TITLE OF THE MICRO-PROGRAMME:_GS1247 – Improved Kitchen Regimes Multi Country PoA

ANNEX AO – THE GOLD STANDARD MICRO-PROGRAMME ACTIVITY DESIGN DOCUMENT TEMPLATE (VPA-DD)

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Annexes

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SECTION A. General description of micro-programme activity (VPA)

A.1. Title of the micro-scale VPA:

GS5038 VPA 65 in GS1247 Zoba Debub Community Boreholes

08/03/2017

Version 1.3

A.2. Description of the micro-scale VPA:

The Micro-Scale VPA 65 Zoba Debub Community Boreholes Project is eligible under the Gold Standard methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 1. The projects will support the provision of safe water using borehole technology to hundreds of households within the mentioned Zoba Debub district. By providing safe water, the project will ensure that households consume less firewood during the process of water purification and as a result there shall be a reduction of carbon dioxide emissions from the combustion process.

The Zoba Debub District is a largely rural district where local people typically use wood fuel on inefficient three stone fires to purify their drinking, cleaning and washing water. This process results in the release of greenhouse gas emissions from the combustion of wood - this can be avoided if a technology that does not require fuel (wood or fossil) supplies clean water desired by households.

Many existing boreholes are owned by community groups or community based organizations (CBOs) and have fallen into disrepair because maintenance programmes have been poorly managed, or proven too expensive. In this project CO2balance will work with community groups in Zoba Debub, Eritrea to identify broken down boreholes and renovate them so that they deliver clean, safe water and breakdowns are fixed rapidly. The boreholes included under the project will be entirely human operated and will be fitted with hand pump models that are commonly used in the area such as India Mark II pumps. The depth of the boreholes will be limited to 100m or less.

The number of boreholes per VPA will be limited by the amount of pure water supplied by each unit; based on ex ante calculations, the maximum number of boreholes that can be rehabilitated in one VPA to achieve 10,000 tCO2e is 12. CO2balance will rehabilitate and deliver the maintenance programme for the boreholes to ensure that the quality of the water delivered by the boreholes is fit for human consumption for the entire length of the project, which will be a minimum seven years.

CO2balance gets funding for this project by marketing the anticipated carbon credits from the wood savings to ethical investors, so borehole owners must agree to transfer the emissions reductions over to CO2balance in return for them supplying the work to renovate the boreholes. This project will be developed under the Gold Standard carbon credit body, which in addition to checking that the carbon credits from this project are real, also measures local social, environmental and economical impact.

This project activity will be implemented in the following manner

1. Determine which boreholes are the most feasible to repair in terms of community interest/participation and technical viability

2. Rehabilitate the boreholes into full working order, commencing the crediting of the project activity.

3. Deliver an annual maintenance programme to ensure that the water supplied by each borehole is pure and that the borehole remains in full working order for the length of the crediting period.

Monitoring data collected during the rehabilitation and operation of the boreholes will be captured in an electronic data management system, or monitoring database. From this data, the emissions reductions of the VPA will be determined. This system will be available for review during the validation and verification.

Contribution to Sustainable Development

The Micro-Scale VPA 65 Zoba Debub Community Boreholes Project contributes to the sustainable development of the project area in a number of ways:

i. Environmental

- The VPA will help significantly reduce greenhouse gas emissions over its lifetime.
- The VPA will help reduce the use of non-renewable biomass from forests, assisting with the preservation of existing forest stock, protecting natural forest eco-systems and wildlife habitats.
- The protection of standing forests will ensure the maintenance of watersheds that regulate water table levels and prevent flash flooding. A reduction in fire wood consumption will lead to reduced deforestation and therefore reduced erosion and nutrient loss.

ii. Social

- The incidence of illness and disease caused by drinking dirty water will be reduced
- The amount of indoor pollutants from the burning of biomass in the family home will be reduced. Less
- Carbon Dioxide (CO2), Carbon Monoxide (CO) and particulates will be emitted, reducing the likelihood of respiratory diseases and thus impacting positively on the health of the households.
- Less time will need to be spent purifying water, allowing greater opportunity to focus on other household tasks and the supervision of children.

iii. Economic

- The project will benefit the rural economy by providing employment in the maintenance and monitoring of the boreholes.
- Costs incurred in the purchase of fuel will be reduced, allowing more money to be spent on food, health care, education etc.

The project will deliver long-term, secure and simple contributions to sustainable development of the project area which, without carbon finance, would not exist.

A.3. Entity/individual responsible for the micro-scale VPA:

CO2balance UK Ltd is the Co-ordinating/Managing Entity which communicates with Gold Standard; the project is managed in the Host Country by Vita

A.4. Technical description of the micro-scale VPA:

A.4.1. Identification of the micro-scale VPA:

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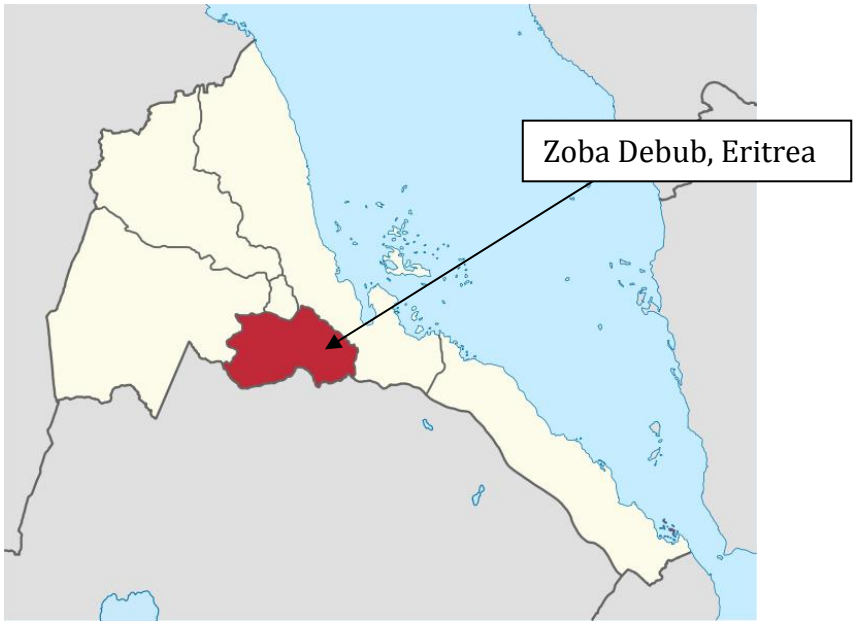
GS5038 VPA 65 Zoba Debub Community Boreholes

A.4.1.1. Host Party:

State of Eritrea

A.4.1.2. Geographic reference or other means of identification allowing the unique identification of the micro-scale VPA (maximum one page):

Below are details of the physical location to allow unique identification of the Micro-Scale Voluntary Project Activity 65 Zoba Debub Community Boreholes Project. The district is marked in green on the Google Earth image. The target area and the fuel collection area are defined as being contained within the project boundary, with the outer limits of the project boundary being clearly defined below, as the red and two green regions on this Google Earth file. As the majority of beneficiaries collect their wood fuel locally in close proximity to their homesteads, the woodfuel collection area and target area are considered the same.



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Project Area Coordinates		
	Latitude	Longitude
GPS1	14.674048°	38.262243°
GPS2	14.912112°	38.222587°
GPS3	15.186781°	38.392505°
GPS4	15.270219°	39.083873°
GPS5	14.841412°	39.670669°
GPS6	14.404751°	39.282490°

A.4.2. Duration of the micro--scale VPA:

A.4.2.1. Starting date of the micro--scale VPA:

21/10/2016*

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*Start date is defined as the commencement of rehabilitation of the first borehole in the VPA.

A.4.2.2. Expected operational lifetime of the micro--scale VPA:

7 Years

A.4.3. Choice of the crediting period and related information:

Renewable crediting period

A.4.3.1. Starting date of the crediting period:

22/10/2016

A.4.3.2. Length of the crediting period, first crediting period if the choice is renewable CP:

7 years renewable

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

Year	Annual estimation of emission reduction of tCO_2-e
22/10/16 – 21/10/2017	10,000
22/10/17 – 21/10/2018	10,000
22/10/18 – 21/10/2019	10,000
22/10/19 – 21/10/2020	10,000
22/10/20 – 21/10/2021	10,000
22/10/21 – 21/10/2022	10,000
22/10/22 – 21/10/2023	10,000
Total estimated emission reductions (tCO_2-e)	70,000
Total number of crediting years	7
Annual average over crediting period of estimated reductions (tCO_2-e)	10,000

A.4.5. Public funding of the VPA:

There is no public or ODA funding for this project activity, all revenue for the project will be derived from the sales of VERs. Please see the signed ODA declaration form in Annex 2.

