

TITLE OF THE MICRO-PROGRAMME: Sustainable Safe Water Program

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

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

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

Title: GS 4503 Sustainable Safe Water Program - Tulip Filters in Tanzania VPA 1

Version: 01

Date: 18/09/2015

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

‘Tulip Filters in Tanzania’, herein after referred to as the project activity, is centered on the introduction of household water filters to replace the use of fossil fuel and non-renewable biomass for water treatment and to alleviate situations of suppressed demand where currently contaminated raw water is consumed. In doing so the project activity is designed to reduce greenhouse gas emissions, to reduce the incidence of water-borne diseases, to reduce indoor air pollution as well as to reduce the pressure on non-renewable biomass resources within the project boundary.

The project activity seeks to distribute 4’600 household water filters in Karagwe and Kyerwa districts (Kagera region) of Tanzania. The project activity is one VPA of a micro-scale program of activities (the Sustainable Safe Water Program). Emission reductions achieved by each VPA under the PoA are limited to a maximum of 10,000 tons of CO₂e per year. This VPA is estimated to generate greenhouse gas emissions reductions of 9,375 tCO₂e per year.

Tulip Table Top Household Filter

The Tulip Table Top Household Filter is an effective and sustainable point-of-use water filtration system that provides a family of up to 10 persons with enough safe water to meet all their daily domestic water consumption needs.

The project technology is based on a patented technology and diligent research. Basic Water Needs, the filter producer and distributor, is active in almost 20 countries worldwide and has provided nearly 2 million people with safe drinking water. In collaboration with Karagwe Development and Relief Services (KADERES), a local NGO based in Kagera region in Tanzania, Basic Water Needs will implement the project activity which aims in setting up local entrepreneurs to enable sustained supply of household water filters while also focusing on awareness raising in the communities.

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The water filter consists of two containers. Dirty water is put into the top container in which a ceramic candle is placed. Water will drip through the candle and the fast flow hose connected to the candle into the bottom bucket. The Tulip Table Top filter will purify the water of bacteria, parasites and turbidity. The water will be stored in the bottom container making sure that the water will not re-contaminate. The water can be used for drinking via the tap in the lower bucket. To protect the filter element against premature clogging when using dirty water, the filter element is covered with a washable pre-filter. After some time, the flow rate will reduce because of clogging of the filter element. When this occurs a small layer of the ceramic material of the filter element has to be removed by scrubbing the filter. This can be done easily by using a scrub pad, which is included with the filter. The filter element needs to be replaced around every year (after 7,000 L) and the buckets have a lifetime of at least five years.

The Tulip Table Top Household Filter offers an efficient and easy-to-use alternative to boiling water within the areas in which the project activity is located.



Figure 1 – Tulip Table Top

The benefits of the project activities include:

- **Health Impacts:** Reduction of the burden of disease from diarrhea in target populations, particularly in children under five.
- **Environmental Impacts:** Reduced burning of non-renewable firewood will lead to reduced greenhouse gas emissions that contribute to climate change.
- **Social and Economic Impacts:** Households that use household water filters have to spend less time and money collecting firewood and on diseases of family members.

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

The coordinating/managing entity of the VPA is South Pole Carbon Asset Management Ltd. and all contact details are provided in Annex 1.

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

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

A.4.1.1. Host Party:

United Republic of Tanzania

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

This VPA will be implemented in Kagera and Kyerwa districts (Kagera region) in Tanzania as shown in the maps below. Geographical coordinates: 01° 01' 00.00" and 02° 20' 00.00" South and 30° 26' 00.00" and 31° 27' 00.00" East.

