of Apex International" for more technical detail¹⁸.

¹⁶ GPS Coordinates of Uganda.

¹⁷ Borehole coordinate information was checked from GPS and their locations were determined. Please see "Borehole Household Number and Location" excel file and "Uganda Boreholes" kmz file for more detail.

¹⁸ Hand Pumps for Safe Drinking Water of Apex International shared to VVB.



India Mark II

A comprehensive maintenance programme is required in order to guarantee a consistent supply of pure water from the borehole pumps. Borehole pumps contain moving parts such as chains and bearings which require an annual service and or replacement to prevent against failure. In addition, nuts and bolts commonly work themselves free and require regular replacement – these are checked and generally replaced on an annual basis. Other, more major parts in the pump assembly have a longer lifespan and require a less frequent replacement. Items such as handles, cylinders, top cones, riser pipes, connecting rods are checked over during the annual service and replaced if deemed necessary. The planned maintenance programme is carried out by local technicians under the supervision of a senior technician and repeated twice a year. In addition, there is a telephone number on the boreholes to be called by locals when there is a problem with boreholes. Maintenance will be throughout the crediting period of the project.

SDG 3 – Good Health and Well-being

Population in the project region do not have access to water within reasonable reach and the water quality does comply with drinking water quality standards. Therefore, they inevitably expose to water borne diseases. By providing safe water from the borehole, the project reduces the occurrence of water-borne diseases locally. This, in turn, is predicted to decrease the incidence of stomach related illnesses and diarrhoea associated with the consumption of water-borne diseases. In addition, the air quality is better, since fossil fuels are no longer burned in homes.

SDG 5 - Gender Equality

Women are widely recognised as being principally responsible for collection of natural resources such as firewood and water. In regard to time, women are poorer than men as unpaid domestic duties must be added to their market productive work, making time

much more scarce. By ensuring that there is a safe water source at the center of communities, the project have reduced the time poverty of women. Furthermore, boreholes are located in mainly remote rural areas and thus serve marginalised communities.

SDG 6 - Clean Water and Sanitation

Through drilling of new boreholes, safe and affordable drinking water have been made accessible to local population. According to the GPS data analysis the number of 187,000 people around boreholes within a 1 km distance who are living in our project boundary. Despite this is the maximum number of people who benefits from the boreholes, considering the capacities of 61 boreholes, it is seen that 72,960 number of people benefits at most. To stay conservative, we made our baseline emission calculation using the 72,960 values from the field. The quantification of clean water distributed will be monitored continuously throughout the project lifetime.

SDG 8 – Decent Work and Economic Growth

Through the drilling of new boreholes, maintenance activities have been created temporary and permanent job opportunities for local people. The employees have acquired new skills and knowledge through trainings provided as well.

SDG 13 - Climate Action

Through the drilling of new boreholes, safe water has been made accessible to local population. This has reduced GHGs emissions from boiling unsafe water. Also, the project has deployed zero-emission technology to treat and supply safe drinking water by the technologies available on the ground and indicated by the government.

SDG 15 – Life on Land

Firewood is the main source of energy for boiling the untreated water. Most of the rural households in the area depend more on the forest for their biomass fuels, causing deforestation problems. When accessing safe water, there has been no need to boil unsafe water. Therefore, this has a positive impact on forest degradation and deforestation related to firewood consumption for boiling purposes in the region.

A.4 Scale of the project

This standalone project is not included by any other carbon standard and will not exceed the type (iii) projects small-scale threshold of 60,000 tCO_{2e} per year as per CDM small-scale requirements.

A.5 Funding sources of project

There is no public or ODA funding for this project activity, all revenue for the project will be derived from the sales of VERs¹⁹.

ISAR, the project owner, drills boreholes in many parts of Africa with donation income. More details have been shared in section A.1.2 of this report.

Remaining Forward Action Request from Preliminary Review

Based on the Preliminary Review Form 17th December 2022, 3 FARs were raised²⁰.

FARs raised from Performance Review under Gold Standard for Project Developer;

FAR #1 The project covers 61 boreholes according to PoA-DD, but later also states that “The project will support the provision of safe water using borehole technology to hundreds of households within the Eastern region of Uganda”. PP is asked to clarify the scope of this stand-alone project.

PP Response Safe Water in Uganda Project is a Community Water Supply (CWS) project that covers new 61 boreholes with zero emissions. It is also a standalone project of the Energy Efficiency-Domestic project type.

FAR #2 PP is asked to present the filled SCR to VVB developed in line with GS requirements and conduct the safeguarding principles assessment.

PP Response The safeguarding principle has been completed (please see Section D.1) and final Stakeholder Consultation Report presented to VVB on 17/03/2023.

¹⁹ The signed ODA declaration template provided to VVB as evidence. Please see PR_ODA Declaration for more detail.

²⁰ Preliminary Review Form shared with VVB. See GS12015_Preliminary Review Form_SC for more detail.

FARs raised from Performance Review under Gold Standard for validating/verifying VVB;

FAR #1 VVB is asked to assess the deviation request from PP submitted on 11/08/2022 to Gold Standard regarding conducting baseline survey and relevant decision from GS to this request.

PP Response Detail analysis documents²¹ for deviation request related to baseline survey and sampling were submitted to VVB as requested **FAR #1**. Please see Section A.1 for more detail about Deviation Request.

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

B.1. Reference of approved methodology (ies)

Approved methodology applied: Methodology for Emission Reductions from Safe Drinking Water Supply (Version 1.0), dated 03/05/2021 ²².

B.2. Applicability of methodology (ies)

In accordance with the Gold Standard Methodology “Methodology for Emission Reductions from Safe Drinking Water Supply (Version 1.0), dated 03/05/2021”, is applicable under the following conditions:

Methodology for Emission Reductions from Safe Drinking Water Supply (Version 1.0)	
Methodology Requirement	Project
1- This methodology is applicable to project activities that introduce a new, or rehabilitate an existing,	By providing safe water through new drilled boreholes, the project activity reduces the energy requirements compared to the

²¹ Please see “Analysis of regions where boreholes are located” excel file and “Comparison Analysis of the Cities” for more detail.

²² <https://globalgoals.goldstandard.org/429-ee-sws-emission-reductions-from-safe-drinking-water-supply/>

<p>zero-emission or low-emission technology to supply safe drinking water.</p>	<p>baseline scenario by ensuring that households consume less firewood or charcoal etc. through no longer needing to purify their water.</p>
<p>2- Technologies include household water treatment technologies (HWT), Institutional water treatment technologies (IWT), Community level water treatment technologies (CWT) and community water supply technologies (CWS). The methodology provides two sets of calculation methods and monitoring requirements, one set that applies to the HWT and IWT types of technologies, and another set that applies to the CWT and CWS types of technologies.</p>	<p>The project technology is community water supply technology (CWS) – this technology generates a supply of water for a community through installation of safe water source points (boreholes) displace energy supplied in the baseline as they eliminate the need to purify water through boiling.</p>
<p>3- The methodology is applicable under the following conditions:</p> <p>a) Eligible household water treatment technologies (HWT), institutional water treatment technologies (IWT), and community level water treatment technologies (CWT) include bleach/chlorine, water filter (ceramic, sand, composite, membrane, etc.), UV disinfection, etc.</p> <p>b) Eligible community water supply technologies (CWS) include new installation of new borehole hand-pumps, borehole hand-pumps rehabilitation, solar powered drinking water pumps, etc. Water</p>	<p>a) Not applicable. The project technology is community water supply technology (CWS).</p> <p>b) The project technology is community water supply technology (CWS) which includes new installation of new borehole hand-pumps, solar powered drinking water pumps. There are no water pumps powered by fossil-fuel engines which are not eligible under the methodology.</p> <p>c) ISAR is responsible ongoing maintenance and repair of the project technology during the crediting period.</p>

<p>pumps powered by fossil-fuel engines are not eligible, with the exception of backup fossil-fuel engines that are used for no more than 10% of operating hours (parameter SWDS 33).</p> <p>c) All projects involving CWT and CWS technologies must also include ongoing maintenance and repair of the project technology.</p> <p>d) Where the project involves the rehabilitation of an existing technology, the project developer shall provide evidence that the existing technology is non-operational and that there is no planned maintenance or repair for at least 3 months after the date it became non-operational (parameter SWDS 2).</p> <p>e) This methodology allows for project activities to include safe water treatment and/or supply technologies implemented for end-users in households, and/or commercial premises such as shops or institutional premises including half or full day/boarding schools, prisons, army camps & refugee camps.</p> <p>f) In cases where the safe water is retrieved at the CWT or CWS location, the water in its improved form shall be available within a distance of 1 km or less from the</p>	<p>d) Not applicable. The project didn't involve the rehabilitation of an existing technology.</p> <p>e) The project activity includes community safe water supply technology (CWS) implemented for end-users in households, and/or commercial premises such as shops or institutional premises including half or full day/boarding schools etc. The source of data is surveys conducted and GPS data.</p> <p>f) The safe water is retrieved at the CWS (boreholes) location, the water in its improved form is available within a distance of 1 km or less from the end-users, as demonstrated by satellite imaging and GPS coordinates of each CWS (boreholes) location. (Please see parameter SDWS 1 for more details).</p> <p>g) Not applicable. The project technology is community water supply technology (CWS).</p> <p>h) As a CWS technology project which will be demonstrated at the start of each crediting period with water quality testing reports that the water directly supplied by the project water technology/source achieves both:</p> <ol style="list-style-type: none"> i. Certificates shared will supply at verification. ii. The water quality tested in line with national standard in Uganda. The water samples
---	--

<p>end-users, as demonstrated by satellite imaging or GPS coordinates of each CWT or CWS location. Alternatively, as a proxy, a total collection time of 30 minutes or less for a round trip, including queuing, using the travel modes of walking or pedaling may be demonstrated (parameter SDWS 1).</p> <p>g) Project technology performance level (HWT and IWT): It shall be demonstrated based on report of laboratory testing or official notification that the project technology or equipment achieves either (I) the performance target classification 3-star or 2-star level, meanin “Comprehensive Protection,” as per the WHO International Scheme to Evaluate Household Water Treatment Technologies⁸ (World Health Organization, 2011) or (ii) compliance with the national standard or guideline⁹ for household drinking water treatment technology; if no national guideline or standard is available, then the project technology shall comply with the WHO International Scheme requirements as per (I) (parameter SDWS 2).</p>	<p>taken at source by the testing body.</p> <p>i) The water hygiene education campaigns conducted on the users and the JMP questionnaire which including all the JMP core questions for drinking water and core questions for hygiene supplied. Within the scope of the hygiene campaign, we prepared training presentations and informed the local people.</p> <p>j) All SDG claims have been presented. SDG Impact calculation spreadsheet presented to the VVB²³.</p>
---	---

²³ Please see “SDG-Impact-Tool-Safe Water in Uganda” excel file for more detail.

h) Project technology performance level (CWT and CWS): For each individual CWT or CWS, it shall be demonstrated at the start of each crediting period with water quality testing reports that the water directly supplied by the project water technology/source achieves both:

- i. *microbial quality in line with either (i) national standards or guidelines for microbial quality of drinking water, or in the absence of such requirements, (ii) the guideline values for verification of microbial quality from the Guidelines for drinking-water quality (Table 7.10, WHO, 2017) 10; and*
- ii. *compliance with (i) national standards or guidelines on priority chemical contamination and physical and aesthetic aspects, or in the absence of such requirements, (ii) international standards or guidelines on priority chemical contamination¹¹ and physical and aesthetic aspects. (parameter SWDS 3).*

i) The project must conduct annual water hygiene education campaigns for the end-users. (parameter SDWS 20).