A.4.6. Confirmation that micro--scale VPA is neither registered as an individual GS project activity or with any other standard or is part of another Registered PoA:

The mVPA is neither registered as an individual GS Project Activity or with any other standard, nor is it part of another Registered PoA.

SECTION B. Eligibility of micro--scale VPA and Estimation of emissions reductions

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B.1. Title and reference of the Registered PoA to which micro--scale VPA is added; title of baseline and monitoring methodology applicable to the VPA:

Methodology Requirement	Project
1. 'The project boundary can be clearly identified, and the technologies counted in the project are not included in another voluntary market or CDM project activity.	The project area (The District of Zoba Debub) has been clearly demarcated using political boundaries recognized in Eritrea. Each technology will be recorded using GPS coordinates and individually tagged with an identification code which is stored securely in the project database. Regular project surveys together with distribution records will ensure that the technologies included in the project are not double counted.
2. Technologies have a continuous useful energy output of less than 150kW per unit (defined as total energy delivered usefully from start to end of operation of a unit divided by time of operation). For technologies or practices that do not deliver thermal energy in the project scenario but only displace thermal energy supplied in the baseline scenario, the 150kW threshold applies to the displaced baseline technology.	The project technology does not deliver thermal energy; the rehabilitation and installation of boreholes displace energy supplied in the baseline as they eliminate the need to purify water through boiling; the 150kw threshold therefore applies to the baseline technology. Boreholes displace energy supplied in the baseline as they eliminate the need to purify water through boiling. Based on the results of the WBT, the estimated energy output is 5 Kw which is well within the methodological limit of 150kw. This has been proven via calculation.
3. The use of the baseline technology as a backup or auxiliary technology in parallel with the improved technology introduced by the project activity is permitted as long as a mechanism is put into place to encourage the removal of the old technology and the definitive discontinuity of its use.	As noted in the Gold Standard Methodology p.4. *'the removal and continued non-use of three stone fires and other easily constructed traditional devices (the baseline technology replaced by this project activity) is in many cases unlikely and impractical to monitor.'* However, local people will be educated on the health and environmental benefits of abandoning inefficient use of the baseline technology. Furthermore a WASH program will be carried out parallel to the project which will help to increase awareness regarding water use, health and hygiene among local communities.
a) The project documentation must provide a clear description of the approach chosen and the monitoring plan must allow for a good understanding of the extent to which the baseline technology is still in use after the introduction of the improved technology, whether the existing baseline technology is not surrendered at the time of the introduction of the improved technology, or	Overall use of the baseline technology will be monitored in conjunction with that of the project technology, as will the emergence of any other baseline technology by targeted end users. As per the Methodology kitchen surveys will be carried out at regular intervals to determine any changes in baseline technology use.

whether a new baseline technology is acquired and put to use by targeted end users during the project crediting period.	
b)''The success of the mechanism put into place must therefore be monitored, and the approach must be adjusted if proven unsuccessful. If an old technology remains in use in parallel with the improved technology, corresponding emissions must of course be accounted for as part of the project emissions.''	Parallel baseline technology use (three stone fires or traditional equivalent) will be revealed during monitoring and its effect on emissions reductions will be captured in the parameter Q, p, clean boil, y and in the usage surveys. The uptake rate U will also be determined by surveys and hence used to account for parallel baseline and project technology use.
4. The project proponent must clearly communicate to all project participants the entity that is claiming ownership rights of and selling the emission reductions resulting from the project activity. This must be communicated to the technology producers and the retailers of the improved technology or the renewable fuel in use in the project situation by contract or clear written assertions in the transaction paperwork, If the claimants are not the project technology end users, the end users should be notified that they cannot claim for emission reductions from the project	A full explanation will be given to elected representatives of borehole users that co2balance have committed to provide them with a rehabilitated and fully maintained for free on the basis that the emissions reductions will be transferred to co2balance. This will be recorded using a Carbon Transfer Form, which elected representatives of borehole owners will sign confirming that they understand the agreement and will explain it to borehole users.
5. Project activities making use of a new biomass feedstock in the project situation (e.g. shift from non-renewable to green charcoal, plant oil or renewable biomass briquettes) must comply with relevant Gold Standard specific requirements for biomass related project activities, as defined in the latest version of the Gold Standard rules.	As the technology used in this project has been specifically designed to displace baseline feedstock use via fuelwood, rather than a new biomass feedstock, this criterion is not applicable to this project. The emission reductions from this project will result from a change in quantity of fuel consumed, rather than change of fuel type.
a)Adequate evidence is supplied to demonstrate that indoor air pollution (IAP) levels are not worsened compared to the baseline, and greenhouse gases (as listed in section II.1) emitted by the project fuel/stove combination are estimated with adequate precision. The project	The fuel used in both the project and baseline scenario is the same, as such there are no additional harmful gases released in the project scenario. The baseline technology has also not changed; rather its use will have been eliminated.

fuel/stove combination may include instances in which the project stove is a baseline stove.	
b) Records of renewable fuel sales may not be used as sole parameters for emission reduction calculation, but may be used as data informing the equations in section II of this methodology if correlated to data on distribution and results of field tests and surveys confirming (a) actual use of the renewable fuel and usage patterns such as average fraction of non-renewable fuels used in mixed combustion or seasonal variation of fuel types, (b) GHG emissions, (c) evidence of CO levels not deteriorating (d) any further factors effecting emission reductions significantly.	Renewable fuels are not sold as part of this project therefore this point is not applicable.

B.2. Justification of why the micro--scale VPA is eligible to be included in the Registered PoA:

Eligibility Criteria	Description	Means of Verification (Checked at VPA Inclusion)
VPA Location and Project Boundary	The geographical boundary within which the technologies are installed will be within the Project Boundary outlined in Section A.4.1.2	The location of VPA 65 is specified in Section A.4.1.2, in which the CME states that the location is within Eritrea; one of the countries outlined in the PoA-DD. Each VPA will be uniquely defined by a range of GPS coordinates and current administrative maps to define the project boundary.
Scale of the Activity	Emission reductions achieved by each one of the activities considered under the micro-scale programme are limited to a maximum of 10,000 tonnes of CO2e in any year of their crediting period.	The total number of emission reductions in this VPA will be limited to 10,000t CO2
Technology and Target Group	Each VPA will involve the distribution and installation of	This VPA will involve the repair and rehabilitation of boreholes

	efficient cook stoves and/or household level water technology, to households and/or communities currently cooking with firewood on a traditional three-stone stove, for domestic purposes and/or currently boiling water as a treatment method before consumption.	that supply water to households currently boiling water as a treatment method (taking into account suppressed demand). Suppressed demand will be determined through a set of questions in the baseline survey that establish the method 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.
Technology Output	The technologies will each have continuous energy outputs of less than 150kW per unit. This will be applied to the baseline technology with regards to the water technology units.	Calculations for the specific technology show that they are within the 150kW Limit. The estimated energy output of the baseline technology is 5 Kw, however, following the rehabilitation of the borehole is 0 Kw.
Baseline	The characteristics and current biomass/water consumption of households in the baseline scenario will be identified for each VPA.	A modified Water Boiling Test (WBT) has been carried out for the District of Zoba Debub in Eritrea.
Methodology	Each VPA will be in compliance with Gold Standard Methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 1	The applicability of the methodology is justified in Section B.1 and applies to each VPA.
Additionality	Each VPA will demonstrate additionality according to the criteria outlined in Section D.5 of the PoA-DD.	In accordance with the Micro-Programme rules, any activity meeting one of the criteria outlined in Section D.5 shall be deemed additional. This VPA is within Eritrea, an LDC and is therefore additional.
Carbon Transfer	It will be clearly communicated that co2balance is the entity that is claiming ownership rights of and	At the point of technology installation, a Carbon Transfer Form (CTF) will be signed and

	selling the emission reductions resulting from the project activity.	uploaded to our database stating that the rights to the carbon credits will lie with co2balance. An elected representative from each water resources committee responsible for a borehole will sign a CTF on behalf of all users thereof.
Non-Diversion of ODA	There will be no public funding or ODA for any of the proposed VPA's.	A declaration confirming that there is no diversion of public funding for this VPA is attached with the VPA-DD.
Avoiding Double Counting of Emission Reductions	Each VPA will ensure double counting of emission reductions is avoided, through the unique identification of each technology with an identification number.	Each borehole rehabilitated and installed in this POA will be GPS referenced ensuring that they are uniquely identifiable to this project.
Avoiding Double Counting of Programme Activities	Each VPA will show that it is exclusive to the PoA and not registered as another project activity or VPA under another PoA.	This VPA is neither registered as a project activity with GS or any other standard or as a VPA of another PoA. The appropriate registries (Gold Standard and CDM) can be accessed to demonstrate this.