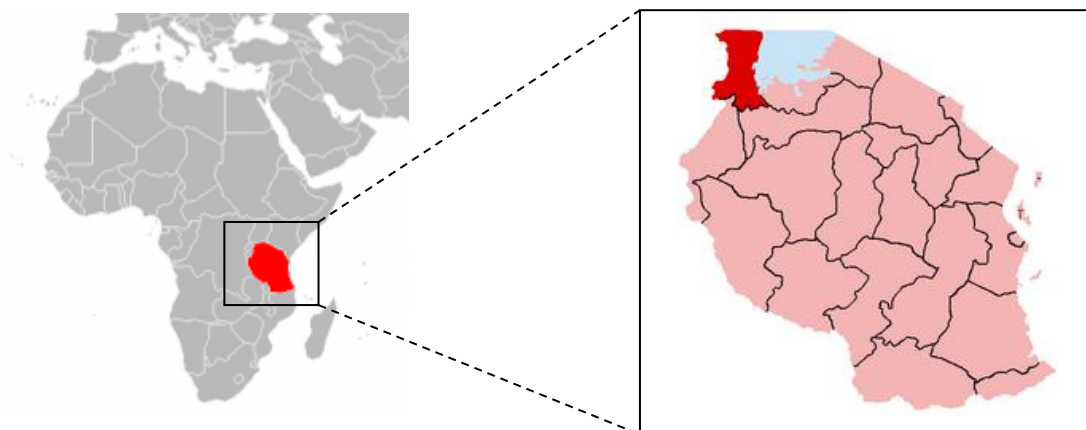


Figure 2 – Location of the United Republic of Tanzania, and Kagera region

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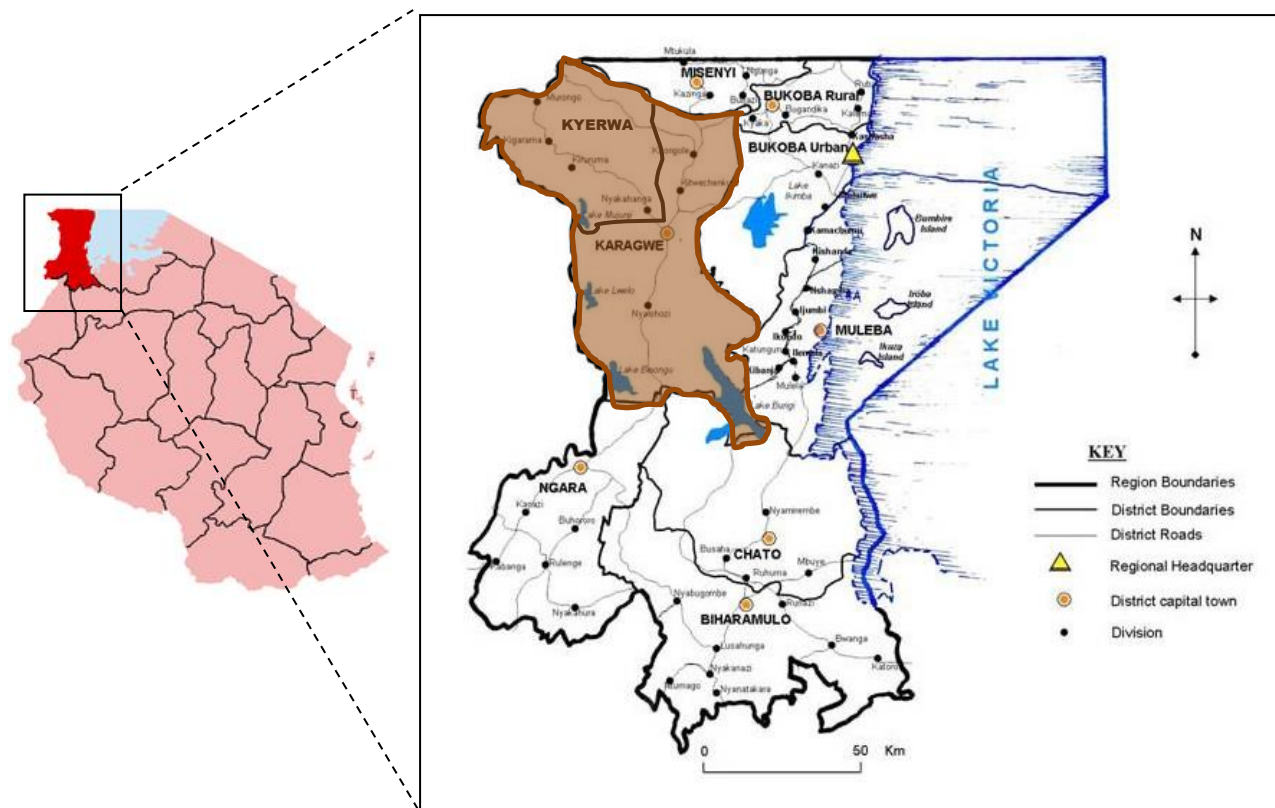


Figure 3 – Location of Karagwe and Kyerwa districts

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

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

23/01/2015 – Sales of first household filter at Kimuli SACCO.