<p>j) Project applying this methodology may make SDG claims if relevant monitoring parameter(s) is included in the monitoring plan to demonstrate and confirm the project’s contributions to SDGs12. See parameter SDWS 19.</p>	
<p>4- Project shall document the national, regional and local regulatory framework for provision of safe drinking water in the project boundary (parameter SDWS4). The project shall not undermine or conflict with any national, sub-national and local regulations or guidance for safe drinking water supply, operation and maintenance, including any tariff requirements.</p>	<p>4- Water scarcity in various regions of Uganda has been an issue for decades. The government has issued some water resources related policies and regulations. The project is in compliance with Host Country requirements such as WQT Regulations for Uganda, Environmental Law and other related regulations.</p>
<p>5- If the expected technical life of project technology (parameter SDWS 7) is shorter than the crediting period, describe measures to ensure that end users are provided replacement systems of comparable quality at the end of the expected technical life (for example, replace with comparable or better technology, retrofit with performance guarantee, etc.). This</p>	<p>5- Manufacturer specification²⁴ is more than 15 years. The manufacturer specifications provided the accuracy information of expected technical life of an individual project technology. The expected technical life of project technology meets the total length of crediting period.</p>

²⁴ <https://www.engineeringforchange.org/solutions/product/india-mark-ii-handpump/#:~:text=The%20individual%20parts%20of%20the,least%201%20year%20without%20maintenance>

<p>applies both for new technology and rehabilitated.</p>	
<p>6- All CWT and CWS projects must include ongoing maintenance and repair of the project technology. The PDD must describe the maintenance and repair plan, including the system for logging/documenting of technology operation and maintenance events including periods of downtime. The log of operation and maintenance shall be required during the monitoring period to demonstrate project technology operation.</p>	<p>6- ISAR will implement a long-term maintenance program to ensure that the quality of the water delivered by the boreholes is fit for human drinkable consumption for the entire length of the crediting period of the project.</p>

B.3. Project boundary

The project boundary is specified in section 3.1 of the applied GS methodology as follows:

The project boundary includes:

- a. the physical, geographical sites of the low- or zero-greenhouse gas emitting technologies to treat/supply safe drinking water installed by the project activity,
- b. any back-up engines or other equipment using fossil-fuel related to the low greenhouse gas emitting technologies,
- c. the electricity grid, in the case electricity is used by the project, and
- d. the household, commercial and institutional buildings where the end users of safe water provided by the project are located.

We have 61 boreholes in the cities of Bugweri, Kamuli, Pallisa, Jinja, Mayuge, Luuka, Iganga, Buyende, Butebo and Budaka of Eastern Uganda²⁵.

²⁵ See "Borehole Household Number and Location" excel file for more detail information about Project Boundary.

The project boundary is defined as the location of the new drilled boreholes. The project target area for this project is located in the Eastern region of Uganda (refer to section A.2 of the PDD for detailed project area and boundary). The greenhouse gases included in or excluded from the project boundary are shown in [Table4](#) below.

Table 4: Greenhouse Gases in the Project Boundary

Source	GHGs	Included?	Justification / Explanation	
Baseline	Combustion of wood fuel to boil water	CO ₂	Yes	Important source of emissions
		CH ₄	Yes	Important source of emissions
		N ₂ O	Yes	Emissions factors for fuel in stationery combustion by the IPCC
Project	Combustion of wood fuel to boil water	CO ₂	No	No wood fuel will be required in the project scenario
		CH ₄	No	No wood fuel will be required in the project scenario
		N ₂ O	No	No wood fuel will be required in the project scenario

B.4. Establishment and description of baseline scenario

In the baseline scenario local people typically use wood fuel and charcoal on inefficient three stone fires for cooking and water purification. This process results in the release of greenhouse gas emissions from the combustion of wood. This can be avoided if local communities have access to safe water and therefore do not need to boil water as a treatment method.

Over 45% of the rural population of Uganda are without access to safe water and rely exclusively on unprotected wells, lakes and other open water sources that are highly susceptible to contamination. Many depend on boiling as the only treatment method available or are forced to drink dirty water due to suppressed demand factors such as lack of access to fuel, time and financial resources.

This standalone small-scale project used the methodology “Methodology for Emission Reductions from Safe Drinking Water Supply (Version 1.0)”. Many existing boreholes have been poorly managed or proven too expensive to maintain properly. Net Zero Türkiye worked with ISAR in the Project Districts to identify local stakeholder’s boreholes needs. The number of boreholes limited by the amount of pure water supplied by each unit; the maximum quantity of emission reductions this project generates is 60,000tCO_{2e} per year. ISAR has drilled the boreholes and continues to deliver the

maintenance programme for each borehole to ensure that the quality of the water delivered by the boreholes is fit for human consumption for the entire 15-year length of the project.

The baseline situation is not expected to change significantly during the next years considering the current situation in Uganda, its economic development of the last years and predictions for the future. Also, Uganda is a Least Developed Country²⁶

Project Survey

Project Surveys were conducted for The Safe Water in Uganda project in between 23.09.2022 and 28.09.2022 by the project owner. We used Project Survey Questionnaires for CWS projects²⁷. Three teams consisting of three people each carried out the survey. Data were collected with software via tablets, which were then turn into an excel file to be used to analyse the data. Our 2 group leaders who are local people were always included in the teams, while the third person was changing.

When our retroactive project became operational, we had not done a baseline survey yet. Uganda had a nationwide curfew from March 2020 to October 2021 due to COVID-19. In this case, it was not possible for our company, which is based in Türkiye, to go to Uganda to conduct a baseline survey there. When surveying the project, we conducted a sample baseline survey of a limited number of project end users to understand and justify the pre-project needs of the proposed communities.

Baseline Survey

When our retroactive project became operational, we were not able to conduct a baseline survey yet due to COVID 19 pandemic. For this reason, we wanted to make a sample baseline survey in regions with similar demographic and geographical structure.

We have contacted the Gold Standard about whether this is possible on 29/07/2022, they informed us that we need to request clarification. Then we requested a clarification on 11/08/2022 to the Gold Standard. They replied on 25/08/2022 that we should request deviation for our situation that we stated in the clarification. Afterwards, we also requested a deviation on 05/10/2022, but we didn't directly receive any feedback.

²⁶ <https://www.un.org/development/desa/dpad/least-developed-country-category/lDCs-at-a-glance.html>

²⁷ https://globalgoals.goldstandard.org/standards/429.7_V1.0_SDWS_PS-Questionnaires_CWS.xlsx

We were listed on 17/12/2022 with a FAR for VVB to validate our deviation requestee and accordingly, this issue was transferred to VVB in the Preliminary Review Form by Gold Standard.

Although we know this puts our project at risk, for the continuity of the project, we held the Local Stakeholder Consultation Meeting on 28/11/2022. Furthermore, while we were conducting Project Survey for our regular project, we conducted another sample baseline survey and evaluated it, since its demographic and geographical structure is similar to that of our retroactive project.

Baseline Surveys were conducted for The Safe Water in Uganda project in between 23.09.2022 and 28.09.2022 by the project owner. We used Baseline Survey Questionnaires for CWS projects²⁸. Data were collected with internal developed software via tablets, which were then turn into an excel file²⁹ to be used to analyse the data.

Suppressed Demand

The baseline scenario is assessed in terms of suppressed demand. Supressed demand is determined through a set of questions in the Baseline Project Survey that establish the method that households use to purify their water, if any, and how they would choose to purify if they were not subject to monetary and access barriers.

The project is a Small scale project, therefore it is eligible to allow for suppressed demand in the baseline scenario. All of the respondents using improved water source stated that they treated the water or would do it if I had the opportunity. Therefore suppressed demand is included in the calculation.

f_{NRB} Assessment

The national f_{NRB} parameter for the Uganda was estimated using the latest guidance from Clean Development Mechanism (CDM) Tool 30 v04.0³⁰.

Overall consumption of woody biomass was estimated using official statistics, as provided by the Governement of Uganda to the UN Statistics Division, as reported

²⁸ <https://globalgoals.goldstandard.org/429-3-sdws-bs-survey-questionnaires-cws/>

²⁹ Please see "Analysis of regions where boreholes are located" excel file and "Comparison Analysis of the Cities" for more detail.

³⁰ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v4.0.pdf>

through the data portals (fuelwood-domestic³¹, charcoal-domestic³², fuelwood-nondomestic³³, charcoal-nondomestic³⁴). As a result of the double accounting in the commodities reported, only the commodities that sum to the total production are included in the analysis. Domestic fuelwood consumption was estimated based on the quantities reported by UN Statistics Division and based on the combination of rural and urban population numbers reported by UN Statistics Division and the per capita fuelwood consumption reported in the literature. The mean of the two domestic fuelwood consumption estimates was conservatively applied in the calculation of total woody biomass consumption.

State of Uganda's Forestry³⁵ report data were analysed to estimate Uganda's renewable biomass³⁶.

Household Number

Borehole locations along with GPS information were determined via Google Earth³⁷. The number of households was counted by sampling according to the density of households. Hence, the number of households within a 1 km radius was determined according to the household density. For 61 boreholes, the number of households that will benefit from safe water was determined according to this calculation³⁸.

Premise numbers are based on GPS data. According to the Uganda National Household Survey Report 2019-2020, the average household size in Uganda was estimated at 4.6 persons (UBOS, 2021³⁹). By adopting the conservative approach, the number of households was calculated by assuming the average household size of 4.

³¹<https://data.un.org/Data.aspx?q=uganda+datamart%5bEDATA%5d&d=EDATA&f=cmID%3aFW%3bcrID%3a800>

³²<https://data.un.org/Data.aspx?q=uganda+datamart%5bEDATA%5d&d=EDATA&f=cmID%3aCH%3bcrID%3a800>

³³<https://data.un.org/Data.aspx?q=uganda+datamart%5bEDATA%5d&d=EDATA&f=cmID%3aFW%3bcrID%3a800>

³⁴<https://data.un.org/Data.aspx?q=uganda+datamart%5bEDATA%5d&d=EDATA&f=cmID%3aCH%3bcrID%3a800>

³⁵ <https://www.mwe.go.ug/sites/default/files/State%20of%20Uganda%27s%20Forestry-2015.pdf>

³⁶ Please see "Safe Water in Uganda fNRB Calculation" for more detail..

³⁷ Please see "Borehole Household Number and Location" excel for more detail.

³⁸ More detailed calculation methodology is explained "Household Number Methodology" document and presented to the VVB.

³⁹ https://www.ubos.org/wp-content/uploads/publications/09_2021Uganda-National-Survey-Report-2019-2020.pdf

The project covers 61 boreholes, and the objective of the project is to reduce carbon emissions due to water treatment by drilling boreholes and to improve the living conditions of about 187,000 people living in Eastern Uganda, by providing clean drinking water within a reasonable proximity. According to the GPS data analysis the number of 187,000 people around boreholes within a 1 km distance who are living in our project boundary. Despite this is the maximum number of people who benefits from the boreholes, considering the capacities of 61 boreholes, it is seen that 72,960 number of people benefits at most. To stay conservative, we made our baseline emission calculation using the 72,960 values from the field. While 769 households benefit from each borehole in total, it has been accepted that sufficient water can be served to capped 300 households per well. Since each household has an average of 4 people⁴⁰, the average number of beneficiaries per borehole is calculated as 1200. This value was calculated by considering the average number of households that could be served by our boreholes⁴¹.