Sustainable Development Criteria

Eligibility Criteria	Description	Means of Verification (Checked at VPA Inclusion)
Air Quality	Both the efficient cook stove and water technologies will result in an improvement in indoor air quality.	The air quality will be measured indirectly through wood consumption as part of the Sustainability Monitoring.

B.3. Assessment and demonstration of additionality of the micro--scale VPA:

N/A

B.3.1 Description of how the anthropogenic emissions of GHG by sources are reduced as per the eligibility criteria defined in the registered micro-programme *(when Additionality is demonstrated at the micro- programme level)*:

N/A

B.3.2 Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered micro-scale project activity *(when Additionality is demonstrated at the activity level)*:

As outlined in Section D.5 of the PoA-DD, the Micro-Scale VPA is deemed additional as the project activity is located in Eritrea, which is an LDC.

B.4. Description of the sources and gases included in the project boundary and proof that the micro--scale VPA is located within the geographical boundary of the registered PoA.

The sources listed below are included in the project boundary. The mVPA is limited to Zoba Debub District which is within Eritrea, as illustrated in Section 4.1.2, therefore within the geographical boundary of the registered PoA.

	Source	Gas	Included?	Justification / Explanation
Baseline	Combustion of fossil fuels	CO_2	Yes	Important source of emissions
	Combustion of fossil fuels	CH_4	Yes	Important source of emissions
	Combustion of fossil fuels	N_2O	Yes	Gas included in the calculations. Emissions factors for fuel in stationery combustion by the IPCC
Project Activity	Combustion of fossil fuels	CO_2	Yes	Important source of emissions
	Combustion of fossil fuels	CH_4	Yes	Important source of emissions
	Combustion of fossil fuels	N_2O	Yes	Gas included in the calculations. Emissions factors for fuel in stationery combustion by the IPCC

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B.5. Emission reductions:

B.5.1. Data and parameters that are available at validation:

Data / Parameter:	$EF_{b,co2}$
Data unit:	tco_2/TJ
Description:	co_2 emission factor arising from use of fuels in baseline scenario
Source of data used:	Volume 2: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2, Table 2.5
Value applied:	112
Justification of the choice of data or description of measurement methods and procedures actually applied:	Deemed valid by Methodology
Any comment:	-

Data / Parameter:	$EF_{b,non\ co2}$
Data unit:	tco_2/TJ
Description:	Non-co_2 emission factor arising from use of fuels in baseline scenario
Source of data used:	Default emissions factor: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html#table-2-14 Global Warming Potential: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html#table-2-14
Value applied:	8.692
Justification of the choice of data or description of measurement methods and procedures actually applied:	Deemed valid by Methodology
Any comment:	-

Data / Parameter:	$EF_{p,co2}$
Data unit:	tco_2/TJ
Description:	co_2 emission factor arising from use of wood fuel in project scenario
Source of data used:	Volume 2: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2, Table 2.5
Value applied:	112
Justification of the choice of data or description of	Deemed valid by Methodology

measurement methods and procedures actually applied:	
Any comment:	-

Data / Parameter:	$EF_{p,non\ co2}$
Data unit:	tco_2/TJ
Description:	Non-co_2 emission factor arising from use of wood fuel in project scenario
Source of data used:	Default emissions factor: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html#table-2-14 Global Warming Potential: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html#table-2-14
Value applied:	8.692
Justification of the choice of data or description of measurement methods and procedures actually applied:	Deemed valid by Methodology
Any comment:	-

Data / Parameter:	NCV_b
Data unit:	TJ/ton
Description:	Net calorific value of the fuels used in the baseline
Source of data used:	http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf_Table 1.2
Value applied:	0.0156
Justification of the choice of data or description of measurement methods and procedures actually applied:	Deemed valid by Methodology
Any comment:	-

Data / Parameter:	NCV_p
Data unit:	TJ/ton
Description:	Net calorific value of the fuels used in the project
Source of data used:	http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf_Table 1.2
Value applied:	0.0156
Justification of the choice of data or description of measurement	Deemed valid by Methodology

methods and procedures actually applied:	
Any comment:	-

Data / Parameter:	$f_{NRB,i,y}$
Data unit:	Fractional non-renewability
Description:	Non-renewability status of woody biomass fuel in scenario i during year y
Source of data used:	CDM Default- https://cdm.unfccc.int/DNA/fNRB/index.html
Value applied:	0.97
Justification of the choice of data or description of measurement methods and procedures actually applied:	Default values of fraction of non-renewable biomass as outlined by the UNFCCC CDM http://cdm.unfccc.int/DNA/fNRB/index.html
Any comment:	-

Data / Parameter:	$W_{b,y}$
Data unit:	T/litre
Description:	Quantity of fuel that is used to treat 1 litre of water in the baseline scenario b during year y
Source of data to be used:	Baseline Water Boiling Test
Value of data applied for the purpose of calculating expected emission reductions	0.000310
Description of measurement methods and procedures to be applied:	The baseline water boiling test is used to determine the amount of wood used to purify 1 litre of water by boiling. This data is gathered according to: *Technologies and Practices to Displace Decentralized Thermal Energy Consumption* Version 1*, Draft General Guidelines On Sampling And Surveys*; EB37 Annex 27; and *Standard For Sampling And Surveys For CDM Project Activities and Programme of Activities* (Version 02); EB65 Annex 2
Any comment:	A modified version of the standard Water Boiling Test is used as a simulation of normal water purification methods. This measures the quantity of biomass fuel needed to purify 1 litre of water for 10 minutes, as required by the methodology.

Data / Parameter:	$W_{p,y}$
Data unit:	T/litre
Description:	Quantity of fuel that is used to treat 1 litre of water in the project scenario p during year y
Source of data to be used:	Baseline Water Boiling Test
Value of data applied for the purpose of	0.000310

calculating expected emission reductions	
Description of measurement methods and procedures to be applied:	The baseline water boiling test is used to determine the amount of wood used to purify 1 litre of water by boiling. This data is gathered according to: *Technologies and Practices to Displace Decentralized Thermal Energy Consumption* Version 1*, Draft General Guidelines On Sampling And Surveys*; EB37 Annex 27; and *Standard For Sampling And Surveys For CDM Project Activities and Programme of Activities* (Version 02); EB65 Annex 2
Any comment:	If the monitoring surveys indicate that baseline water boiling technologies significantly change during the crediting period, then a new baseline water boiling test will be conducted.

Data / Parameter:	Cj
Data unit:	Percentage
Description:	Portion of users of project safe water supply who were already in baseline using a non-boiling safe water supply
Source of data used:	Baseline Study
Value applied:	0.00
Justification of the choice of data or description of measurement methods and procedures actually applied:	Deemed valid by Methodology
Any comment:	-

Data / Parameter:	Xboil Non Suppressed Demand
Data unit:	Percentage
Description:	Percentage of premises that in the absence of the project activity would have used non-GHG emitting technologies like chlorine treatment techniques (if available) in the project boundary,.
Source of data used:	Baseline study. Credible literature, studies, survey, reports, relevant to the project target area
Value applied:	100%
Justification of the choice of data or description of measurement methods and procedures actually applied:	Suppressed demand will be determined through a set of questions in the project survey that establish the method households use to purify their water, if any, and what barriers, if any, prevent the purification of water. This is in line with the Gold Standard principles of suppressed demand outline in annex 2. A fixed suppressed demand baseline has been opted for, however , in the event the project surveys show a substantial change in fuel use characteristics, a new baseline shall be conducted.
Any comment:	-

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B.5.2. Ex-ante calculation of emission reductions:

To be inserted when Project Technology Days and water boiling test results are received.

Baseline Emissions

$$BE_{b,y} = B_{b,y} * \left(\left(fNRB_y * EF_{b,fuel,co2} \right) + EF_{b,fuel,nonco2} \right) * NCV_{b,fuel}$$

Where:

$$B_{b,y} = \left(1 - C_j\right) * N_{j,y} * W_{i,y} * \left(Q_{j,y} + Q_{j,rawboil,y}\right) \quad (11)$$

Where:

$N_{j,y}$	Number of person.days consuming water supplied by project scenario p through year y[47]
C_j	Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it
$B_{b,y}$	Quantity of fuel consumed in baseline scenario b during the year y in tons
$Q_{p,y}$	Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day
$Q_{p,rawboil,y}$	Quantity of raw water boiled in the project scenario p per person per day
$W_{b,y}$	Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b during project year y, as per Baseline Water Boiling Test.