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

3 x 7 = 21 years

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

Renewable crediting period

A.4.3.1. Starting date of the crediting period:

01/10/2015 or 2 years prior to PoA GS registration (which ever is later)

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

CP:

7 years

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

Year	Estimation of project activity emissions (tCO ₂ e)	Estimation of baseline emissions (tCO ₂ e)	Estimation of leakage (tCO ₂ e)	Estimation of overall emission reductions (tCO ₂ e)
2015/16	3,160	12,536	0	9,375
2016/17	3,160	12,536	0	9,375
2017/18	3,160	12,536	0	9,375
2018/19	3,160	12,536	0	9,375
2019/20	3,160	12,536	0	9,375
2020/21	3,160	12,536	0	9,375
2021/22	3,160	12,536	0	9,375
Total	22,123	87,749	0	65,626

A.4.5. Public funding of the VPA:

The project does not receive any ODA funding (see ODA declaration form).

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:

This VPA is neither registered as an individual Gold Standard project or with any other standard or is part of another Registered PoA.

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

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:

Micro-scale PoA: Sustainable Safe Water Program (GS 4503)

Gold Standard methodology:

"Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 02 – 24/04/2015" (Gold Standard methodology)¹

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

Inclusion eligibility criteria (see section A.4.2.1. in the PoA-DD):

No.	Eligibility criteria		VPA Compliance
	Description	Conditions to be met	
1.	Boundary and location of the project activity	The project activity is located within the boundary of one of the host parties listed in section A.4.1.1 of the PoA DD.	Yes. The geographical boundary of this VPA is in Tanzania which is part of the PoA boundary (section A.4.1.1 of the PoA DD)
2.	Micro-scale limit for VPAs	The aggregated annual emission reductions for all systems involved shall be not greater than 10,000 tCO ₂ e.	Yes. This VPA will realize emissions reductions of 9,375 tCO ₂ e per year which is below the 10,000 tCO ₂ e threshold. In case the VPA exceeds the applicable limit, the claimable emission reduction shall be capped at 10,000 tCO ₂ e.
3.	Technology	A safe water technology is employed, e.g. household water filter, solar disinfection, HH chlorination products, chlorine dispensers, water kiosks, borehole pumps	Yes. The Tulip Table Top Household Filter distributed under this VPA is a household water filter. The description of the Tulip Table Top Household Filter is provided in section A.2 of this VPA-DD.

¹ www.goldstandard.org/wp-content/uploads/2011/09/Revised-TPDDTEC-methodology_April-2015_final-clean.pdf

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4.	Avoiding double counting	The project activity includes a means of uniquely identifying each unit (sold, installed or constructed) or its users.	<p>Yes. Each filter distributed under this VPA will have a unique identification number which can be tracked against other data such as the end user name and location.</p> <p>The VPA implementer is responsible to keep records of all unique identification numbers in a central database. This will enable cross-checking of the individual units claimed to have been distributed during the proposed micro-scale PoA, thus helping to avoid double counting and improve accountability.</p>
5.	Fuel usage	The water treatment technology does not involve consumption of fossil fuel (this does not refer to life cycle emissions such as upstream emissions associated with the production or delivery of the technology)	Yes. The Tulip filter is based on gravity flow through a ceramic candle filter. No fossil fuel is consumed.
6.	Place of installation	The safe water technology is installed in households, at water points, commercial premises or institutional premises.	Yes. The Tulip filters are mostly used in households. Few filters may be used in commercial or institutional premises such as restaurants and schools.
7.	Distance of water from households	The water in its improved form shall be made available within 1 km distance from the benefitting households.	Yes. The Tulip filters are placed in the households and therefore water in its improved form is made available at household level (distance < 1 km).
8.	Project activity crediting period does not exceed micro-scale PoA life	The duration of the crediting period of each project activity to be included in the micro-scale PoA shall not exceed the end date of the	Yes. It is indicated that the duration of the VPA crediting period is a 7 year renewable crediting period. The final date for which ERs can be credited