B.5. Demonstration of 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, activity requirement or product requirement that establishes deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	As demonstrated in the Gold Standard for the Global Goals Community Services Activity Requirements section 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: 1. (a) Positive list (Annex B) 2. (b) Projects located in LDC, SIDS, LLDC 3. (c) Micro-scale projects
---	---

Describe how the proposed project meets the criteria for deemed additionality.	Uganda is an LDC and so is deemed additional by the relevant activity requirement.
--	--

⁴⁰ https://www.who.int/water_sanitation_health/diseases/WSH03.02.pdf

⁴¹ Please see “Borehole Household Number and Location” excel file for more detail.

B.5.1 Prior Consideration

According to Gold Standard’s Principles and Requirements (version 1.2)⁴², Retroactive projects shall submit the required documents for preliminary review (time of first submission) within one year of the project start date. Retroactive Project submitted at a date later than one year from the project start date will not be eligible for Gold Standard certification.

The project start date is 01/12/2021⁴³, and PP have submitted the required documents for preliminary review on 22/11/2022 which within one year of the project start date. Therefore, the project is eligible for Gold Standard certification. On 17/12/2022, there was a return from Preliminary Review and our Safe Water in Uganda Project was listed.

The main action made for the project implementation are generalized in the following [Table5](#):

Table 5: Milestone of the Project

Time	Milestone
01/12/2021	The start date of the project (first borehole opening date)
23/09/2022 – 28/09/2022	The project survey
22/11/2022	The first submission date of GS
21/11/2022 – 25/11/2022	The baseline survey
28/11/2022	Stakeholder consultation physical meeting
17/12/2022	Listed

B.5.2 Ongoing Financial Need

The project is neither under Design Certification Renewal nor required to demonstrate financial additionality. Ongoing financial need is not applicable.

⁴² https://globalgoals.goldstandard.org/standards/101_V1.2_PAR_Principles-Requirements.pdf

⁴³ The date of operation of the first borehole within the project boundaries.

B.6. Sustainable Development Goals (SDG) outcomes

Relevant Target/Indicator for each of the six SDGs

Sustainable Development Goals Targeted	Most relevant SDG Target	SDG Impact Indicator (Proposed or SDG Indicator)
SDG 3 – Good Health and Well-being	Target 3.9 “By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, waterborne diseases and other communicable diseases”.	Positive impacts on the health of the beneficiaries. Health quality improvement (qualitative assessment)
SDG 5 - Gender Equality	Target 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.	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location.
SDG 6 - Clean Water and Sanitation	Target 6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all.	6.1.1 Proportion of population using safely managed drinking water. With a 15-year lifespan of the Services Project Monitoring boreholes, the project Indicator: Total number of person served with water to meet daily water satisfactory level of safe consumption of the local water. residents.
SDG 8 – Decent Work and Economic Growth	8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	Number of people employed by the project

<p>SDG 13 - Climate Action</p>	<p>Target 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p> <p>13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions.</p> <p>The project will not only dramatically increase access to safe drinking water but also reduce consumption for woody fuels previously required to treat drinking water, which will decrease environmental degradation and greenhouse gas emissions. Besides, the project will provide an opportunity for local residents to learn and raise awareness on climate change, mitigation measures and how to reduce impacts such as combating deforestation.</p> <p>Project Monitoring Indicator: GHG emission reductions</p>
<p>SDG 15 – Life on Land</p>	<p>Target 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally</p> <p>Percentage of users reported Fuelwood(eq.) savings in the project scenario</p>

B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

Outcomes for SDG 3 (Good Health and Well-being)

The contribution for Goal 3 has been discussed during the stakeholder consultation conducted on 28/11/2022.

From the consultation, it was established that every beneficiary (i.e. household) have been positively impacted due to clean energy replacing the use of fuelwood consumption for boiling water. The benefit estimated from project survey about the number of

households with baseline scenario, where fuelwood was used at baseline scenario. Therefore, it could help to contribute to the Target Indicator 3.9 of Goal 3.

In baseline situation, there is risk of waterborne disease; also smoke level from the combustion of fuelwood mostly in open fire practice. Therefore, baseline outcome benefit is zero.

The project situation is the number of people accessing to boreholes that causes zero emission compared to baseline fuelwood combustion. The boreholes also helped reducing waterborne diseases such as cholera, diarrhoea, typhoid etc. Also, clean drinking water is by default a nutrient to the body, hence brought good health as compared to baseline. Also, due to the avoidance of fuelwood burning for water boiling, reduction in kitchen smoke, as a result, improved indoor air quality directly benefits the health of the women and children at house. Hence, the impact has been calculated below:

Borehole locations along with GPS information were determined via Google Earth. The number of households was counted by sampling according to the density of households. Hence, the number of households within a 1 km radius was determined according to the household density. For 61 boreholes, the number of households that will benefit from safe water was determined according to this calculation. Please see B.4. for more details.

Outcomes for SDG 5 (Gender Equality)

Globally, women and girls perform the majority of unpaid domestic work. This leaves them with less time to rest, study and realise their economic potential, leaving them in time poverty. In regard to time, women are poorer than men as unpaid domestic duties, such as collecting firewood and water, must be added to their market productive work, making time much more scarce. Women are widely recognised as being principally responsible for natural resource collection.

These trends demonstrate that reducing the amount of firewood required by households has the potential to reduce the time poverty of women, because the time burden of collecting water and firewood, which falls disproportionately on women, will be reduced. As the safe water sources are located centrally within communities, closer to public institutions and villages, the distance travelled to collect water will be reduced, reducing

the time per trip spent collecting water. In addition, as the water sources will be maintained, they will provide a reliable water supply, ensuring that water needs for cooking, drinking, and food preparation can be met by one central water source, so the time spent collecting water is minimised.

Gender equality was involved in every step of the project. At the local stakeholder meeting, we made evaluations for women so that women could freely express their opinions.

The decrease per household in time spent collecting water will be taken as a proxy contribution towards the SDG target.

Outcomes for SDG 6 (Clean Water and Sanitation)

As a result of our baseline survey, we saw that the rate of access to clean water in Uganda is low. Through the boreholes as part of the Safe Water in Uganda project, we increased the rate of access to clean water.

Baseline of project is the purification of water by households using firewood to boil water. There is no safe water distributed.

According to the GPS data analysis the number of 187,000 people around boreholes within a 1 km distance who are living in our project boundary. The quantification of clean water distributed will be monitored continuously throughout the project lifetime. The indicator is the cumulative quantity of safe water provided.

Outcomes for SDG 8 (Decent Work and Economic Growth)

The construction and operation of the boreholes requires agents. These workers have been selected, trained, and accompanied in order to operate the boreholes. The number of jobs has related to boreholes is known as a contract is signed with each person.

Baseline is the purification of water by households using firewood to boil water. There is no job created. With the project there will be created for Safe Water in Uganda project.

Outcomes for SDG 13 (Climate Action)

The outcome for SDG 13 will be quantified as CO₂ emission reductions by applying the GS Emission reductions from Safe Drinking Water Supply v.1.0 methodology.

The emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y = Emission reductions in year y (tCO_{2e}/yr)

BE_y = Baseline emissions in year y (tCO_{2e}/yr)

PE_y = Project emissions in year y (tCO_{2e}/yr)

LE_y = Leakage emissions in year y (tCO_{2e}/yr)

As per section 3.6 of the applied GS methodology, baseline emissions are calculated as follows:

$$BE_y = EF_b * (1 - C_b - X_{\text{cleanboil},y}) * Q_y * M_{q,y}$$

Where:

BE_y = Baseline emissions from the use of fuel to obtain safe water in the baseline (tCO_{2e})

EF_b = Emission factor for the use of fuel to obtain safe water in the baseline (tCO_{2e}/L)

C_b = Proportion of project end-users who in the baseline were already using a safe water supply that did not require boiling (%)

$X_{\text{cleanboil},y}$ = Proportion of project end-users that boil safe water in the project year y (%)

Q_y = Quantity of safe drinking water provided by the project in year y (L)

$M_{q,y}$ = Modifier for the water quality in year y

The emission factor is calculated as follows:

$$EF_b = SE_{w,b,y} * \sum (X_f * (EF_{b,f,CO_2} * f_{NRB} + EF_{b,f,nonCO_2})) \div 10^9$$

Where:

EF_b = Emission factor for the use of fuel to obtain safe water in the baseline (tCO_{2e}/L)

$SE_{w,b,y}$ = Specific energy required to boil water (kJ/L)

x_f = Proportion of fuel fused in the baseline (fraction determined based on an energy basis)

E_{f,b,f,CO_2} = CO₂ emission factor from use of fuel f (tCO₂/TJ)

$E_{f,b,f,nonCO_2}$ = Non-CO₂ emission factor arising from use of fuel f, when the baseline fuel f is biomass or charcoal (tCO_{2e}/TJ). This parameter is omitted when f is a fossil fuel.

f_{NRB} = Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.

f = Index for baseline fuel types

Quantity of safe drinking water provided is calculated as follow:

$$Q_y = \min(Q_{m,y}, Q_{pop,y})$$

Where:

$Q_{m,y}$ = Monitored quantity of safe water provided by the project in year y(L).

$Q_{pop,y}$ = Quantity of safe drinking water that could be consumed by project end-users in year y(L)

$$Q_{pop,y} = \sum HH_{p,y} * HN_{p,y} * QPW_p * DO_{p,y}$$

Where:

$HH_{p,y}$ = Number of premises type p served by the project in year y

$HN_{p,y}$ = Number of individuals per premises type p (e.g. household, school) in year y

QPW_p = Volume of drinking water per person per day for premises type p(L). Apply the default value or monitored value through water consumption field tests in the project scenario, capped at 5.5 L per person per day.

$DO_{p,y}$ = Days the project technology is operational for end-users in premises pin year y

As per section 3.7 of the applied GS methodology, project emissions are calculated as follows:

$$PE_y = PE_{ff,p,y} + PE_{ec,p,y}$$

Where:

PE_y = Project emissions in year y (tCO₂)

$PE_{ff,p,y}$ = Project emissions from fossil fuel use in year y (tCO₂)

$PE_{ec,p,y}$ = Project emissions from electricity use in year y (tCO₂)

As per section 3.8 of the applied GS methodology, leakage emissions are calculated as follows:

Leakage relating to non-renewable woody biomass shall be assessed, other types are excluded for simplification:

- a) Population who does not participate in the project and used lower emitting energy sources instead use the non-renewable biomass saved under the project activity
- b) The project significantly reduces the NRB fraction within an area where other GHG mitigation project activities account for NRB fraction in their baseline scenario
- c) The project population compensates for loss of the space heating effect of water boiling by adopting some other form of space heating or by retaining some baseline woodfuel-burning practices

Outcomes for SDG 15 (Life on Land)

The contribution of the project to SDG 15 confirmed through a random sample survey (in conjunction with the annual monitoring survey for the project) with a representative number of households. This SDG parameter is the percentage of households reported fuelwood (eq.) savings in the project as compared to the baseline scenario.