Project Emissions

$$PE_{p,y} = B_{p,y} * \left(\left(fNRB_y * EF_{p,fuel,co2} \right) + EF_{p,fuel,nonco2} \right) * NCV_{p,fuel}$$

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

$Ery = Ery_{-1} * (1 - Xboil)$

Where:

$N_{p,y}$	Number of person.days consuming water supplied by project scenario p through year y

C_j	Expressed as a percentage, this is the portion of users of the project technology j or who in the baseline were already consuming safe water without boiling it
$B_{p,y}$	Quantity of fuel consumed in project scenario p during the year y in tons
$Q_{p,rawboil,y}$	Quantity of raw water boiled in the project scenario p per person per day
$Q_{p,cleanboil,y}$	Quantity of safe water boiled in the project scenario p per person per day
$W_{p,y}$	Quantity of wood fuel or fossil fuel in tons required to treat 1 litre of water using technologies representative of the project scenario p during project year y

Xboil Percentage of non-supressed demand users

Leakage:

The potential sources of leakage listed in the methodology have been investigated, and addressed below:

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

In all cases the baseline technologies displaced are three stones; these have no market value and are not a product as such. There is nothing limiting the use of three stone cooking across the country (the technology is lowest rung on the energy ladder and the price is zero), which is why this cooking method is so widespread. In any case the primary purpose of these three rocks is for cooking so they will not be replaced/displaced in their entirety as a result of this project - which means they will not be reused outside the project boundary. This leakage source can therefore be discounted.

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

There is no evidence to suggest significant (if any) use of renewable energy for purifying water in the project region as found in the Baseline Water Surveys. As solar purification devices are not used, renewable energy used for purifying water would likely be animal dung or crop residues which will be used due to ease of availability/proximity to the home rather than due to a shortage of wood fuel, therefore it is an independent factor. This leakage source can therefore be discounted.

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

There are currently no other CDM or VER projects in the project area, however, this will be reviewed biennially.

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

The space heating effect of boiling water for purification purposes will be minimal, as the predominant use of baseline technology is for cooking. Therefore it is highly unlikely that another technology will be used for heating when users no longer boil water.

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

This project is not marketing efficient technology; it is eliminating the need for a fuel based technology to deliver pure water. Lower emission technology substitution within households is therefore not possible and this leakage source can therefore be discounted.

A value of 0 is applied for leakage, which will be monitored biennially, following first verification as per the requirements of the methodology.

Overall Emission Reductions

$$ER_y = \Sigma BE_{b,y} - \Sigma PE_{p,y} - \Sigma LE_{p,y}$$

For full calculations please see accompanying 'Ex-Ante Calculations Spreadsheet.'

B.5.3. Summary of the ex-ante estimation of emission reductions:

Year	Estimation of project activity emission (tCO_2)	Estimation of baseline emissions (tCO_2)	Usage Rate	Estimation of leakage (tCO_2)	Estimation of overall emission reductions (tCO_2)	Estimation of overall emission reductions after Suppressed Demand discount (tCO_2)
21/10/16 – 20/10/2017	0	11,111	0.90	0	10,000	10,000
21/10/17 – 20/10/2018	0	11,111	0.90	0	10,000	10,000
21/10/18 – 20/10/2019	0	11,111	0.90	0	10,000	10,000
21/10/19 – 20/10/2020	0	11,111	0.90	0	10,000	10,000
21/10/20 – 20/10/2021	0	11,111	0.90	0	10,000	10,000
21/10/21 – 20/10/2022	0	11,111	0.90	0	10,000	10,000
21/10/22 – 20/10/2023	0	11,111	0.90	0	10,000	10,000

B.6. Application of the monitoring methodology and description of the monitoring plan:

B.6.1. Description of the monitoring plan:

Cross-sampling

As explained in the monitoring plan, cross sampling of devices will be applied across all homogenous VPAs in Zoba Debub district

Individual participants will be selected from the borehole user data base using the random selection process outlined in the monitoring plan. See Monitoring Plan document. Sample sizes will be in line with the Gold Standard requirements The surveys below will be monitored under the cross sampling approach;

- Project Surveys- Completed annually,
- Usage Surveys- Completed annually,
- Water Consumption Field Tests- Completed annually,

The surveys will be conducted so as to ensure that they are within the end date of the respective monitoring periods for each VPA.

A. Installation Record

A comprehensive installation record will record the following information:

- Date of installation/rehabilitation
- GPS location of the borehole
- Model of the borehole
- Quantity of boreholes installed
- The total number of people obtaining their water from each borehole
- Mode of use: commercial/domestic

The installation record will be backed up electronically, with original documentation being stored in the appropriate office for the respective VPAs.

B. Project Database

The project database will be derived from the Installation Record, with project technologies differentiated by different project scenarios (if required).

All data collected in relation to the project will be held in the local office and/or on the Project Database for the entire life cycle of the project and a period of 2 years afterwards. The data may be archived during the project in order to maintain clarity and security.

C. Ongoing Monitoring Studies

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The following ongoing monitoring studies are conducted for each project scenario following verification of the associated initial project studies.

a) *Monitoring survey -Completed annually, prior to first verification and then every year after first verification*

The monitoring survey aims to explore changes in project scenario. It is also used to determine the Xboil parameter.

b) *Water consumption field test* - Completed annually, prior to first verification and then every year after first verification

The water consumption field test determines three parameters *viz* Q,p,y – the quantity of water supplied in the project scenario using the clean water supply technology; Q p,rawboil,y – the raw or unsafe water that is still boiled after installation of the water supply technology and Qp, cleanboil,y – quantity of safe water boiled in the project scenario after installation of the water supply technology.

The measurement method used is similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. The WCFT measures three different water uses only, i.e. for drinking, cooking and basic personal and gender related hygiene. It will be carried out by staff trained by co2balance to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by co2balance UK Ltd

c) *Usage Survey*- Completed annually, on time for any request of issuance

The usage survey provides a single usage parameter Up,y that is weighted based on drop off rates that are representative of the age distribution for project technologies in the installation record.

d) *Quality of the treated water* - Completed biennial, and in time for 1st verification

The quality of the treated water is assessed to ensure that it is fit for human consumption. It will be assessed in accordance with the Eritrea Bureau Standards The parameters used to assess the water quality will be in line with Eritrea Bureau Standards for potable water and all parameters will be shown to be within levels considered acceptable for domestic human consumption.

e) *Leakage Assessment*- Completed every other year

The potential sources of leakage will be investigated (LEp,y). If the assessment quantifies an increase in fuel consumption by the non-project households attributable to the project activity, then calculations will be adjusted to account for this.

f) *Non-renewable Biomass Assessment Update*- Reassessed at renewal of crediting period

In accordance with the methodology, the NRB assessment will remain fixed for the entire crediting period, although the project proponent may choose to reexamine the assessment at any time.

f)Np,y Project Technology Days

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Number of persons consuming water supplied by project scenario p through year y. Sum of the total number of people using each borehole in the project multiplied by the number of days crediting each borehole earns in this monitoring period. The total number of households using each borehole will be determined through information supplied by our NGO partner. Using this method, the total number of people using each borehole will be known and hence a figure for person days can be calculated. All monitoring tasks will be selected at random.

For further details and the full Monitoring Plan, see the attached 'Project Monitoring Plan' document.

Parameters Monitored

Data / Parameter:	N p,y
Data unit:	Project Technology Days
Description:	Number of persons consuming water supplied by project scenario p through year y
Source of data to be used:	Borehole Project Database
Value of data applied for the purpose of calculating expected emission reductions	2,611,685
Description of measurement methods and procedures to be applied:	Sum of the total number of people using each borehole in the project multiplied by the number of days crediting each borehole earns in this monitoring period
Any comment:	

Data / Parameter:	U p,y
Data unit:	Percentage
Description:	Usage rate in project scenario p through year y
Source of data to be used:	Annual Usage Survey
Value of data applied for the purpose of calculating expected emission reductions	Estimated at 0.90. Actual value to be provided in time for first verification
Description of measurement methods and procedures to be applied:	Annual usage survey will be carried out by staff trained by co2balance to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by co2balance UK Ltd
Any comment:	

Data / Parameter:	Qp,y
Data unit:	Litres per person per day

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Description:	Quantity of safe water supplied in the project scenario p during the year y using the zero or low emissions clean water supply technology
Source of data to be used:	Water Consumption Field Test (WCFT)
Value of data applied for the purpose of calculating expected emission reductions	7.5
Description of measurement methods and procedures to be applied:	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. Volume capped at 7.5 litres per person per day as per the methodology The WCFT will be carried out by staff trained by co2balance to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by co2balance UK Ltd
Any comment:	

Data / Parameter:	Qp,cleanboil,y
Data unit:	Litres per person per day
Description:	Quantity of safe water boiled in the project scenario p during the year y using the zero or low emissions clean water supply technology
Source of data to be used:	Water Consumption Field Test (WCFT)
Value of data applied for the purpose of calculating expected emission reductions	Estimated at 0. Actual value to be provided in time for first verification
Description of measurement methods and procedures to be applied:	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. The WCFT will be carried out by staff trained by co2balance to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by co2balance UK Ltd
Any comment:	