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		registered micro-scale PoA.	shall be no later than 28 years after the date of registration of the micro-scale PoA.
9.	Additionality	<p>The project activity needs to meet following criteria (see section A.4.3 of PoA DD):</p> <ul style="list-style-type: none"> a. The water purification system or product installed in each household or community is operating as an independent subsystem b. The users of the water purification system or product are either households or communities c. Each individual appliance achieves emissions reductions of equal to or less than 600 tCO₂ per year. 	<p>Yes. The water filter distributed in each household is operating as an independent subsystem.</p> <p>The users of the water filters are households or communities.</p> <p>As demonstrated in the emissions reductions spreadsheet the emissions reductions per sold filter (adjusted for non-usage of some filters) are total 2.04 tCO₂e per year which is far less than the 600 tCO₂e limit.</p>
10.	Local Stakeholder Consultation	<p>LSC needs to be carried out, either for a single VPA or for a group of VPAs.</p> <p>In case of a grouped LSC, the following conditions need to be fulfilled:</p> <ul style="list-style-type: none"> i) same host country, ii) same technology(ies) iii) similar distribution mechanism shall be employed. <p>VPAs implementation shall start within 3 years from the date of grouped LSC approval.</p>	<p>Yes. The physical LSC meeting was conducted in Kayanga on May 23, 2014 and reported in section C of this VPA DD.</p> <p>The LSC was approved by GS on September 09, 2014 and the VPA start date is January 23, 2015. Thus, the VPA implementation started within 3 years from the date of LSC approval.</p>

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

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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):

Additionality has been demonstrated at PoA level. The water filter distributed under this VPA in each household is operating as an independent subsystem and all users of the water filters are households. As is demonstrated in the emissions reductions spreadsheet the emissions reductions per filter are total 2.04 tCO₂e per year which is far less than the 600 tCO₂e limit.

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):

Not applicable (additionality demonstrated at PoA level)

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.

Sources and GHGs Included in the Project Boundary Baseline and Project Scenarios:

	Source	Gas	Included?	Justification / Explanation
Baseline	Combustion of fossil fuel or non-renewable biomass for boiling water	CO ₂	Yes	Important source of emissions
		CH ₄	No	Minor emissions
		N ₂ O	No	Minor emissions
Project	Combustion of fossil fuel or non-renewable biomass for boiling water	CO ₂	Yes	Important source of emissions
		CH ₄	No	Minor emissions
		N ₂ O	No	Minor emissions

The sales record (incl. end user details) of all household filters shall collected and entered in a central database. Only filters which are distributed within the stated project boundary shall be eligible for crediting (Karagwe and Kyerwa districts, United Republic of Tanzania).

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B.5. Emission reductions:

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

Data / Parameter:	C_j
Data unit:	Percentage
Description:	Portion of users of project safe water supply who in the baseline (a) did not boil their drinking water and (b) had already access to safe drinking water.
Source of data used:	Baseline survey (see Annex 5)
Value applied:	12.28%
Justification of the choice of data or description of measurement methods and procedures actually applied:	<p>C_j = number of “no boilers” with safe drinking water / N</p> <p>All household that report to boil their drinking water more than 50% of the time throughout the year shall be considered to be “water boilers”. The others shall be considered to be “no boilers”.</p> <p>The percentage of “no boilers” that have access to safe water in the baseline scenario was determined by collecting drinking water samples at household level and conducting an E.coli test (samples showing less than 1 CFU E.Coli per 100 ml shall be considered as ‘safe’).</p>
Any comment:	

Data / Parameter:	X_{boil}
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.
Source of data used:	Baseline survey (see Annex 5)
Value applied:	0.84%
Justification of the choice of data or description of measurement	This parameter was established by using the fraction of households that report to boil and households that report to use non-GHG emitting technologies in the

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methods and procedures actually applied:	baseline situation.
Any comment:	

Data / Parameter:	$W_{fuel,b,y}$, $W_{fuel,p,y}$
Data unit:	kg/L
Description:	Average quantity of firewood or charcoal
Source of data used:	Baseline water boiling test (Test Report - Baseline Water Boiling Test) and baseline survey (see Annex 5)
Value applied:	0.5035 kg/L
Justification of the choice of data or description of measurement methods and procedures actually applied:	<p>The baseline water boiling test (BWBT) followed the guidance in Annex 4 of the GS methodology and was conducted to calculate the quantity of fuel required to purify by boiling one litre of water for 10 minutes using technologies and fuels representative of the baseline scenario.</p> <p>The BWBT was conducted using the 90/30 rule for selection of samples, accounting for variability in the types of prevalent baseline technologies and fuels. The classification of fuels shall be firewood, charcoal, kerosene and LPG. Firewood and charcoal stoves shall be further divided into improved and non-improved stoves.</p>
Any comment:	Should be updated whenever new water boiling technologies are introduced over time.