B.6.2 Data and parameters fixed ex ante

Related Water Quality

Parameter ID	SDWS 1
Data/parameter	Number of household/institution per CWT/CWS
Unit	<ul style="list-style-type: none"> - Coordinates of CWT/CWS - Acceptable formats for GPS coordinates include DMS (degrees, minutes and seconds), DMM (degrees and decimal minutes), and DD (decimal degrees) - Number of end-user premises, quantity
Description	<p>End users premises (e.g. households, institutions) within 1 km distance of project water source or a total collection time of 30 minutes or less for a round trip, including queuing, using the travel modes of walking or pedaling.</p> <p>Recorded for each CWT/CWS installation ex-ante at the time of start of crediting period. In case of progressive installation – for new CWT/CWS units before 1st issuance for new units.</p>
Source of data	All households around the borehole within a 1 km distance were counted on Google Earth. Please see “Borehole Household Number and Location” excel file for more detail.
Value(s) applied	3078 household (average)
Choice of data or Measurement methods and procedures	<p>Borehole locations along with GPS information were determined via Google Earth. The number of households was counted by sampling according to the density of households. Hence, the number of households within a 1 km radius was determined according to the household density. For 61 boreholes, the number of households that will benefit from safe water was determined according to this calculation.</p> <p>Please see B.4. for more details.</p>
Purpose of data	Number of household/institution per CW/CWS involved in this project meet the relevant standard.
Additional comment	The project covers 61 boreholes, and the objective of the project is to reduce carbon emissions due to water treatment by drilling boreholes and to improve the living conditions of about 187,000 people living in Eastern Uganda, by providing clean drinking water within a

reasonable proximity. According to the GPS data analysis the number of 187,000 people around boreholes within a 1 km distance who are living in our project boundary. Despite this is the maximum number of people who benefits from the boreholes, considering the capacities of 61 boreholes, it is seen that 72,960 number of people benefits at most. To stay conservative, we made our baseline emission calculation using the 72,960 values from the field. While 769 households benefit from each borehole in total, it has been accepted that sufficient water can be served to approximately 300 households per well. Since each household has an average of 4 people, the average number of beneficiaries per borehole is calculated as 1200.

Parameter ID	SDWS 2
Data/parameter	Project technology description
Unit	N/A
Description	<p>The drilling technology of our project is manual and deep drilling. The depth of our boreholes varies between 15-25 meters. The pump type that is used "India Mark II". The origin of the pumps used in India. Their internal structure is concrete masonry, and their external structure is brick and reinforced concrete. The construction period of drilling boreholes ranges from 1 to 2 months.</p> <p>Please see A.3 for more details.</p>
Source of data	Manufacturer specifications and technical reports from installer.
Value(s) applied	N/A
Choice of data or Measurement methods and procedures	<p>Manufacturer is an ISO 9001:2000 certified company by international certification services accredited by joint accreditation system of Australia and New Zeland for manufacture of hand pumps, tools, pipes and spares thereof. They are registered with WHO, UNICEF and other UN Organizations, NGOs for supply of these hand pumps and other products.</p> <p>Documents shared with the VVB, please see "Hand Pumps for Safe Drinking Water of Apex International" for more technical detail.</p>

Purpose of data	The Project technology involved in this project meet the relevant standard and eligibility.
Additional comment	N/A

Parameter ID	SDWS 3
Data/parameter	Project technology performance level (CWT or CWS)
Unit	N/A
Description	<p>The water directly supplied by the water source (CWS or from the CWT) must comply with</p> <ul style="list-style-type: none"> i. Microbial quality in line with (i) national standards or guideline for microbial quality of drinking water, or in their absence, (ii) the guideline values for verification of microbial quality from the Guidelines for drinking-water quality, 4th edition (Table 7.10, WHO, 2017); and ii. Chemical quality (i) national standards or guidelines on priority chemical contamination⁴⁴ and physical and aesthetic aspects, or in the absence of such requirements, (ii) international standards or guidelines on priority chemical contamination and physical and aesthetic aspects. <p>Once at the start of the crediting period, and microbial quality at the CWS and CWT location must be retested following an event that could lead to contamination of the source water (e.g.flooding).</p>
Source of data	Water quality test report
Value(s) applied	Water quality test result shared with VVB, please see “ Borehole Water Quality Test Results” excel for more detail.
Choice of data or Measurement methods and procedures	The water quality has been tested in line with national standard in Uganda. The water samples have been taken at source by the testing body.

⁴⁴ At the global level, the priority chemical contaminants are arsenic and fluoride. In absence of relevant national standards, compliance with the WHO guideline values (maximum 10 µg/L and 1500 µg/L, respectively) shall be demonstrated. Table 8.8, [Guidelines for drinking-water quality: fourth edition incorporating the first addendum. World Health Organization; 2017.](#)

Purpose of data	Annually
Additional comment	N/A

Parameter ID	SDWS 4
Data/parameter	Regulatory framework for safe water supply
Unit	N/A
Description	Water scarcity in various regions of Uganda has been an issue for decades. The government has issued some water resources related policies and regulations. The project is in compliance with Host Country requirements such as WQT Regulations for Uganda, Environmental Law and other related regulations.
Source of data	National authorities
Value(s) applied	N/A
Choice of data or Measurement methods and procedures	National authorities provide the powerful regulatory framework for safe water supply
Purpose of data	The Ugandan government attaches great importance to the issue of water resources. This project could bring water benefits to the Ugandan people. So, the implementation of the project is fully in line with the relevant water resources policies of Uganda.
Additional comment	N/A

Parameter ID	SDWS 5
Data/parameter	Water sources in the project boundary
Unit	N/A
Description	The water source in the project boundary and whether they are used for drinking water, and for all that are used for drinking water, classify them as improved and unimproved water source.
Source of data	Baseline survey. Please see " SafeWaterinUganda_ Baseline Results" excel file for more detail.

Value(s) applied	<p>The number of households using improved water (piped water into dwelling, yard or plot, public tap or standpipe, tubewell or borehole, protected dug well, protected spring, rainwater collection) was 24%, the other %76 was using un-improved water (surface water, unprotected well, unprotected spring).</p> <p>All of the respondents using improved water source stated that they treated the water or would do it if I had the opportunity.</p>
Choice of data or Measurement methods and procedures	Baseline survey provided the water source in project boundary.
Purpose of data	From the baseline survey, the most people in Uganda can't obtained the safety water from improved water source, so the implementation of this project is important for the safety of drinking water for Ugandans. Demonstrated the reasonableness of project implementation.
Additional comment	N/A

Parameter ID	SDWS 6
Data/parameter	Stove technologies used in the project boundary
Unit	N/A
Description	The proportion of different stove types used in premises in the geographical area of the project.
Source of data	Baseline survey. Please see " SafeWaterinUganda_ Baseline Results" excel file for more detail.
Value(s) applied	The main stove type used to boil water in baseline scenario is three-stone stoves (95%), improved cookstoves (5%), improved stoves (7%). The secondary stove type is three-stone stoves (87%) and improved cookstoves (27%).
Choice of data or Measurement methods and procedures	Baseline survey (estimated) provided the proportion of different stove types used in premises in the geographical area of the project.
Purpose of data	To calculate the baseline emissions.
Additional comment	The classification shall consider at least the following categories of stoves types:

	<ul style="list-style-type: none"> - Three-stone fire or a conventional system for woody biomass lacking improved combustion air supply mechanism and flue gas ventilation system; - other conventional systems using woody biomass; - improved cookstoves ($\geq 20\%$ thermal efficiency); and - fossil fuel combusting systems. <p>If the project is implemented in different geographical locations, then the proportion of different stove types shall be defined for each location, where relevant.</p>
--	--

Parameter ID	SDWS 7
Data/parameter	Expected technical life of project technology
Unit	Operational lifespan of the water purifiers are more than 15 years
Description	The expected lifetime of the project is more than 15 years (3x5 years). It is ensured by the project that the project technology will be repaired or replaced with a new pump once it does not operate properly anymore. The proper functioning of each pump is monitored regularly by the project.
Source of data	Manufacturer specifications ⁴⁵
Value(s) applied	More than 15 years
Choice of data or Measurement methods and procedures	The manufacturer specifications provided the accuracy information of expected technical life of an individual project technology.
Purpose of data	The expected technical life of project technology meets the total length of crediting period.
Additional comment	N/A

⁴⁵ <https://www.engineeringforchange.org/solutions/product/india-mark-ii-handpump/#:~:text=The%20individual%20parts%20of%20the,least%201%20year%20without%20maintenance>

Parameter ID	SDWS 8
Data/parameter	X_{firewood} / X_{charcoal}
Unit	Percentage of firewood and charcoal
Description	The proportion of each different household cooking fuel (firewood and charcoal) used in the project boundary
Source of data	Baseline survey. Please see " SafeWaterinUganda_ Baseline Results" excel file for more detail.
Value(s) applied	The main fuel type in baseline scenario is firewood (95%) and charcoal (5%).
Choice of data or Measurement methods and procedures	All of the respondents using improved water source stated that they treated the water or would do it if I had the opportunity. The baseline survey are adapted to capture the information of fuel types and stove types used to boil water. Data were collected with software via tablets, which were then turn into an excel file to be used to analyze the data.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	According to applied methodology, the percentages applied cross-checked against at least one other source on the list.

Parameter ID	SDWS 9
Data/parameter	$EF_{b,\text{firewood},\text{CO}_2}$
Unit	tCO ₂ /TJ
Description	CO ₂ emission factor from use of fuels
Source of data	IPCC 2006 default value
Value(s) applied	112
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 9
Data/parameter	$EF_{b, \text{charcoal}, \text{CO}_2}$
Unit	tCO ₂ /TJ
Description	CO ₂ emission factor from use of fuels
Source of data	IPCC 2006 default value
Value(s) applied	165.22 (includes charcoal production emissions)
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 10
Data/parameter	$EF_{b, \text{firewood}, \text{nonCO}_2}$
Unit	tCO _{2e} /TJ
Description	Non-CO ₂ emission factor from use of fuels, in case the baseline fuel is biomass or charcoal
Source of data	IPCC 2006 default value
Value(s) applied	9.46
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 10
Data/parameter	$EF_{b, \text{charcoal}, \text{nonCO}_2}$

Unit	tCO _{2e} /TJ
Description	Non-CO ₂ emission factor from use of fuels, in case the baseline fuel is biomass or charcoal
Source of data	IPCC 2006 default value
Value(s) applied	44.83 (includes production emissions of CH ₄ and N ₂ O)
Choice of data or Measurement methods and procedures	IPCC default values provide an accurate and conservative estimate of emissions reduction from various fuel sources.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 11
Data/parameter	η_{wb}
Unit	%
Description	Weighted average efficiency of the baseline water boiling devices. Calculate the weighted average of the water boiling efficiency in the project boundary using the proportion of different stove types used and the stove efficiencies.
Source of data	Baseline survey. Please see "SafeWaterinUganda_Baseline Results" excel file for more detail.
Value(s) applied	10,91
Choice of data or Measurement methods and procedures	All of the respondents using improved water source stated that they treated the water or would do it if I had the opportunity. The baseline survey are adapted to capture the information of fuel types and stove types used to boil water. Data were collected with software via tablets, which were then turn into an excel file to be used to analyze the data.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 12								
Data/parameter	C_b								
Unit	%								
Description	<p>Proportion of project end-users who in the baseline were already using safe water, either from an improved water source, or from a water treatment method other than boiling.</p> <p>At the start of each crediting period.</p>								
Source of data	Baseline survey. Please see " SafeWaterinUganda_ Baseline Results" excel file for more detail.								
Value(s) applied	9								
Choice of data or Measurement methods and procedures	<p>97% of the respondents using improved water source stated that they treated the water or would do it if I had the opportunity. The baseline survey are adapted to capture the information of fuel types and stove types used to boil water. Data were collected with software via tablets. According to data from surveys, C_b was calculated as 9%.</p> <table border="1" data-bbox="564 1137 1394 1335"> <tr> <td>I treat my water & I boil my water</td> <td>65%</td> </tr> <tr> <td>I don't treat my water & I boil my water</td> <td>26%</td> </tr> <tr> <td>I boil my water (Total)</td> <td>91%</td> </tr> <tr> <td>C_b</td> <td>9%</td> </tr> </table>	I treat my water & I boil my water	65%	I don't treat my water & I boil my water	26%	I boil my water (Total)	91%	C_b	9%
I treat my water & I boil my water	65%								
I don't treat my water & I boil my water	26%								
I boil my water (Total)	91%								
C_b	9%								
Purpose of data	To demonstrate contribution to SDG 13.								
Additional comment	According to applied methodology, the percentages applied cross-checked against at least one other source on the list.								