Data / Parameter:	Qp,rawboil, y
Data unit:	Litres per person per day

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Description:	The raw of unsafe water that is still boiled after installation of the water treatment technology
Source of data to be used:	
Value of data applied for the purpose of calculating expected emission reductions	0-Assumed in advance of data
Description of measurement methods and procedures to be applied:	Method used similar to Kitchen Performance Test in which the volume of water consumed in each household is averaged over 3 days. The WCFT will be carried out by staff trained by co2balance to meet the specific requirements of the methodology. All data presented in excel is subject to checking and cross referencing of a sample of the raw data by co2balance UK Ltd
Any comment:	

Data / Parameter:	Quality of Treated Water
Data unit:	Parameters as per national standards
Description:	Performance of the treatment technology
Source of data to be used:	Laboratory Tests
Value of data applied for the purpose of calculating expected emission reductions	-certfificates supplied at verification
Description of measurement methods and procedures to be applied:	The water quality will be tested in line with Eritrea Health Bureau Standards. CFUs Colony Forming Units of E-Coli shall meet the national standard.
Any comment:	

Data / Parameter:	LEp,y
Data unit:	tCO2e per year
Description:	Leakage in project scenario p during year y
Source of data to be used:	Baseline and monitoring surveys

Value of data applied for the purpose of calculating expected emission reductions	0
Description of measurement methods and procedures to be applied:	Assessed every two years using baseline and monitoring surveys
Any comment:	

SECTION C. Stakeholders' comments

C.1. Brief description how comments by local stakeholders have been invited and compiled:

Vita held a local stakeholder workshop for the repairing of the water boreholes on May 1, 2016 in Zoba Debub meeting hall. In the meeting around 70 participants were present which included:

- Governor and the Director General of Agriculture and Land
- 12 sub-zoba administrators
- Village administrators
- Representatives of the WASH committee
- Representatives of the National Union of Eritrean Women
- Representative elders
- Experts from water source departments
- Community service providers like the technicians
- Members of the community
- Vita representatives

Picture 1: The meeting was attended by nearly 70 participants

The LSC meeting was designed to cover multiple VPAs in the Zoba Debub district. These include, but is not limited to GS5038, GS5039, GS5040, GS5041, GS 5042, GS5043. In line with the Gold Standard Micro-Programme Rules, the following eligibility criteria must be complied with in order for a VPA to qualify under the group LSC;

- The project implementation activities are the same for all VPAs as outlined in section A.2 of the VPA-DD.
- The design of the boreholes is the same or is sufficiently similar within these VPAs.
- All VPAs covered by this stakeholder consultation must be implemented in the same geographic area: Zoba Debub District, Eritrea.
- The start date of implementation for all the VPAs is within a time-frame of 2 or 3 years.

Compliance with the above criteria will be demonstrated for each of the VPAs covered by the group LSC. This VPA complies with the group LSC approach.

The objective of this public meeting was to clarify the modalities of project implementation, to take into account concerns and recommendations of the stakeholders and finally to discuss the potential environmental and social impacts of the project in the area.

Picture 2: Stakeholders were encouraged to ask question about the projects

Current regulations in the country do not permit the use of TV/Radio/Megaphone advertisement to invite people to public meetings in Eritrea therefore participants could be invited only through the Sub-Zoba Administration. As there are complexities involved in issuing formal letters in Eritrea, the local stakeholder meeting communicated as a personal invitation through the local Administration according to Eritrean regulations. As 70 participants took part in the LSC it is evident that the local stakeholder consultation succeded in reaching the local stakeholders.

International NGOs with a presence in the area were also invited by email. Invitation letter to International Stakeholders:

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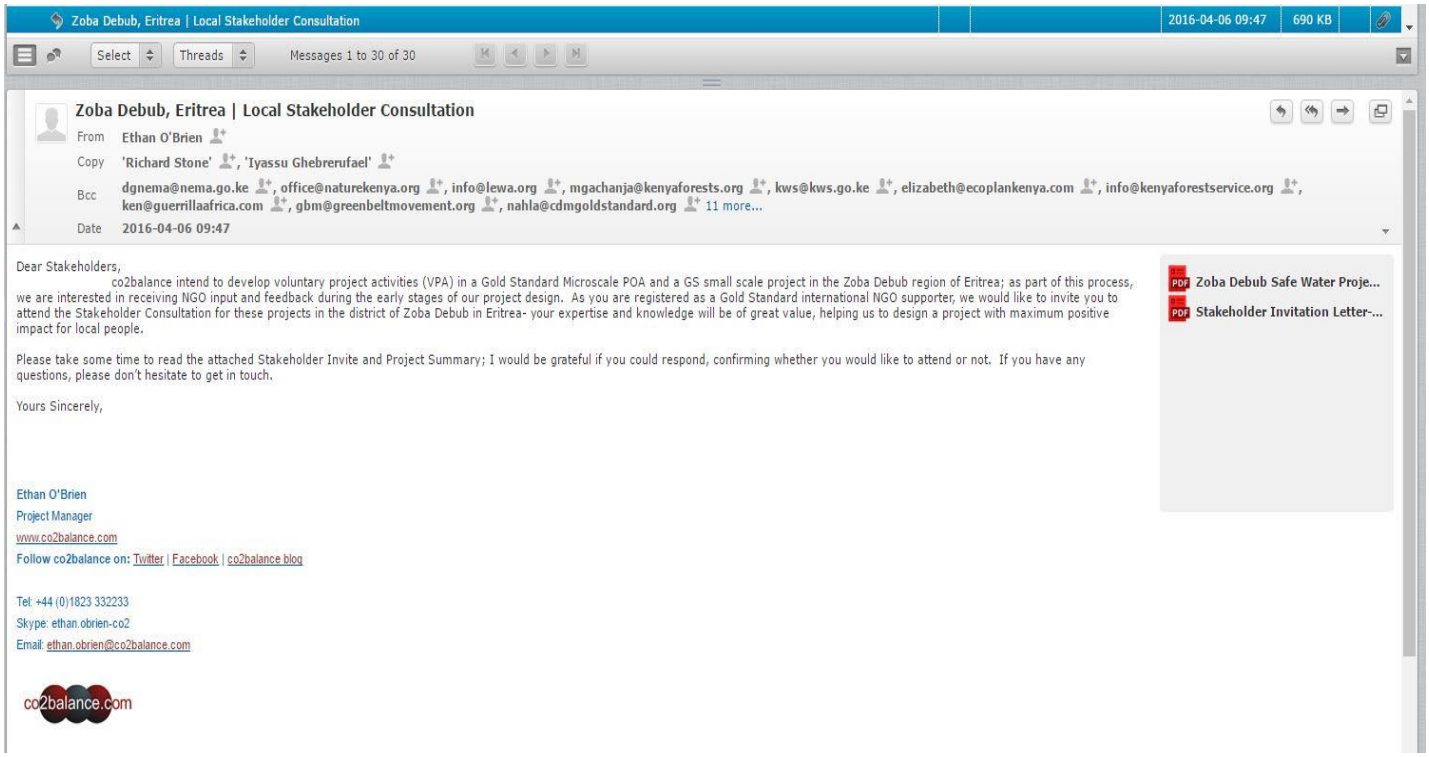