Data / Parameter:	f_{NRB}
Data unit:	Percentage
Description:	Fraction of biomass used that can be established as non-renewable biomass
Source of data used:	Default value for Tanzania as specified in Annex 22 of the EB 67 Report : https://cdm.unfccc.int/EB/archives/meetings_12.html#67
Value applied:	96%

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Justification of the choice of data or description of measurement methods and procedures actually applied:	
Any comment:	Should be updated whenever the UNFCCC EB changes the default value.

Data / Parameter:	EF_{firewood,CO2}
Data unit:	tCO ₂ /TJ
Description:	CO ₂ emission factor arising from use of firewood
Source of data used:	IPCC 2006 Vol 2 Chap 1 Table 1.4 ²
Value applied:	112 tCO ₂ /TJ
Justification of the choice of data or description of measurement methods and procedures actually applied:	
Any comment:	

Data / Parameter:	NCV_{firewood}
Data unit:	TJ/kg
Description:	Net calorific value of firewood
Source of data used:	IPCC 2006 Vol 2, Chap 1, Table 1.2 ³
Value applied:	0.0000156 TJ/kg
Justification of the choice of data or description of measurement methods and procedures actually applied:	
Any comment:	

² http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf

³ http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf

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

Pursuant to methodological requirements, a baseline survey was conducted in order to quantify parameters of interest used to calculate baseline emissions and accurately determine the baseline situation. Details about the survey are summarized in Annex 5. The total safe water consumed in the baseline scenario is the amount of safe water supplied by the project technology and consumed in the project scenario.

Baseline Scenario Fuel Consumption

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

$$B_{firewood,b,y} = (1 - 0.84\%) * (1 - 12.18\%) * 7,891,300 \text{ p.d} * 0.5035 \text{ kg/l} * 4 \text{ l/p/d}$$

$$B_{firewood,b,y} = 13,840,060 \text{ kg}$$

Where:

$B_{b,y}$	Quantity of fuel f consumed in baseline scenario b during the year y in kilograms
X_{boil}	Expressed as a percentage, this is the proportion of users of the project technology that would have used other non-GHG water treatment (like chlorine) in the absence of the project technology.
C_j	Expressed as a percentage, this is the proportion of users of the project technology that in the baseline were already consuming safe water without boiling it.
$N_{p,y}$	Number of person.days consuming water supplied by project scenario p through year y
$W_{fuel,b,y}$	Quantity of fuel f (in kilograms) required to treat 1 litre of water using technologies representative of baseline scenario b in year y as per Baseline Water Boiling Test. This parameter should be updated whenever new water boiling technologies are introduced over time.
$Q_{p,y}$	Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day in year y.
$Q_{p,rawboil,y}$	Quantity of raw water boiled in the project scenario p per person per day.

$Q_{p,y} + Q_{p,rawboil,y}$

Default values will be used:

- 4 L/person/day (full-day premises)
- 7 L/person/day (boarding school)
- 3 L/person/day (half-day premises)

See methodology page 39.

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Project Scenario Fuel Consumption

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

$$B_{firewood,b,y} = (1 - 12.18\%) * 7,891,300 \text{ p.d} * 0.5035 \text{ kg/l} * (0.5 \text{ l/p/d} + 0.5 \text{ l/p/d})$$

$$B_{firewood,b,y} = 3,489,325 \text{ kg}$$

Where:

$B_{fuel,p,y}$	Quantity of fuel f consumed in project scenario p during the year y in kilograms
C_j	Expressed as a percentage, this is the portion of users of the project technology who in the baseline were already consuming safe water without boiling it.
$N_{p,y}$	Number of person.days consuming water supplied by project scenario through year y
$W_{fuel,p,y}$	Quantity of fuel f (in kilograms) required to treat 1 litre of water using technologies representative of project scenario p in year y as per Baseline Water Boiling Test. This parameter should be updated whenever new water boiling technologies are introduced over time.
$Q_{p,rawboil,y}$	Quantity of raw water boiled in the project scenario p per person per day in year y as established in the Water Consumption Field Test (WCFT) – estimated to be 0.5 l/p/d
$Q_{p,leanboil,y}$	Quantity of safe water boiled in the project scenario p per person per day in year y as established in the Water Consumption Field Test (WCFT) – estimated to be 0.5 l/p/d

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Baseline and Project Emissions