Parameter ID	SDWS 21
Data/parameter	$f_{NRB,f,y}$
Unit	%
Description	Fractional non-renewability status of woody biomass fuel during year y, in case the baseline fuel is biomass or charcoal

Source of data	Determined by CDM Tool 30 Calculation of the fraction of non-renewable biomass (Version 04.0) ⁴⁶ Calculation excel shared to the VVB, please see " Safe Water in Uganda fNRB Calculation" excel file for more detail.
Value(s) applied	97
Choice of data or Measurement methods and procedures	According to applied Methodology for Emission reductions from safe drinking water supply (Version 1.0) using CDM Tool 30 Calculation of the fraction of non-renewable biomass (Version 04.0) suggested.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

B.6.3 Ex ante estimation of SDG Impact

SDG 3

This SDG parameter is the the reduction percentage of waterborne and airborne diseases in the project as compared to the baseline scenario.

	Definition	Numeric value determined ex-ante
Baseline Scenario	The reduction percentage of waterborne and airborne diseases	0 %
Project Scenario	The reduction percentage of waterborne and airborne diseases	90 %

SDG 5

$$TR_y = (T_{b,y} - T_{p,y}) / T_{b,y}$$

Where:

TR_y : Total reduction time spent collecting water for project activity in year y (%)

T_{b,y} : Time spent collecting water per household per day prior to project (minutes)

T_{p,y} : Time spent collecting water per household per day in project (minutes)

⁴⁶ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v4.0.pdf>

According to baseline survey answers, women and girls spent their time travelling to collect water was 63 min/day. This time decreases by approximately 24 min/day⁴⁷. With this, the time spent per day is reduced by 62%.

SDG 6

Baseline of project is the purification of water by households using firewood to boil water. There is no safe water distributed.

The quantification of clean water distributed will be monitored continuously throughout the project lifetime. The indicator is the cumulative quantity of safe water provided.

According to the GPS data analysis the number of 187,000 people around boreholes within a 1 km distance who are living in our project boundary. Despite this is the maximum number of people who benefits from the boreholes, considering the capacities of 61 boreholes, it is seen that 72,960 number of people benefits at most.

SDG 8

Baseline of the project is no job created for clean water supply.

The number of people who works for Safe Water in Uganda Project will be monitored continuously throughout the project lifetime. It would be best to evaluate it separately as a pre-project and post-project situation.

More local workers are needed as borehole installation are included in the pre-project situation. 50 people from the local community worked on the drilling of the boreholes.

Approximately 5-15 people, both ISAR employees and local, supported the surveys and took part for in the maintenance and repair of the boreholes⁴⁸. The number of employees may vary depending on the need.

⁴⁷ When the borehole location is selected on Google Maps, the distance to go to the outermost distance of 1 km from the borehole was selected and calculated. Please see "Gender Equality" file for detail.

⁴⁸ Please see "Safe Water in Uganda_Employee List" excel for more information.

SDG 13

The emission reductions are calculated as follows⁴⁹:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y =Emission reductions in year y (tCO_{2e}/yr)

BE_y =Baseline emissions in year y (tCO_{2e}/yr)

PE_y =Project emissions in year y (tCO_{2e}/yr)

LE_y =Leakage emissions in year y (tCO_{2e}/yr)

Baseline Emissions:

$$BE_y = EF_b * (1 - C_b - X_{cleanboil,y}) * Q_y * M_{q,y}$$

Where:

	Definition	Numeric value determined ex-ante
BE_y	Baseline emissions from the use of fuel to obtain safe water in the baseline (tCO _{2e})	
C_b	Proportion of project end-users who in the baseline were already using a safe water supply that did not require boiling (%).	With 9% ex-ante as per Baseline Survey.
$X_{cleanboil,y}$	Proportion of project end-users that boil safe water in the project year y (%)	With 1% from the Project Survey.

⁴⁹ Please see "SafeWaterinUganda_Baseline Calculation_00" excel for more information.

$Q_{pop,y}$	Quantity of safe drinking water provided by the project in year y (L)	Calculated with $Q_{pop,y} = 138,842,880$ L. Monitored quantity of safe water will be monitored ($Q_{m,y}$).
$M_{q,y}$	Modifier for the water quality in year y	With a modifier estimated at 0,90 ex-ante.

$$EF_b = SE_{w,b,y} * \sum (x_f * (EF_{b,f,CO_2} * f_{NRB} + EF_{b,f,nonCO_2})) \div 10^9$$

Where:

	Definition	Numeric value determined ex-ante
EF_b	Emission factor for the use of fuel to obtain safe water in the baseline (tCO _{2e} /L)	
$SE_{w,b,y}$	Specific energy required to boil water (kJ/L)	With $SE_{w,b,y} = 360.83/\eta_{wb} = 360.83/10.91\% = 3307.7$ kJ/L
x_f	Proportion of fuel f used in the baseline (fraction determined based on an energy basis).	With $x_{wood} = 95\%$ and $x_{charcoal} = 5\%$
EF_{b,f,CO_2}	CO ₂ emission factor from use of fuel f (tCO ₂ /TJ)	With $EF_{b,wood,CO_2} = 112.0$ tCO ₂ /TJ and $EF_{b,charcoal,CO_2} = 165.22$ tCO ₂ /TJ
$EF_{b,f,nonCO_2}$	Non-CO ₂ emission factor arising from use of fuel f, when the baseline fuel f is biomass or charcoal (tCO _{2e} /TJ). This parameter is omitted when f is a fossil fuel.	With, $EF_{b,wood,nonCO_2} = 9.46$ tCO ₂ /TJ and $EF_{b,charcoal,nonCO_2} = 44.83$ tCO ₂ /TJ
f_{NRB}	Fractional non-renewability status of woody biomass fuel during	With $f_{NRB} = 97\%$

	<p>year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel. f = Index for baseline fuel types.</p>	
--	---	--

Which makes:

$$EF_b = 3307.7 * [(0.95 * (112 * 97\% + 9.46)) + (0.5 * (165.22 * 97\% + 44.830))] \div 10^9 = 0.000405 \text{ tCO}_2\text{e/L.}$$

And where $Q_y = \min(Q_{m,y}, Q_{pop,y}) = 138,842,880 \text{ L}$

Where:

$Q_{m,y}$ = Monitored quantity of safe water provided by the project in year y (L). Monitored quantity of safe water will be monitored.

$Q_{pop,y}$ = Quantity of safe drinking water that could be consumed by project end-users in year y (L), with an ex-ante estimation 138,842,880 L. yr⁻¹ for all borehole.

And where $Q_{pop,y} = \sum H_{Hp,y} * H_{Np,y} * Q_{PWp} * D_{Op,y}$

Where:

$H_{Hp,y}$ = Number of premises type p served by the project in year y , 18,240 households

$H_{Np,y}$ = Number of individuals per premises type p (e.g. household, school) in year y , an average of 4 people per household according to the literature⁵⁰

Q_{PWp} = Volume of drinking water per person per day for premises type p (L). WCFT conducted and the value is 6.4 L per person per day; so the capped value 5.5 L per person per day used.

$D_{Op,y}$ = Days the project technology is operational for end-users in premises p in year y . An operating rate of 95% has been applied.

We find:

⁵⁰ Uganda-National-Survey-Report-2019-2020

$$Q_{pop,y} = 18,240 * 4 * 5.5 * 346 = 138,842,880 \text{ L}$$

Hence:

$$BE_y = 0.000405 * (1-0.09-0.01) * 138,842,880 * 0.90 = \mathbf{45,551} \text{ tCO}_{2e}/\text{year}$$

This figure may vary according to the survey results. However, the amount of emission reduction will be capped at 60,000 tCO_{2e}, due to small scale project requirements.

Project Emissions:

$$PE_y = PE_{ff,p,y} + PE_{ec,p,y}$$

Where:

PE_y = Project emissions in year y (tCO₂)

$PE_{ff,p,y}$ = Project emissions from fossil fuel use in year y (tCO₂) is 0 tCO₂. There is no fossil fuel use in project activity.

$PE_{ec,p,y}$ = Project emissions from electricity use in year y (tCO₂) is 0 tCO₂. There is electricity use use in project activity.

Therefore:

$$PE_y = 0 \text{ tCO}_{2e}/\text{year}$$

Emission Reduction:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y =Emission reductions in year y (tCO_{2e}/yr)

BE_y =Baseline emissions in year y (tCO_{2e}/yr), 45,551 tCO_{2e}/year

PE_y =Project emissions in year y (tCO_{2e}/yr), 0 tCO_{2e}/year

LE_y =Leakage emissions in year y (tCO_{2e}/yr), 0 tCO_{2e}/year

Therefore:

$$ER_y = 45,551 \text{ tCO}_{2e}/\text{year}$$

SDG 15

This SDG parameter is the percentage of households reported fuelwood (eq.) savings in the project as compared to the baseline scenario.

	Definition	Numeric value determined ex-ante
Baseline Scenario	Percentage of users reported Fuelwood equivalent savings in the baseline scenario	0 %
Project Scenario	Percentage of users reported Fuelwood equivalent savings in the baseline scenario	100 %

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

Ex-ante estimation of SDG 3 Outcome:

Year	Baseline estimate	Project estimate	Net benefit
01/12/2021 - 31/12/2021	0	90 %	90 %
2022	0	90 %	90 %
2023	0	90 %	90 %
2024	0	90 %	90 %
2025	0	90 %	90 %
01/01/2026 - 30/11/2026	0	90 %	90 %
Total	0	90 %	90 %

Ex-ante estimation of SDG 5 Outcome:

Year	Baseline estimate	Project estimate	Net benefit
01/12/2021 - 31/12/2021	63 min/day spent collecting water	24 min/day spent collecting water	time spent per day is reduced by 62%
2022	63 min/day spent collecting water	24 min/day spent collecting water	time spent per day is reduced by 62%
2023	63 min/day spent collecting water	24 min/day spent collecting water	time spent per day is reduced by 62%
2024	63 min/day spent collecting water	24 min/day spent collecting water	time spent per day is reduced by 62%
2025	63 min/day spent collecting water	24 min/day spent collecting water	time spent per day is reduced by 62%
01/01/2026 - 30/11/2026	63 min/day spent collecting water	24 min/day spent collecting water	time spent per day is reduced by 62%

Total	378 min/day spent collecting water	144 min/day spent collecting water	time spent per day is reduced by 62%
--------------	---	---	---

Ex-ante estimation of SDG 6 Outcome:

Year	Baseline estimate	Project estimate	Net benefit
01/12/2021 - 31/12/2021	0 person using safe water in baseline scenario	72,960 people benefits from borehole within a 1 km distance	72,960 people
2022	0 person using safe water in baseline scenario	72,960 people benefits from borehole within a 1 km distance	72,960 people
2023	0 person using safe water in baseline scenario	72,960 people benefits from borehole within a 1 km distance	72,960 people
2024	0 person using safe water in baseline scenario	72,960 people benefits from borehole within a 1 km distance	72,960 people
2025	0 person using safe water in baseline scenario	72,960 people benefits from borehole within a 1 km distance	72,960 people
01/01/2026 - 30/11/2026	0 person using safe water in baseline scenario	72,960 people benefits from borehole within a 1 km distance	72,960 people
Total	0 person using safe water in baseline scenario	72,960 people benefits from borehole within a 1 km distance	72,960 people

Ex-ante estimation of SDG 8 Outcome:

Year	Baseline estimate	Project estimate	Net benefit
01/12/2021 - 31/12/2021	0 job created	50 jobs created	50 jobs created*
2022			
2023	0 job created	5-15 jobs created	5-15 jobs created
2024	0 job created	5-15 jobs created	5-15 jobs created

2025	0 job created	5-15 jobs created	5-15 jobs created
01/01/2026 - 30/11/2026	0 job created	5-15 jobs created	5-15 jobs created
Total	0 job created	70-110 jobs created	70-110 jobs created

* More local workers are needed as borehole installation are included in the pre-project situation.