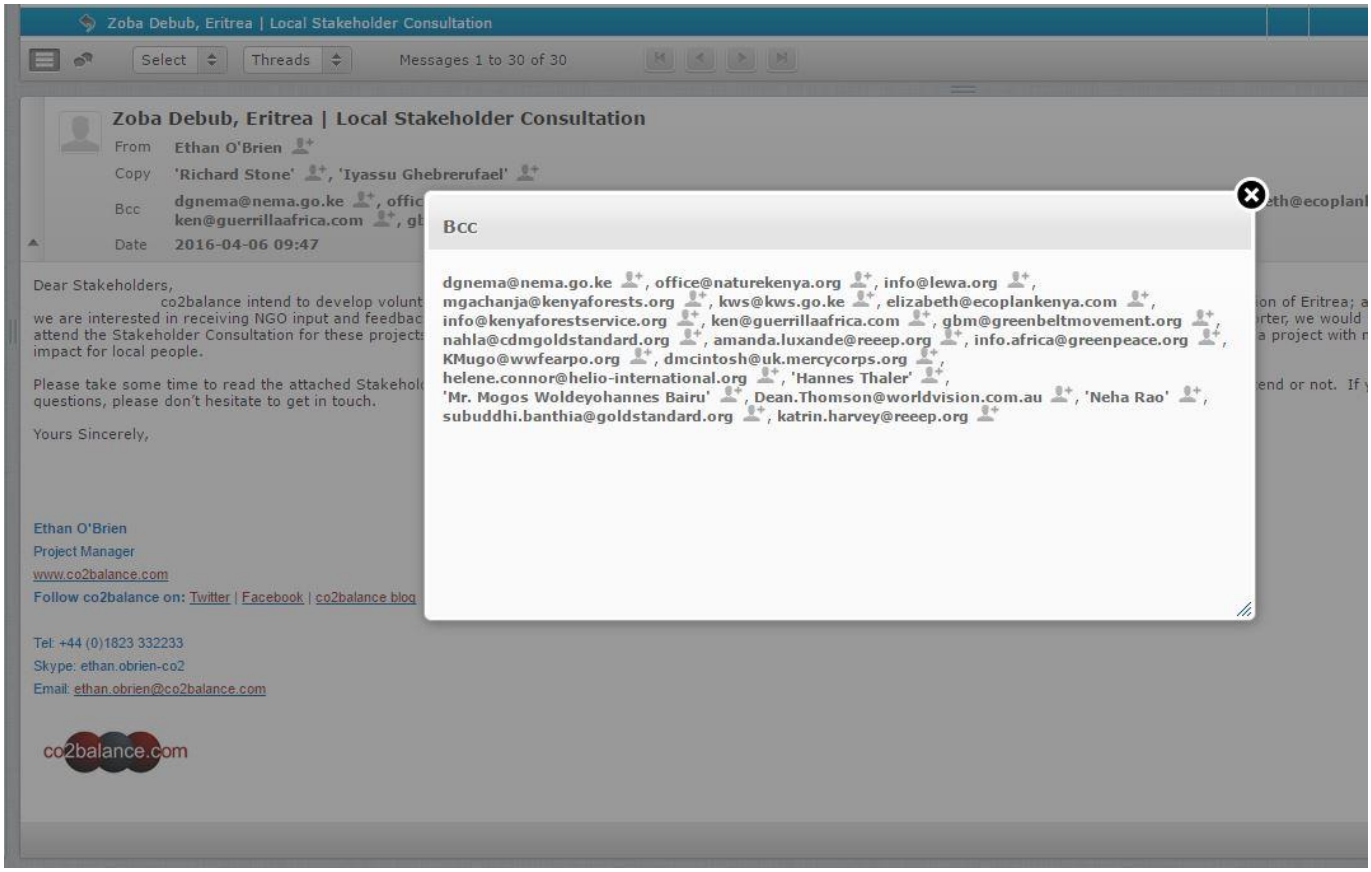

A 'tracking list' of invitations has been established for the stakeholder meeting to ensure that invitations are monitored and logged for responses.

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Category	Organisation	Name of Invitee	Method of invitation	Date sent	Confirmation Received?
D	Zoba Debub Government	Efrem Ghebrekrsos	Letter	01/04/2016	Yes
C	Agriculture and Land Department	Hailemichael Eyob	Letter	01/04/2016	Yes
C	Water Resource Department	Bereket Musazghi	Letter	01/04/2016	Yes
C	Water Resource Department	Tesfamichael Berhane	Letter	01/04/2016	Yes
C	Ministry of Health	Mohammed Abdella		01/04/2016	Yes
D	National Union for Eritrean Youth	Ghirmay Ghebru	Letter	01/04/2016	Yes
D	Zoba Debub National Union for Eritrean Women	Hugush Beraki	Letter	01/04/2016	Yes
B	Subzoba Segeneity	Abeba Aregay	Letter	01/04/2016	Yes
B	Subzoba Dbarwa	Abraham Teka	Letter	01/04/2016	Yes
B	Subzoba Mendefera	Abraham Hagos	Letter	01/04/2016	Yes
B	Subzoba Senafe	Hiskias Wubet	Letter	01/04/2016	Yes
B	Subzoba Dekemhare	Sium Gebrekirstos	Letter	01/04/2016	Yes
B	Subzoba Maimine	Frewengiel Gebrekirstos	Letter	01/04/2016	Yes
B	Subzoba Adiquala	Teklebrhan Mihreteab	Letter	01/04/2016	Yes
B	Subzoba Emnihaili	Berhane Mengesha	Letter	01/04/2016	Yes
B	Subzoba Areza	Ande Adhanom	Letter	01/04/2016	Yes
B	Subzoba Tsorona	Yemane Tsegay	Letter	01/04/2016	Yes
B	Subzoba Maiaini	Yemane Mebrhatu	Letter	01/04/2016	Yes
B	Subzoba Adikeih	Habte Kidane	Letter	01/04/2016	Yes
F	WWF Eastern Africa Regional Programme Office (EARPO),	Kimunya Mugo	Email	06/04/2016	No
F	Mercy Corps UK	Dory McIntosh	Email	06/04/2016	No
F	REEEP	Katrin Harvey	Email	06/04/2016	No
F	REEEP	Amanda Luxande	Email	06/04/2016	No
F	HELIO International	Helene O'Connor-Lajambe, Laura Williamson	Email	06/04/2016	No
F	Greenpeace Africa	Rianne Teule	Email	06/04/2016	No
F	World Vision Australia	Dean Thomson	Email	06/04/2016	No
E	Gold Standard	Johann Franz Thaler	Email	06/04/2016	No
E	Gold Standard	Subuddhi Banthia	Email	06/04/2016	No
E	Gold Standard	Nahla Sabet	Email	06/04/2016	No

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E	Gold Standard	Neha Rao	Email	06/04/2016	No

A non-technical summary was sent to international NGOs and is included below. Due to Eritrean regulations, prohibiting the distribution of leaflets, it was not possible to supply local stakeholders with the summary, however, at all times co2balance and Vita ensured that local stakeholders were fully informed of details of the project and the LSC. The full list of participants is provided in Section C.2.

Project Summary: Safe Water In Zoba Debub, Eritrea

Zoba Debub in central Eritrea is a semi-rural district in which local people must use wood fuel to purify their drinking, cleaning and washing water. This process results in the release of greenhouse gas emissions from the combustion of wood - this can be avoided if a technology that does not require fuel (wood or fossil) supplies clean water desired by households.

Many existing boreholes have fallen into disrepair because maintenance programmes have been poorly managed, or proven too expensive. In this project co2balance and Vita, an Irish Charity that works in Eritrea, will renovate broken boreholes so that they deliver clean, safe water. The project will ensure that the quality of the water delivered by the boreholes is fit for human consumption for the entire length of the project, which will be a minimum seven years.

The project gets funding for this project by marketing the anticipated carbon credits from the wood savings to ethical investors, so borehole owners must agree to transfer the potential emissions reductions over to Vita in return for them supplying the work and materials to renovate and maintain the boreholes. This project will be developed under the Gold Standard carbon credit body, which in addition to checking that the carbon credits from this project are real, also measures local social, environmental and economical impact.

Technology

The vast majority of pumps to be fixed are India Type II pump as shown below

Sustainable Development

In addition to supplying clean, safe water and greenhouse gas savings, this project will:

- Result in less wood used by households, which will reduce pressure on local ecosystems
- Reduced time spent collecting wood to boil water
- Reduced incidence of illness (and therefore less opportunity costs for families)
- Reduced expenditure on wood fuel, leaving money free for other household expenses
- Increase Community familiarity with planned preventative maintenance of boreholes

C.2.	Summary of the comments received:

The meeting started at 9:00 am and closed at 4:30 pm. The agenda of the meeting was to:

- Provide a brief introduction about the project
- Explanation of the project
    - Maintenance programme
        - Management of hand pumps
        - Storage of spare parts
        - Fencing of the hand pumps
    - Financing
    - Monitoring programme/grievance feedback
    - Community/environment benefits
- Discussion session on the contribution of the project to sustainable development
- Get stakeholders feedback- their concerns and opinions

Minutes for the meeting were recorded and are included below:

In the meeting the Governor, Mr. Efrem Ghebrekrstos, gave an opening speech, in which he said that water is a basic human necessity that impacts the health and wellbeing of people. Moreover, he informed that the Southern Region encompasses 12 sub-zones with 1018 villages and 800 thousand residents, in which there are only 404 hand pumps in the region which provide clean water but about 153 are not working. He added that over the last years, many hand pumps have malfunctioned, creating a serious water supply. This has largely impacted on the livelihood status of the communities in terms of travelling further for fetching water and fire wood, not accessing potable water has affected health of families and made livelihood difficult.
He further said that the project initiated by Vita to rehabilitate the broken hand pumps will be of a paramount importance as it will create a sustainable solution to get access to clean water and this will help communities to improve their lives by saving time and money spend for purifying water.

Following this, Mr. Iyassu, Vita Liaison Officer, briefed them on the objective of the project which is to supply clean, safe water by repairing the broken hand pumps. He further stated that the project will form 6 VPA's and one small scale and will get funds by marketing carbon credits for the entire length of the project. He also added that the project will ensure that households will no longer use firewood to purify their water. He further pointed out that time for fetching water from distances will be saved and used for other activities which will contribute in improving their livelihoods.