Baseline Emissions:

$$BE_{fuel,b,y} = B_{fuel,b,y} * f_{NRB} * EF_{fuel,CO_2} * NCV_{fuel}$$

$$BE_{firewood,b,y} = 13,840,060 \text{ kg} * 96\% * 112 \text{ tCO}_2/\text{TJ} * 0.0000156 \text{ TJ/kg}$$

$$BE_{firewood,b,y} = 23,214 \text{ tCO}_2$$

Project Emissions:

$$PE_{fuel,p,y} = B_{fuel,p,y} * f_{NRB} * EF_{fuel,CO_2} * NCV_{fuel}$$

$$BE_{firewood,p,y} = 3,489,325 \text{ kg} * 96\% * 112 \text{ tCO}_2/\text{TJ} * 0.0000156 \text{ TJ/kg}$$

$$BE_{firewood,p,y} = 5,853 \text{ tCO}_2$$

Where:

$BE_{fuel,b,y}$ Emissions for baseline scenario b during year y in tCO₂e

$PE_{fuel,p,y}$ Emissions for project scenario p during year y in tCO₂e

f_{NRB} Fraction of biomass used that can be established as non-renewable biomass (drop this term from the equation when using a fossil fuel baseline scenario)

EF_{fuel,CO_2} CO₂ emission factor of the fuel that is substituted or reduced

NCV_{fuel} Net calorific value of the fuel that is substituted or reduced

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Emission Reductions

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

$$ER_y = (23,214 \text{ tCO}_2 + - 5,853 \text{ tCO}_2) * 60\% * 90\% - 0 \text{ tCO}_2$$

$$ER_y = 9,375 \text{ tCO}_2$$

Where:

- $U_{p,y}$ Cumulative usage rate for technologies in project scenario p during year y
- estimated to be 60%
- TWQ_y Treated water quality, percentage of safe water provided by project technology
- estimated to be 90%
- $LE_{p,y}$ Leakage from project scenario p in year y (tCO₂e/yr)

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

Year	Estimation of project activity emissions (tCO ₂ e)	Estimation of baseline emissions (tCO ₂ e)	Estimation of leakage (tCO ₂ e)	Estimation of overall emission reductions (tCO ₂ e)
2015	3,160	12,536	0	9,375
2016	3,160	12,536	0	9,375
2017	3,160	12,536	0	9,375
2018	3,160	12,536	0	9,375
2019	3,160	12,536	0	9,375
2020	3,160	12,536	0	9,375
2021	3,160	12,536	0	9,375
Total	22,123	87,749	0	65,626

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

Section III of the GS methodology provides the monitoring methodology applicable for the VPA-DD. At the minimum the methodology calls for the following:

- A project database (incl. all sales records) needs to be maintained continuously
- Annually the target household characteristics are assessed
- Annually the water consumption field test and usage survey are conducted
- Annually the activities related to the mandatory hygiene campaigns are reported
- Water quality survey are conducted every three months

Data and parameters monitored:

Data / Parameter:	$N_{p,y}$
Data unit:	person.days
Description:	Number of person.days consuming water supplied by project scenario p through year y
Source of data used:	Database of water supply and treatment technologies sold, installed or constructed
Value applied:	7,891,300
Description of measurement methods and procedures to be applied:	$N_{p,y} = \# \text{ Units} * \# \text{ Users per unit} * \text{Monitoring period (in days)}$ # Units: data from project database: 4,600 filters # Users per unit: 4.7 persons per household (2012 Population and Housing Census, United Republic of Tanzania) Monitoring period: 365 days
QA/QC procedures to be applied:	Transparent data analysis and reporting.
Any comment:	

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Data / Parameter:	$Q_{p,y}$
Data unit:	Liters per person per day (l/p/d)
Description:	Quantity of safe water supplied in the project scenario p during the year y, using the clean water supply technology for drinking water, hand washing and food washing.
Source of data to be used:	Default value for $Q_{p,y} + Q_{p,rawboil,y}$ (see methodology page 39)
Value applied:	4.0
Description of measurement methods and procedures to be applied:	
QA/QC procedures to be applied:	
Any comment:	

Data / Parameter:	$Q_{p,rawboil,y}$
Data unit:	Litres per person per day
Description:	Quantity of raw or unsafe water that is still boiled in the project scenario p, after installation of project technology
Source of data to be used:	Water consumption field test (WCFT)
Value applied:	0.5
Description of measurement methods and procedures to be applied:	Water consumption field test (WCFT)

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QA/QC procedures to be applied:	Transparent data analysis and reporting.
Any comment:	Default value of 4 Liter per person per day is applied for $Q_{p,y} + Q_{p,rawboil,y}$ in the baseline scenario.