Ex-ante estimation of SDG 13 Outcome:

Year	Baseline estimate	Project estimate	Net benefit
01/12/2021 - 31/12/2021	3,796 tCO _{2e}	0 tCO _{2e}	3,796 tCO _{2e}
2022	45,551 tCO _{2e}	0 tCO _{2e}	45,551 tCO _{2e}
2023	45,551 tCO _{2e}	0 tCO _{2e}	45,551 tCO _{2e}
2024	45,551 tCO _{2e}	0 tCO _{2e}	45,551 tCO _{2e}
2025	45,551 tCO _{2e}	0 tCO _{2e}	45,551 tCO _{2e}
01/01/2026 - 30/11/2026	41,755 tCO _{2e}	0 tCO _{2e}	41,755 tCO _{2e}
Total	227,755 tCO_{2e}	0 tCO_{2e}	227,755 tCO_{2e}
Total number of crediting years	5		
Annual average over the crediting period	45,551 tCO _{2e}	0 tCO _{2e}	45,551 tCO _{2e}

Ex-ante estimation of SDG 15 Outcome:

Year	Baseline estimate	Project estimate	Net benefit
01/12/2021 - 31/12/2021	0 % fuelwood equivalent savings	100 % fuelwood equivalent savings	100 %
2022	0 % fuelwood equivalent savings	100 % fuelwood equivalent savings	100 %
2023	0 % fuelwood equivalent savings	100 % fuelwood equivalent savings	100 %
2024	0 % fuelwood equivalent savings	100 % fuelwood equivalent savings	100 %

2025	0 % fuelwood equivalent savings	100 % fuelwood equivalent savings	100 %
01/01/2026 - 30/11/2026	0 % fuelwood equivalent savings	100 % fuelwood equivalent savings	100 %
Total	0 % fuelwood equivalent savings in baseline scenario	100 % fuelwood equivalent savings in ptoject activity	100 %

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

Related to water quality

Parameter ID	SDWS 20
Data/parameter	Water hygiene education campaigns
Unit	N/A
Description	<p>Hygiene campaigns carried out among project safe water end users. The drinking water and hygiene practices will be assessed using the WHO/UNICEF Joint Monitoring Programme guidelines ⁵¹(JMP 2018). In-person or telephone or by messaging based survey will be conducted including all the JMP core questions for drinking water and core questions for hygiene.</p> <p>Hygiene was discussed at the Local Stakeholder Meeting held on 28.11.2022. Those who could not attend the Local Stakeholder Meeting were informed about hygiene after the briefing during the field visits (side meetings). Please see Monitoring report for more information.</p>
Source of data	Hygiene practices assessment
Value(s) applied	N/A
Measurement methods and procedures	The water hygiene education campaigns will be conducted on the users and the JMP questionnaire which including all the JMP core questions for drinking water and core questions for hygiene will be supplied.

⁵¹ <https://washdata.org/report/jmp-2018-core-questions-household-surveys>

	Within the scope of the hygiene campaign, we prepared training presentations and informed the local people.
Monitoring frequency	Annually
QA/QC procedures	<p>The fraction of the households where Safe water and Hygiene practices are found to fulfill “safely managed” or “basic” requirements is expected to increase over time as a result of the hygiene campaigns.</p> <p>The monitoring indicators for this project are defined as: The fraction of the households where safe water is found to fulfil "safely managed" is defined as the fraction of the households involved in this project who can obtain safe water.</p> <p>The fraction of the households where Hygiene practices are found to fulfill “basic” requirements can be defined as the fraction of the soap availability for handwashing.</p>
Purpose of data	To see the result of the hygiene campaign.
Additional comment	N/A

Parameter ID	SDWS 19
Data/parameter	SDG 8
Unit	Number
Description	Number of jobs created in year y
Source of data	Records of signed contracts
Value(s) applied	160 jobs created
Measurement methods and procedures	<p>More local workers are needed as borehole installation are included in the pre-project situation. 50 people from the local community worked on the drilling of the boreholes.</p> <p>Approximately 5-15 people, both ISAR employees and local, supported the surveys and took part for in the</p>

	maintenance and repair of the boreholes ⁵² . The number of employees may vary depending on the need.
Monitoring frequency	Annually
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	To determine SDG 8 Impacts.
Additional comment	N/A

Parameter ID	SDWS 18
Data/parameter	$M_{q,y}$
Unit	%
Description	Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard requirements specified in relevant microbial quality standard for drinking water of the host country. In case a national standard is not available, the water quality shall comply with WHO Guideline values for verification of microbial quality i.e., all water directly intended for drinking must not have detectable E.Coli in any 100 ml sample i.e., less than 1 Colony Forming Unit (CFU) of E.Coli /100 ml.
Source of data	For CWT/CWS where water is retrieved from the CWT or CWS location testing of the water in the transport containers when it reaches the end-user premises (e.g. household, institution). As a result of Water Quality Tests, all values were found to be appropriate. Will be reported for each monitoring period.
Value(s) applied	100%
Measurement methods and procedures	The water quality test applies the bacterial quality standard <1 cfu/100ml, and the sampling determines the proportion of pass and fail results. The sample size is

⁵² Please see "Safe Water in Uganda_Employee List" excel for more information.

	following 90/10 precision rule and follow 4.2 General requirements for sampling from applied methodology.
Monitoring frequency	Annual sampling, and the first round of testing shall be conducted at least after six months from the start date.
QA/QC procedures	<ol style="list-style-type: none"> 1. Laboratories used for water quality testing must be approved by local health authorities and/or have quality accreditation; and 2. The laboratory used must demonstrate that it has an adequate quality management plan in place which addresses both quality assurance and quality control test procedures. 3. Field testing kits also are eligible, e.g. based on Colony Forming Unit method or Most Probable Number method. To use the field testing kits the project shall meet the following requirements: <ol style="list-style-type: none"> a. Testing kits must be approved by national agency or meet standards set by relevant international organization e.g., US-EPA, and b. Testing kits shall be tested for its accuracy and robustness prior to application for project level monitoring, whereby local or accredited laboratory shall conduct water quality tests using testing kits and a relevant ISO standard or an equivalent standard, in parallel with field testing kits.
Purpose of data	To demonstrate contribution to SDG 6 and SDG 13.
Additional comment	<p>If the proportion of samples not meeting Safe Drinking Water Quality Standards exceeds a threshold, no emission reductions can be claimed for the corresponding monitoring period.</p> <p>Thresholds:</p> <ul style="list-style-type: none"> - Project year 1: 20% - Project year 2: 15% - Project year 3 or above: 10% <p>When the crediting period is renewed, the year number count continues, i.e., the second crediting period would encompass year 6, year 7, year 8, etc. Additionally, when the threshold is exceeded, the project shall provide an explanation for why this occurred and provide a remediation plan.</p>

Parameter ID	SDWS 23
Data / Parameter	$Q_{m,y}$

Unit	Liters/year
Description	Monitored quantity of safe water provided by the CWS/CWT project in year y
Source of data	At the central location of the CWS or CWT: Option 1: Flow meter measures water volume directly Option 2: Operation sensor measures directly operation time or pump stroke count, and volume is calculated as capacity (defined in Project technology description) multiplied by operation time or pump strokes, depending on the sensor type. This may be measured on a sampling basis, in which case follow the section 4.2 General requirements for sampling from applied methodology.
Value(s) applied	The value will be presented later during the verification process.
Measurement methods and procedures	Option 2 will be implemented.
Monitoring frequency	Continuously
QA/QC procedures	Follow manufacturer, sector, national or international standards or guidelines for calibration and maintenance of the measurement device.
Purpose of data	To demonstrate contribution to SDG 6 and SDG 13.
Additional comment	N/A

Parameter ID	SDWS 24
Data / Parameter	QPW _p
Unit	Liters/person/day
Description	Volume of drinking water per person per day for premises type p
Source of data	Option 1: Apply the default value per person. In the case of institutions, such as schools, the value should reflect the expected drinking water use per person while on the premises of the institution, in line with the following defaults: <ul style="list-style-type: none"> - Full-day premises: 4 L/person/day - Boarding school: 4 L/person/day - Half-time premises: 3 L/person/day Option 2: Water Consumption Field Tests.

	- In all cases, the value is capped at 5.5 L/person/day The water consumption field test (WCFT) measures project-supplied clean water consumption volumes.
Value(s) applied	5.5
Measurement methods and procedures	WCFT conducted and the value is 6.4 L per person per day; so capped value 5.5 L per person per day used. Please see "WCFT-Results_final" excel file for more detail.
Monitoring frequency	Every two years
QA/QC procedures	N/A
Purpose of data	To demonstrate contribution to SDG 6 and SDG 13.
Additional comment	Cap is determined based on WHO recommendations (Domestic Water Quantity, Service Level and Health, Table 2: Volumes of water required for hydration, WHO 2003) ⁵³ .

Parameter ID	SDWS 25
Data / Parameter	HN _{p,y}
Unit	Number
Description	Number of individuals per premises type p in the project boundary in year y
Source of data	Project Survey which will be conducted annually in the monitoring period.
Value(s) applied	4
Measurement methods and procedures	Uganda Average-Literature: 4,6 ⁵⁴ Uganda Average-Survey: 21,3 By adopting the conservative approach, the number of households was calculated by assuming the average household size of 4.
Monitoring frequency	Annually

⁵³ https://www.who.int/water_sanitation_health/diseases/WSH03.02.pdf

⁵⁴ https://www.ubos.org/wp-content/uploads/publications/09_2021Uganda-National-Survey-Report-2019-2020.pdf

QA/QC procedures	The value applied shall be cross-checked against at least one other source on the list. For cross-check purposes, sources applied may be up to 5 years old. Further, cross-check with older sources may be used provided they provide conservative results.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 22
Data / Parameter	$X_{\text{cleanboil},y}$
Unit	Percentage
Description	Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology in year y
Source of data	Project survey
Value(s) applied	1
Measurement methods and procedures	Project Surveys were conducted for The Safe Water in Uganda project in between 23/09/2022 and 28/09/2022 by the project owner. In Project Survey, this parameter was calculated as 0.03%. But accepted as %1 and included in emission reduction calculation.
Monitoring frequency	Annually
QA/QC procedures	N/A
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 26
Data / Parameter	$HH_{p,y}$
Unit	Number
Description	Number of premises type p served by the project in year y
Source of data	Survey of the premises (e.g. households, schools) within 1 km distance of project water source. Borehole locations

	<p>along with GPS information were determined via Google Earth⁵⁵.</p> <p>Project Survey which will be conducted annually in the monitoring period.</p>
Value(s) applied	18,240 (Capped Value)
Measurement methods and procedures	<p>Borehole locations along with GPS information were determined via Google Earth. The number of households was counted by sampling according to the density of households. Hence, the number of households within a 1 km radius was determined according to the household density. For 61 boreholes, the number of households that will benefit from safe water was determined according to this calculation.</p> <p>According to the amount of water served in project area, the number of premises benefiting from the boreholes was capped. The total premises was calculated by capping the value of 300 premises per borehole. Please see "Borehole Household Number and Location" excel file for more detail.</p> <p>The number of people who will benefit will be capped according to the amount of water to be served. Also, emission reduction will be capped to 60,000 tons of CO_{2e}.</p> <p>Please see B.4 for more details.</p>
Monitoring frequency	Annually
QA/QC procedures	N/A
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 27
Data / Parameter	DO _{p,y}
Unit	Days

⁵⁵ Please see "Borehole Household Number and Location" excel for more detail.