Regarding the management of the hand pumps the head of the water supply service in the Southern Region, Mr. Kibrom Misghina, said that the Indian Type II and III hand pumps have been used in the region for a long time and have proven to be of a best quality. He further said that the hand pumps work fine when used with proper care and sense of responsibility. Negligence and not willing to keep interest of other beneficiaries could not be tolerated. In the meeting Mr. Iyassu assured the participants that the needed spare parts are to be imported from India and to be stored in the store of the region. He reminded the participants that there is a need to have a clear recording system and that the villagers have to request it by the approval of the rural water supply branch.

Mr. Beraki Seltene, head of store said, "We will receive the spare parts as per purchase order and bill of loading, and prepare a goods-received-note. We will then issue spare parts as per the request made and approved by the appropriate officer. We then will keep records of spare parts issued as per goods-issued-note."

The problem of health, drinking contaminated water, sanitation, payment, and hiring a guard were raised and discussed in the meeting. It was said that the majority of people in the Southern Region live in rural areas and spend many hours every day walking to collect water for their family. This mainly affects women and children as children miss classes. The worst scenario is that the water is dirty and causes diseases. Health problems, like diarrhea caused by drinking contaminated water were noted. So, maintaining the broken hand pumps will assist in minimizing or curing absolutely such diseases and in turn will help community to be healthy and work hard to improve their livelihoods. With regard to sanitation it will be easier for the WASH committee to teach and advise the community to keep sanitation of their surrounding after getting clean water which is one of the determinant factors for having good sanitation. In addition it was said that the maintained hand pumps should be well fenced in order to keep animals from entering the water point. It was also mentioned that hiring a guard will be good to look after the hand pump.

The sub zoba administrators said that the villages' users always paid some amount of money for the usage of the water and it was collected by the WASH committee which in turn will be used for paying the spare parts and repair and maintenance charges. In the meeting, it was suggested that the WASH committee need to establish paying rates for using water and that proper records should be maintained.

The administrators confirmed that the WASH committee in each village will work hard to enable families and communities to achieve sustainable access to adequate potable water, improve sanitation facilities and good hygiene practices through formal and informal trainings, giving advice periodically and making necessary follow-ups.

Mr. Kibrom Misghina pointed out that training programs will be organized with regards to water management, health and sanitation and financing to the residents of the semi-urban centers and villages in the region.

The Director General, Mr. Hailemichael Eyob pointed out that hand pump repair and maintenance is an essential part of management which could not be done at regional level since it is expensive to especially get spare parts. So, as part of the project implementation team, the higher officials and administrators have to do their level best in implementing the project effectively.

The feedbacks of the participants were as follows:

- All the administrators were pleased that the broken hand pumps will be repaired and people will get clean water.
- Mustofa Ibrahim, head of the water supply said that access to safe and adequate domestic water is a requirement for survival. He further added that because the water availability in the region has not improved, disease caused by unsafe water especially diarrhea and cholera are still common.
- Mrs. Tirhas Habte from Dbarwa said that she was satisfied with the proceedings of the meeting of repairing the hand pumps and hoped that it will start soon and be continuous.
- Efrem Iyassu, head of technicians in the Southern Region said that most of the hand pumps had been out of function and there was no maintenance as there were no availability of spare parts in the local market.
- Mrs. Hugush Beraki, Chairman of the National Union of Eritrean Women said that women and girls especially bear the burden of walking long distance to gather wood and water from streams and rivers. Hence, this project will improve the lives of women.
- All the administrators expressed their readiness to strengthen their participation for the success of the project.

In the afternoon session the participants had a focused group discussion on the impact of the project.
The main points of the discussion were as follows:

- The rehabilitation of the hand pumps will **reduce indoor and outdoor pollution**, as people will no longer boil wood to clean their water.
- People were fetching water from open unprotected sources such as ponds and rivers in which there were a lot of incidence of water- borne diseases.
- As the result of **minimizing deforestation**, the presence of **more plant cover will reduce soil pollution** as the plants will absorb it.
- The project might not contribute to light pollution.
- It will **minimize deforestation (**destruction of trees and shrubs) hence **contributing to conservation of biodiversity as well as soil and water conservation**.
- The project will **provide job opportunities to many people, like technicians, guards, service providers** and others.
- The rehabilitation of hand pumps will provide **access to clean wate**r to the community which means health and more time to work and go to school.
- People collect fire wood to purify their water and this can be avoided if the hand pumps are repaired.
- Women and children spend most of their time fetching water and wood by walking long distances. At times they have to be absent from work and school due to water borne diseases.
- As there would be job vacancies there will definitely be income from employment.
- The project will generate income which will be invested into the region.
- The adoption of the hand pump is good for getting access to safe water.

The participants concluded that the project has a positive contribution to the sustainable development.

After the group discussion Mr. Iyassu thanked all the participants for their active participation, for their strong support and for contributing to fruitful discussions as well as providing crucial feedbacks. Moreover, he emphasized that the main aim of the project is to make measurable and sustainable improvements in water supply, sanitation, hygiene, and the overall environment in the communities.

To conclude the meeting, the Governor, Mr. Efrem Ghebrekrstos, reiterate the need to scale up and create a sustainable environment, encouraging partners like Vita to support and strongly reminded the administrators to support in all the endeavors required in implementing the project.

List of Participants of the Local Stakeholder Consultation
Date and time: May 1, 2016
Location: Zoba Debub, Meeting Hall

Category Code.	Name of participant	Gender	Job/Position in the community	Organization (if relevant)/Region	Contact details
B	Efrem Gebrekirstos	Male	Governor	Zoba Debub	Debub, 611300/208
B	Hailemicheal Eyob	Male	Director General	Agriculture and Land Dept.	Debub, 611363
B	Kibrom Nirayo	Male	Head	Administration and Finance Dept.	Debub, 611520
B	Gebru Haile	Male	Head	Infrastructure development	Debub
B	Tedros Tekle	Male	Head	Statistics & information	Debub
B	Isayas Ghile	Male	Head	Department of General Services	Debub, 07144568
B	Kibrom Misgina	Male	Head	Water Supply	Debub, 07153918
B	Tekeste Emmeha	Male	Head	Water Resources	Debub, 07203155
B	Kibrom Nizghi	Male	Member	Water Supply	Debub, 07291211
A	Gergis Tekle	Male	Senior	Technician	Debub,07366926
A	Beraki Siltane	Male	Head	Store	Debub
D	Hugush Beraki	Male	Chairman	National Union of Eritrean Women (NUEW)	Debub,611181
A	Mohammed Abdella	Male	Head	Hygiene and Sanitation	Debub
D	Ghirmay Gebru	Male	Chairman	National Union of Eritrean Youth	Debub
A	Abeba Aregay	Female	Administrator	Segeneiti	Segeneiti, 08695502

A	Abraham Teka	Male	Administrator	Dbarwa	Dbarwa, 08600168
A	Abraham Hagos	Male	Administrator	Mendefera	Mendefera,611007
A	Hiskias Wubet	Male	Administrator	Senafe	Senafe, 08696603
A	Sium Gebrekirstos	Male	Administrator	Dekemhare	Dekemhare, 641012
A	Frewengiel Gebrekirstos	Male	Administrator	Maimine	Maimine,07137491
A	Teklebrhan Mihreteab	Male	Administrator	Adiquala	Adiquala, 08602011
A	Berhane Mengesha	Male	Administrator	Eminihayli	Eminihayli, 7178329
A	Ande Adhanom	Male	Administrator	Areza	Areza, 07209479
A	Yemane Tsegay	Male	Administrator	Tsorona	Tsorona
A	Yemane Mebrhatu	Male	Administrator	Maiani	Maiani,07135551
A	Habte Kidane	Male	Administrator	Adi Keyhi	Adi Keyhi, 650011
A	Gebrekidan Debas	Male	Head	Economic development	Maiani,,07263639
A	Mehari Temano	Male	Head	Economic development	Segeneiti, 08695502
A	Tedros Abed	Male	Head	Economic development	Maimine, 07145383
A	Tekie Ayimut	Male	Village Manager	Areza	Areza
A	Negasi Tesfagergish	Male	Village Manager	Tsorena	Tsorena, 07360188
A	Mustofa Ibrahim	Male	Expert of water	Senafe	Senafe, 08696603
A	Debube Tesfamicheal	Male	Head of Economic development	Mendefera	Mendefera, 611007
A	Rezene Fisihaye	Male	Head of WASH Committee	Adikeyh	Adi Keyh, 650011
A	Micheal Sium	Male	Head of Economic development	Dekemhare	Dekemhare, 641012
A	Tesfay Gebru	Male	Head of WASH Committee	Dibarwa	Dibarwa,08600168
A	Berhane Weldesilasie	Male	Head of WASH Committee	Adi Quala	Adi Quala
A	Micheal Tekle	Male	Expert of water supply	Eminihayli	Eminihayli
A	Zeriay Deres	Male	Water supply department	Adi Keyhi	Adi Keyhi, 650033