Data / Parameter:	$Q_{p,cleanboil,y}$
Data unit:	Litres per person per day
Description:	Quantity of safe (treated, or from safe supply) water boiled in the project scenario p, after installation of project technology.
Source of data to be used:	Water consumption field test (WCFT)
Value applied:	0.5
Description of measurement methods and procedures to be applied:	Water consumption field test (WCFT)
QA/QC procedures to be applied:	Transparent data analysis and reporting.
Any comment:	

Data / Parameter:	$U_{p,y}$
Data unit:	Percentage
Description:	Usage rate in project scenario p during year y
Source of data used:	Usage survey. Annual or more frequently, in all cases on time for any request for issuance
Value applied:	60%
Justification of the choice of data or	A random sample of project technologies or their users (according to the project database) is visited. Usage and functionality shall be determined

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description of measurement methods and procedures actually applied:	through interviews with end users and observations. Usage surveys need to follow the Gold Standard guidelines: "Guidelines for carrying out usage surveys for projects implementing household water filtration technologies".
QA/QC procedures to be applied:	Transparent data analysis and reporting.
Any comment:	

Data / Parameter:	TWQ (Treated water quality)
Data unit:	Percentage
Description:	Proportion of treated water samples with less than 1 CFU E.Coli/100 ml.
Source of data used:	Water quality tests
Value applied:	90%
Justification of the choice of data or description of measurement methods and procedures actually applied:	IDEXX presence/absence tests in 100 ml for E. Coli is conducted by the project proponent. The 90/10 confidence/precision rule must be followed in calculating the annual sample size required for testing water quality. The required water quality tests shall be equally distributed over the quarterly (or more frequent) water quality surveys.
QA/QC procedures to be applied:	Transparent data analysis and reporting.
Any comment:	

Data / Parameter:	LE_{p,y}
Data unit:	t_CO2e per year
Description:	Leakage in project scenario p during year y
Source of data used:	Baseline and monitoring surveys

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Value applied:	0
Justification of the choice of data or description of measurement methods and procedures actually applied:	In accordance with the methodology, leakage risks deemed very low can be ignored (see PoA-DD D.6.1.). Leakage in this project is expected to be 0.
QA/QC procedures to be applied:	Transparent data analysis and reporting.
Any comment:	Leakage will be investigated every two years as part of the monitoring.

B.6.1. Description of the monitoring plan:

The monitoring plan developed for this project activity requires the continuous and/or periodic updates to the following records:

- Project database (summary of all sales records) for $N_{p,y}$: the project database will be updated continuously during the project period.
- Monitoring of $Q_{\text{rawboil},y}$, $Q_{\text{p, cleanboil},y}$, $U_{p,y}$ and TWQ: the parameters are monitored annually except for TWQ which is assessed every three months.
- Leakage will be re-investigated every two years.
- Following parameters are updated in case significant changes from the baseline data are observed: $W_{\text{fuel},b,y}$, $W_{\text{fuel},p,y}$ and f_{NRB} .

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SECTION C. Stakeholders' comments

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

As stated in section C.2 of the PoA DD local stakeholder consultations are to be conducted at the VPA level. A local stakeholder consultation meeting was organized in Kayanga on May 23, 2014. Local stakeholders were invited using personal invitation letters, phone calls, emails and posters which were placed at strategic places to get a good number of local stakeholders attending the meeting.

i) Agenda

Tulip Filters in Tanzania – GS Local Stakeholder Consultation

Friday 23 May 2014 at 9:00 – 12:30 am at Angaza Hall, Kayanga Town, Tanzania

1. Opening (09:00 - 09:30)

- a. Signing of participants list
- b. Introductions
- c. Explanation of aim of meeting

2. Explanation of the Project (09:30 – 10:00)

- a. Basic Water Needs: technology, project design, future
- b. South Pole Carbon: explanation of carbon credits and how it applies to safe water

3. Feedback Round & Questions for Clarification (10:00 - 11:30)

- a. Questions for clarification
- b. Feedback round about environmental and social impacts of the projects

4. Discussion of Continuous Input/Grievance Mechanism (11:30 - 12:00)

5. Closure (12:00 - 12:30)

- a. Ask people to fill in evaluation form
- b. Explain follow-up and how people can get minutes
- c. Explain Stakeholder Feedback Round

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ii) Non-technical summary



Non-Technical Summary of Project Activity:

Tulip Filter Project in Karagwe and Kyerwa Districts (Tanzania)

Basic Water Needs develops, produces and distributes water purification products on household level. The company is active in almost 20 countries worldwide and has provided nearly 2 million people with safe drinking water. In collaboration with Karagwe Development and Relief Services, a local NGO based in Kagera region, Basic Water Needs will implement a project that aims at setting up local entrepreneurs to enable sustained supply of household water filters while also focusing on awareness raising in the communities.