Description	Days the project technology is operational for end-users in premises p in year y
Source of data	In order of preference: <ol style="list-style-type: none"> 1. Measure directly using operation sensor, or 2. Demonstrate from log of operation and maintenance system.
Value(s) applied	346 (To be monitored)
Measurement methods and procedures	Demonstrated from log of operation and maintenance system from applied methodology.
Monitoring frequency	Annually
QA/QC procedures	Values higher than 347 days may only be applied when option 1 is used. 347 days is 95% of days, in line with pump-maintenance in the literature. For schools and other institutions, as applicable, the days must also be limited by the number of school days in the period, taking into account weekends and holidays.
Purpose of data	To demonstrate contribution to SDG 13.
Additional comment	N/A

Parameter ID	SDWS 35
Data / Parameter	LE _y
Unit	tCO _{2e} per year
Description	Leakage emissions during year y
Source of data	Sources established by above Leakage emissions section
Value(s) applied	0 tCO _{2e} /y and will be assessed every two years
Measurement methods and procedures	As per section 3.8 of the applied GS methodology.
Monitoring frequency	Every two years
QA/QC procedures	Compliance with the general requirements for sampling and general requirements for data and information sources
Purpose of data	To demonstrate contribution to SDG 13
Additional comment	N/A

B.7.2 Sampling plan

Baseline Survey

The safe water project survey is conducted with end user's representative of the project scenario target population and currently using the safe water project technology. The project survey was carried out using representative and random sampling following the GS guidelines for minimum sample size:

Group size <300: Minimum sample size 30

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

Group size >1,000: Minimum sample size 100

The sampling size is calculated according to the CDM sample size calculator⁵⁶ and 274 project surveys were carried out.

Water Consumption Field Tests (WCFT)

Water Consumption Field Test conducted, and the value is 6.4 L per person per day and capped value 5.5 L per person per day used. WCFT was carried out for different boreholes, which were opened in different months and whose number of beneficiaries differed. All boreholes in the test were in different cities.

Water Quality Tests

The water quality tests is in line with national standard in Uganda. The water samples have been taken at source of all boreholes by the testing body.

B.7.3 Other elements of monitoring plan

With the completion of the construction activity of the borehole, it is inspected, and approval is given for opening. Water quality tests are carried out at local laboratories during the in-situ inspection or immediately upon opening.

With the opening of the borehole, one person from the local people is determined as responsible. If a fault occurs in the borehole, the responsible person notifies the maintenance team of the fault.

⁵⁶ https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20150813144045237/Meth_guid48Calculator.xlsx

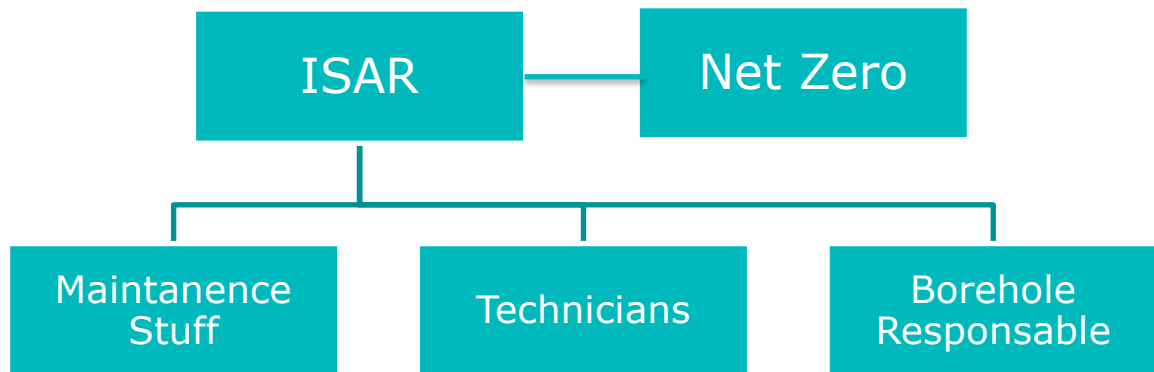
In any case, the contact information of the company that carried out the construction of the borehole is also available on the borehole sign. In addition, information about the state of the borehole is obtained through phone calls made with the responsible person selected from the local.

Borehole visits are made at least once a year, and if necessary, maintenance and repairs are made. Notification over care repair team -most short in time repair performs. This whole period is processed on the borehole tracking platform. When the opening takes place, all information, pictures, images, and videos from the field are placed on the ISAR App⁵⁷.

In order to keep the monitoring system continuous and reliable there are ISAR workers and Local People working at the project site. Maintenance staff take part in water quality tests to be carried out in the boreholes. Technicians work with technical problems that occur in the boreholes. The borehole representative selected from the local people becomes responsible for the borehole and conveys all the problems that occur in the borehole to the local community representative or ISAR.

Net Zero takes part in the preparation of the relevant documents, training plans and the completion of the technical preparations by providing consultancy support.

⁵⁷ Please see "ISAR Audit Program" for more detail.



SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

12/01/2022, which defined as the first borehole opening date.

C.1.2 Expected operational lifetime of project

15 years.

C.2. Crediting period of project

C.2.1 Start date of crediting period

01/12/2021 or two years prior to the date of Project Design Certification, whichever is later as required by Principles & Requirements, version 1.2, published October 2019⁵⁸.

⁵⁸ https://globalgoals.goldstandard.org/standards/101_V1.2_PAR_Principles-Requirements.pdf

C.2.2 Total length of crediting period

15 years. As per section 4.1.5 of GS4GG Community Services Activity Requirements (Version 1.2), the crediting period is 5 years for each Design Certification Renewal Cycle and in total two Design Certification Renewal Cycles.

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1 Safeguarding Principles that will be monitored

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

Principles	Mitigation Measures added to the Monitoring Plan
Principle 1 Human Rights	Not required.
Principle 2 Gender Equality and Women’s Rights	Not required.
Principle 3 Community Health, Safety and Working Conditions	The project is expected to have a positive effect on community health and safety. As a mitigation measure, the parameter of Water Hygiene education campaigns, Ongoing water quality indicated as the fraction of the samples that pass the test of bacterial quality to a standard of <1cfu/100ml (M _{q,y}) will be monitored during the crediting period.
Principle 4 Cultural Heritage, Indigenous Peoples, Displacement and Resettlement	Not required.
Principle 5 Corruption	Not required.
Principle 6 Economic Impacts	Not required.
Principle 7.1 Emissions	Leakage emissions in project scenario were assessed and will be re-assessed every two years.

Principle 7.2 Energy supply	Not required.
Principle 8 Water	Not required.
Principle 9 Environment, Ecology and Land Use	Not required.

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

<p>Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?</p>	<p>The project reflects the key gender issues and requirements of Gender Sensitive design and implementation.</p> <p>On the design side, the project is aimed to provide safe water for the local residents. The project result in reduction of woody fuels that used to boil water in baseline scenario, which generate harmful smoke and cause air pollution when burning in low efficiency and traditional stoves. In the overwhelming majority of the households in Uganda, water fetching, fuel collection and purification activities are handled by women who are more exposed to the air pollution and the associated hazard. The availability of clean water in a reasonable distance is reduced 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 reduced. Hence, largely women benefited from the project activity.</p> <p>In order to ensure gender sensitive design and implementation, the project</p>
--	--

	<p>addressed any gender inequalities and gender-related risks that may be identified in project gender analyses. Gender-sensitive approaches in stakeholder consultation ensured by promoting information sharing equitably with women and men stakeholders, which made available and presented in an accessible format across all stakeholder groups including those more marginalized. The approach included opportunities for stakeholders to share information in a two-way exchange, give regular feedback during implementation and ensure their views and priorities are incorporated in project design and implementation.</p> <p>On the implementation level, the project needs to hire local residents to carry out the whole project. When employing local residents, the project owner not set up any barriers to the employment of women. Women trained to establish awareness of health security. This woman prioritized mode of project development and implementation helps address gender equality issues; in the meantime, addressing issues related to environmental sustainability and natural resource management.</p>
<p>Question 2 - Explain how the project aligns with existing country policies, strategies and best practices</p>	<p>The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.</p>

	<p>The project is fully aligned with local policies, strategies and best practices.</p>
<p>Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?</p>	<p>Based on the answers above and Appendix 1 (in particular Principle 2), no expert is required.</p> <p>The project shall neither contributes to discrimination against women nor shall it reinforce gender-based discrimination and/or inequalities. Gender equality will be attained by ensuring that both men and women will have equal opportunities to jobs created and trainings. The project will further ensure equal pay for equal value of work.</p>
<p>Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?</p>	<p>Based on the answers above and Appendix 1 (in particular Principle 2), no expert is required to assist with gender issues at the LSC.</p> <p>The physical meeting held on 28/11/2022 was followed the GS4GG Stakeholder Consultation and Engagement Requirements (Version 2.1), i.e., the invitees of this meeting meet the gender guidelines, and minimum group of stakeholders to be consulted. The participants are (AB)End-user, (C) local authorities and (E) Local non-governmental organisations.</p> <p>All assessment questions related to safeguarding principles, including principle 2 “Gender Equality and</p>

Women’s Rights” , have been discussed during the stakeholder consultation meeting. Refer to Appendix 1 of the PDD for more details of the results for Safeguarding Principal Assessment.

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

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

E.1 Summary of stakeholder mitigation measures

Local Stakeholder Consultation meeting of the project was organized in line with the GS4GG stakeholder Procedure Requirements and Guidelines.

Our Local Stakeholder Meeting was scheduled for 28/11/2022. When our retroactive project became operational, we had not done a baseline survey yet. Uganda had a nationwide curfew from March 2020 to October 2021 due to COVID-19. In this case, it was not possible for our company, which is based in Türkiye, to go to Uganda to conduct a baseline survey there. For this reason, we wanted to make a sample baseline survey in regions with similar demographic and geographical structures.

We have contacted the Gold Standard about whether this is possible on 29/07/2022, they informed us that we need to request clarification. Then we requested a clarification on 11/08/2022 to the Gold Standard. They replied on 25/08/2022 that we should request deviation for our situation that we stated in the clarification. Afterwards, we also requested a deviation on 05/10/2022, but we didn’t directly receive any feedback⁵⁹. We were listed on 17/12/2022 with a FAR for VVB to validate our deviation request and accordingly, this issue was transferred to VVB in the Preliminary Review Form by Gold Standard.

⁵⁹ The document was shared with the Gold Standard. Also shared with VVB. See T-V5.0-Deviation-Request-Form_05102022 for more detail.

Although we know this puts our project at risk, we planned and hold the Local Stakeholder Consultation Meeting for the continuity of the project. Furthermore, while we were conducting Project Survey for our regular project, we conducted another sample baseline survey and evaluated it, since its demographic and geographical structure is similar to that of our retroactive project. These unclear processes caused us to push the LSC meeting date forward.

The project targets to the communities in Uganda. An advert of the meeting was published in local newspaper to invite all interested local communities. Local policy makers, representative of local authorities, community leaders, NGOs and governmental organizations related with our project were also invited by e-mail on 28/10/2022. In order to facilitate the invitees to understand the purpose of the meeting and relevant information of the project, we introduced the key information of the project during the invitation. Non-technical summary of the project and Summary of Likely Contributions of the Project to Sustainable Development Goals (SDGs) were provided with in the invitation.