A	Kiflom Teklizghi	Male	Head of Administration and finance	Senafe	Senafe
B	Gebru Gebremicheal	Male	Water supply department	Dekemhare	Dekemhare
B	Tadese Haile	Male	Water supply department	Mendefera	Mendefera
B	Araya Gebremariam	Male	Water supply department	Dbarwa	Dbarwa
A	Hailemicheal Kidane	Male	Head of WASH Committee	Adi Quala	Adi Quala
B	Ashebir Weldesilasie	Male	Representative	Water Resource Department	Zoba Debub
A	Yosief Tewelde	Male	Technician	Debub	Zoba Debub
A	Efrem Eyasu	Male	Service Provider	Debub	Zoba Debub
B	Trhas Habte	Female	Head	N.U.E.W	Dbarwa
A	Sirha Ali	Female	Representative	Senafe	Senafe
A	Kudusan Mebrahtu	Female		Adi Quala	Adi Quala
A	Tabotu Kesete	Female	Representative	Areza	Areza
A	Bereket Mosazghi	Male	Head	Economic development	Asmara, 07152347
C	Tesfamicheal Berhane	Male	Water Expert	Agriculture and Land Dept.	Asmara, 07141288
F	Iyassu Gebrerufael	Male	Liaison Officer	Vita	Asmara, 122103
F	Tesfay Yemane	Male	Head of Finance	Vita	Asmara, 122103
F	Yohana Habte	Female	Vita Representative	Vita	Asmara, 122103
F	Wenghelawit Asrat	Female	Vita Representative	Vita	Asmara, 122103
A	Tigisti Abreha	Female	Member of WASH Committee	Dekemhare	Dekemhare
D	Aberash Mesfin	Female	Representative	NUEW	Segeneity
A	Abrehet Beraki	Female	Member of WASH Committee	Adikeih	Adikeih
D	Rigbe Weldemariam	Female	Representative	NUEW	Mendefera
D	Mulu Uqubasilassie	Female	Representative	NUEW	Emnihaili
D	Saliha Mohammedberhan	Female	Representative	NUEY	Tsorona
A	Milashu Misghina	Female	Member	Maiaini	Maiani

A	Meselesh Leghese	Female	Member of WASH Committee	Maimine	Maimine

15 of the participants were women in the meeting, indicating a 1:4 gender ratio. Overall, the meeting was very successful, with stakeholders actively engaging with the project and participating in discussions. The stakeholders said that they found the meeting useful and informative, and the feedback concerning the project was positive.

C.3. Report on how due account was taken of any comments received and on measures taken to address concerns raised:

Evaluation of the Participants

	Name	**Mehari Temano**
1	What is your impression of the meeting?	The issues raised in the meeting and discussion made was very good.
2	What do you like about the borehole project?	Water is life and I am very pleased to see that the broken hand pumps will be maintained.
3	What do you not like about the borehole project?	None
4	Any other comments?	The hand pumps to be maintained soon & be ready for community use.
5	Signature	

	Name	**Kudusan Mebrahtu**
1	What is your impression of the meeting?	The meeting conducted was necessary and useful.
2	What do you like about the borehole project?	I am pleased that we will drink clean water.
3	What do you not like about the borehole project?	None
4	Any other comments?	Once the hand pumps are maintained community should use them with much care.
5	Signature	

	Name	**Yosief Tewelde**
1	What is your impression of the meeting?	Water is life and I am happy to see that the meeting is related to hand pumps maintenance.
2	What do you like about the borehole project?	I am totally pleased.
3	What do you not like about the borehole project?	None
4	Any other comments?	It is good if the hand pumps are maintained in good time.
5	Signature	

	Name	**Abraham Teka**
1	What is your impression of the meeting?	All participants of the meeting were having positive impression of meeting.
2	What do you like about the borehole project?	Water is one of the essential things of life and hand pumps maintenance is very pleasing.
3	What do you not like about the borehole project?	None
4	Any other comments?	After the hand pumps are maintained each community member should take care and consider it as his/her own property.
5	Signature	

	Name	**Kibrom Misghina**
1	What is your impression of the meeting?	The meeting was good as it was related to

		clean water and maintenance of hand pumps.
2	What do you like about the borehole project?	Water is life and I am pleased that the project is related to water and especially useful for children and mothers.
3	What do you not like about the borehole project?	None
4	Any other comments?	The program of maintaining hand pumps to be done as soon as possible so that community will get clean water.
5	Signature	

	Name	**Araya Gebremariam**
1	What is your impression of the meeting?	Meeting was good as it was related to hand pumps maintenance.
2	What do you like about the borehole project?	I am pleased that hand pumps maintenance will be done considering water is life.
3	What do you not like about the borehole project?	None
4	Any other comments?	The maintenance program to be carried out soon in order to get clean water.
5	Signature	

	Name	**Maekele Tesfamichael**
1	What is your impression of the meeting?	It was very interesting and helped us to raise our awareness.
2	What do you like about the borehole project?	We are going to get clean water, which will be used for drinking, for cleaning, and also for cooking.
3	What do you not like about the borehole project?	Nothing
4	Any other comments?	I hope this project will be implemented very soon.
5	Signature	

	Name	**Hugush Beraki**
1	What is your impression of the meeting?	It is good, hope that I will see it finalized.
2	What do you like about the borehole project?	I like it very much as water is very important.

3	What do you not like about the borehole project?	All is important.
4	Any other comments?	We hope that they will be repaired soon.
5	Signature	

	Name	**Tabotu Kesete**
1	What is your impression of the meeting?	Good as water is life.
2	What do you like about the borehole project?	It is a perfect project, all the family were fetching water from a far place but now they will get clean water from the nearby place.
3	What do you not like about the borehole project?	None
4	Any other comments?	It will be good if they are repaired in short time.
5	Signature	

	Name	**Gebru Haile**
1	What is your impression of the meeting?	It was very pleasing and suggests to be implemented soon.
2	What do you like about the borehole project?	It is impossible to live without water.
3	What do you not like about the borehole project?	None
4	Any other comments?	Hand pumps maintenance to be done soon.
5	Signature	

	Name	**Mohammed Abdela**
1	What is your impression of the meeting?	It was necessary meeting.
2	What do you like about the borehole project?	To get clean water is good and would mean to establish good family.
3	What do you not like about the borehole project?	All is important. As it is better to use water from closed wells.
4	Any other comments?	Maintenance of boreholes to be done soon.
5	Signature	

The feedbacks have been overwhelmingly positive with most stakeholders urging the start of the project and looking forward for the renovation of the boreholes. There has been no negative comment/ concern raised that should have been needed to take into consideration and no change to the design of the project was necessary.

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C.4. Report on the Continuous input mechanism selection:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	Justification
Continuous Input / Grievance Expression Process Book	A log-book has been deposited at the Branch Offices of the Ministry of Agriculture and Vita Eritrean Country Office. The address of these offices is: The Ministry of Agriculture: Anseba Region P.O. Box 118. Keren, Eritrea Vita Office: Raza Building 4th floor, Bdho Street P.O. Box - 7681 Tel: +291-1-122103 or +291-8-211187 Asmara, Eritrea Grievance expression process book will be placed at all water points.	There is branch office of the Ministry of Agriculture in all kebabi's and sub Zoba Administration Offices (basically in every sub-district), making it easily accessible for all stakeholders.
Telephone access	Mr. Iyassu Ghebrerufael, Country Director, Vita, Telephone: 1122103 Gold Standard Telephone Number: +41 (0) 22 788 7080	The country director has responsibility for the way this project is implemented.
Internet/email	This method has not been chosen for local input	Rural people cannot access internet due

access	mechanism. However an online stakeholder Feedback Round will be created for international stakeholders. If stakeholders would like to contact Gold Standard they can do so at: info@goldstandard.org GS Regional Manager johann.thaler@goldstandard.org Or contact the project representative at: richard.stone@co2balance.com	lack of infrastructure in rural Eritrea.
Nominated Independent Mediator (optional)	N/A	N/A

C.5. Report on stakeholder consultation feedback round:

The international stakeholders were invited via email to provide feedback on our stakeholder interface on the CO2balance dashboard; the feedback round was launched on 13/07/2016 and lasted for a period of 60 days. No feedback was received during this time.

In country local stakeholders were be invited by the Vita borehole maintenance team to leave feedback at all water points, following the closing of Gold Standard listing. To date, no feedback has been logged via this method.

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Annex 1

CONTACT INFORMATION ON ENTITY/INDIVIDUAL RESPONSIBLE FOR THE MICRO--SCALE VPA

Organization:	CO2balance
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Represented by:	
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