Adverts were translated into Luganda and posted up in different parts of Uganda. Invitation letters were sent via e-mail in both English and Luganda. In this way, we reached the local people who do not speak English. Please see B.1.2. for the invitation letter. Designated National Authority (Category D), international and local Non-governmental Organizations (Category E) are all accessed by email. Gold Standard representative (Category F) and the Gold Standard NGO supporters (Category G) have been invited by email invitations as well.

In some communities, power relations play a part in who may or may not voice an opinion or concern in a meeting. Therefore, excessive representation of a hierarchy or a specific gender in a physical meeting could be intimidating for stakeholder groups. Therefore, we arranged a single joint meeting involving all stakeholders. However, in focus group session, in order to ensure the active participation of women and to get their opinions, we will divide women and men into two separate groups.

Focus Group Session includes a discussion and evaluation on the contribution of our project to the Sustainable Development Goals. We aim to make women's voices heard

better by making the focus group session separately for men and women. In this way, we think that we will have a more efficient feedback session.

In addition to this, gender related NGOs, particularly active in Uganda, have been invited to the meeting via e-mail. The organizations that work on increasing capacities of women in rural areas have been accessed by email.

E.2 Final continuous input / grievance mechanism

Method	Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers.
Continuous Input / Grievance Expression Process Book (mandatory)	The logbook was placed in Kamuli Good Hope Educational Foundation. It will also be delivered to different locations.
GS Contact (mandatory)	help@goldstandard.org
Telephone access (optional)	We found that the most common and possible feedback mechanism in Uganda is telephone and e-mail. We recruited Luganda-speaking people from the local team to break the language barrier. Uganda: +256 756 593215 Türkiye: : +90 533 636 21 28
Internet/email access (optional)	We found that the most common and possible feedback mechanism in Uganda is telephone and e-mail. We recruited Luganda-speaking people from the local team to break the language barrier. Carbon Consultant : info@netzero.com.tr

The screenshots of the prepared Log book is presented as below;

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

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

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 1. Human Rights			
<ol style="list-style-type: none"> 1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights 2. The Project shall not discriminate with regards to participation and inclusion 	No	The project respects human rights requirements especially through the respect of internationally proclaimed human rights and Declaration of Human Rights. Also, the project will not discriminate in any way: safe water is distributed to all potential beneficiaries without any requirement or discrimination of any kind.	Not required
Principle 2. Gender Equality			
<ol style="list-style-type: none"> 1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender 	No	The Project will increase access of women to safe water. In particular, women and children may save time in wood collection that, in the baseline	Not required

<p>equality and/or the situation of women</p> <ol style="list-style-type: none"> 2. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work 3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks 4. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s) 		<p>scenario, is required to boil water for purification. It lowers women's workload and provide them with time to engage in other activities. Also, the improved access to safe water is foreseen to lead to decreased water born diseases, therefore reducing the time women spend for caring activities.</p> <p>Safe water is distributed to all local beneficiaries, both women and men.</p> <p>During the local stakeholder consultation and throughout the project's lifetime, women are welcome and encouraged to provide feedback about the project through various means of communication. All events (LSC meetings, hygiene campaigns) are planned and organized to avoid any discrimination of women or other marginalized groups.</p> <p>For jobs created, the equal pay for equal work principle is respected by the project developer as both women and men operate water boreholes and associated activities.</p>	
--	--	---	--

Principle 3. Community Health, Safety and Working Conditions			
<p>1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community</p>	<p>No</p>	<p>The project activities don't include exposing the community to increased health risks and is not adversely affecting the health of workers and the community. Both the construction of boreholes and their operation will respect the country's regulation and will not include any hazardous chemicals or material.</p> <p>In regard to the construction of the boreholes, criteria used to select providers include safety rules and work conditions.</p>	<p>The project is expected to have a positive effect on community health and safety. As a mitigation measure, the parameter of Water Hygiene education campaigns, Ongoing water quality indicated as the fraction of the samples that pass the test of bacterial quality to a standard of <1cfu/100ml (M_{q,y}) will be monitored during the crediting period.</p>
Principle 4.1 Sites of Cultural and Historical Heritage			
<p>Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?</p>	<p>No</p>	<p>The project activity doesn't include sites, structures or objects with historical, cultural, artistic, traditional, or religious values or intangible forms of culture. Places where boreholes are implemented are chosen in relation with local municipalities therefore it does not require alternation, damage or removal of any historical, artistic, traditional, religion or cultural heritage issues. In particular, the presence of grave,</p>	<p>Not required</p>
<p>>></p>			

		funeral site, pagoda is a criteria in site selection.	
Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	Boreholes are constructed on municipal land that are available and owned by commune in agreement with the municipalities and local communities. Thus, the implementation does not cause relocation of any people.	Not required
>>			
Principle 4.3 Land Tenure and Other Rights			
a. Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership? b. For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership?	No	Boreholes are usually constructed on privately owned lands. An agreement is signed between the project developer, the boreholes operator and the land owner stating the location of construction of the borehole as well as the water source that will be used. There is no uncertainty at any point.	Not required
>>			
Principle 4.4 - Indigenous people			
Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on	No	People have the same and equal access to the clean and safe water, and no one will be affected directly or indirectly in a negative way by the project.	Not required

land/territory claimed by indigenous peoples?		In addition, there are no indigenous people present within the area of influence nor the project is located on territory claimed by indigenous people.	
>>			
Principle 5. Corruption			
1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	No	<p>The project is implemented on the ground by the social enterprise. The ethical codes of the project partners are against corruption.</p> <p>The project doesn't involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.</p>	Not required
Principle 6.1 Labour Rights			
<p>1. The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions</p> <p>2. Workers shall be able to establish and join labour organisations</p>	NO	<p>The project developer is fully aligned with Uganda's national labour law and with the principles and standards embodied in the ILO fundamental conventions.</p> <p>The project developer does not restrict workers to be able to establish and join Labour organisations.</p> <p>No child labour is used at all.</p> <p>The project owner will sign contracts with employees. The labor contracts</p>	Not required

<p>3. Working agreements with all individual workers shall be documented and implemented and include:</p> <ul style="list-style-type: none"> 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. <p>4. No child labour is allowed (Exceptions for children</p>		<p>specify working hours, tasks and payments. All employees have benefits based on social security, pregnancy, maternity/paternity leave, or marital status according to the labor laws of Uganda. Besides, the employees also have the right to establish labour unions and to carry on labour union activities.</p>	
--	--	---	--

<p>working on their families' property requires an Expert Stakeholder opinion)</p> <p>5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures</p>			
<p>Principle 6.2 Negative Economic Consequences</p>			
<p>1. Does the project cause negative economic consequences during and after project implementation?</p>	<p>No</p>	<p>The construction of boreholes is financed by the project owner İSAR without any cost for local beneficiaries nor municipalities. No negative economic consequence is expected here. Operational costs of the boreholes also financed by the project owner İSAR.</p>	<p>Not required</p>
<p>>></p>		<p>In addition, local inhabitants and women and children in particular saved time thanks to the project as wood collection time reduced. Women might thus engage in income-generating activity. Also, each boreholes enabled</p>	

		the creation of several jobs for its operation, improving the economic activity of the workers.	
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project uses zero energy water purifier for water treatment, which does not generate any emissions. Therefore, the does not lead to an increase in greenhouse gas emissions over the baseline scenario.	Emissions in project scenario will be monitored and reported before first verification and every two years.
>>			
Principle 7.2 Energy Supply			
Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	NO	The project uses zero energy boreholes and will not use energy from the local grid or power supply or fuel resource supply that provides for other local users.	Not required
>>			
Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential,	No	The project is not involved in abstraction from water resources required to support biodiversity and other ecosystem services. It doesn't negatively affect the natural or pre-	Not required

lack of aquatic connectivity or water scarcity?		existing pattern of watercourses, groundwater and/or the watershed(s).	
>>			
Principle 8.2 Erosion and/or Water Body Instability			
a. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? b. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	The boreholes in the project could not directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion, and could not directly or indirectly impact on surface and ground waters or soil erosion on slopes.	Not required
>>			
Principle 9.1 Landscape Modification and Soil			
Does the Project involve the use of land and soil for production of crops or other products?	No	Boreholes are built on privately owned lands and don't involve the use of land and soil for production of crops or other products.	Not required
>>			
Principle 9.2 Vulnerability to Natural Disaster			
Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence,	No	The Project provides supply of safe and clean drinking water and is not susceptible to or will lead to increased	Not required

landslides, erosion, flooding, drought or other extreme climatic conditions?		vulnerability to any extreme climatic conditions.	
Fs>>			
Principle 9.3 Genetic Resources			
Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	No	The project uses ground water sources that are not impacted or do involve GMOs.	Not required
>>			
Principle 9.4 Release of pollutants			
Could the Project potentially result in the release of pollutants to the environment?	No	Boreholes in this project do not produce any emissions and releasing no pollutants to the environment.	Not required
>>			
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The project does not involve chemicals or materials subject to international bans or phase-outs. It does not involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous	Not required

>>		chemicals and/or materials.	
Principle 9.6 Pesticides & Fertilisers			
Will the Project involve the application of pesticides and/or fertilisers?	No	The project does not involve any application of pesticides and/or fertilizers.	Not required
>>			
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	No	The project does not involve the harvesting of forest. Indeed, less likely to collect wood to purify water as safe drinking water is distributed.	Not required
>>			
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The project does not involve the modification of the quantity or nutritional quality of food available.	Not required
>>			
Principle 9.9 Animal husbandry			
Will the Project involve animal husbandry?	No	The project does not involve animal husbandry.	Not required
>>			

Principle 9.10 High Conservation Value Areas and Critical Habitats			
Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	As the project reduces wood collection, it is more likely to affect forest areas in a positive way than negative. In addition, boreholes are constructed on privately owned lands in agreement with local politics so that they do not affect largely intact or HCV ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified.	Not required
>>			
Principle 9.11 Endangered Species			
a. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? b. Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No	The project activity does not have any foreseeable negative impacts on any endangered species.	Not required
>>			

APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	NET ZERO DANIŞMANLIK ANONİM ŞİRKETİ (PROJECT DEVELOPER)
Registration number with relevant authority	6311623375
Street/P.O. Box	DES 1. CAD
Building	DES TICARET MERKEZİ
City	ISTANBUL
State/Region	UMRANIYE
Postcode	
Country	TÜRKİYE
Telephone	+90 216 706 72 20
E-mail	info@netzero.com.tr
Website	https://netzero.com.tr/
Contact person	FULYA EKİNCİ ÖZEN
Title	GENERAL MANAGER
Salutation	MS.
Last name	EKİNCİ ÖZEN
Middle name	
First name	FULYA
Department	
Mobile	
Direct tel.	+90 216 706 72 20
Personal e-mail	fulya@netzero.com.tr

Organization name	İSAR İÇ VE DIŞ TİCARET ANONİM ŞİRKETİ (PROJECT OWNER)
Registration number with relevant authority	4800515985
Street/P.O. Box	AKDENİZ CADDESİ NO:102
Building	
City	İSTANBUL
State/Region	FATİH
Postcode	
Country	TÜRKİYE
Telephone	+90 532 540 90 54
E-mail	AHMET.DIVLELI@ISAR.CO
Website	
Contact person	AHMET DIVLELI
Title	
Salutation	MR.
Last name	DIVLELI
Middle name	
First name	AHMET
Department	
Mobile	+90 532 540 90 54
Direct tel.	
Personal e-mail	AHMET.DIVLELI@ISAR.CO

APPENDIX 3- LUF ADDITIONAL INFORMATION

Not applicable.

APPENDIX 4-SUMMARY OF APPROVED DESIGN CHANGES

Not applicable.

Revision History

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