South Pole Carbon Asset Management will support the project partners in developing a carbon project under the Gold Standard using the Gold Standard methodology 'Technologies and practices to displace decentralized thermal energy consumption'. The project will either be registered as a standalone micro-scale project or become part of a micro-scale Program of Activities which will be developed by South Pole Carbon Asset Management as the coordinating/managing entity. The revenue from the carbon markets is used to finance the project.

Background

Unsafe drinking water is a leading cause of diarrhea resulting in nearly two billion cases each year. Worldwide an estimated 760,000 children under the age of five die from diarrhea each year. In Tanzania alone more than 15,000 people die every year from diarrheal diseases. Household water treatment has proven to be an effective measure to reduce negative health impacts from unsafe water. In addition, household water filters replace the need of people to boil their drinking water.

Tulip Table Top Household Filter

Dirty water is put into the top container in which a ceramic candle is placed. Water will drip through the candle and the fast flow hose connected to the candle into the bottom bucket. The Tulip Table Top filter will purify the water of bacteria, parasites and turbidity. The water will be stored in the bottom container making sure that the water will not re-contaminate. The water can be used for drinking via the tap in the lower bucket. To protect the filter element against premature clogging when using dirty water, the filter element is covered with a washable pre-filter. After some time, the flow rate will reduce because of clogging of the filter element. When this occurs a small layer of the ceramic material of the filter element has to be removed by scrubbing the filter. This can be done easily by using a scrub pad, which is included with the filter.



Benefits

- **Health Impacts:** Reduction of the burden of disease from diarrhea in target populations, particularly in children under five.
- **Environmental Impacts:** Reduced burning of non-renewable firewood will lead to reduced greenhouse gas emissions that contribute to climate change.
- **Social and Economic Impacts:** Households that use household water filters have to spend less time and money collecting firewood and on diseases of family members.

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iii) Invitation tracking table

Category code	Organisation	Name of invitee	Way of invitation	Date of invitation	Confirmation received? Y/N
A	Fadeco Radio	Mr. Sekiku (sekiku@fadeco.org)	Email/ Letter	02.05.2014	Y
A	Karagwe Radio		Letter	16.05.2014	Y
A	SACCOS Manager Kimuli	Froni B. Nestory	Phone Call	07.05.2014	Y
A	SACCOS Manager Kitwe	Sospateli Rwiru	Phone Call	07.05.2014	Y
A	SACCOS Manager	Keneth Salvatory	Phone Call	07.05.2014	Y
A	SACCOS Manager Kituntu	Willfred Willibard	Phone Call	07.05.2014	Y
A	SACCOS Secretary	Juvenary Katabaro	Phone Call	07.05.2014	Y
A	SACCOS Kituntu	Clevina Chrisant	Phone Call	07.05.2014	Y
A	Farmer, chairman Bugaro	Evarister K. Jeremiah	Phone Call	07.05.2014	Y
A	Farmer , chairman Kibaize	Erasto Waziri	Phone Call	07.05.2014	Y
A	Farmer, chairman Nyamiyaga	Philemon Binemungu	Phone Call	07.05.2014	Y
A	Farmer, chairman Kyerwa	Martin J. Mwasi	Phone Call	07.05.2014	Y
A	Farmer, chairman Businde	Salvinus Leonidas	Phone Call	07.05.2014	Y
A	Farmer , chairman Kigarama	Salvatory Chatuka	Phone Call	07.05.2014	Y
A	Farmer, chairman Mabira	Daudi Serestin	Phone Call	07.05.2014	Y
A	Farmer, chairman Kimsemaki	Theodory Kibombo	Phone Call	07.05.2014	Y

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A	Farmer	Paulo Byanushengo	Phone Call	07.05.2014	Y
A	Farmer	William Baligubwa	Phone Call	07.05.2014	Y
A	Farmer	Samuel Peshu	Phone Call	07.05.2014	Y
A	Farmer	Levina Vedasto	Phone Call	07.05.2014	Y
A	Farmer	Maria Fidres Emil Kokutona	Phone Call	07.05.2014	Y
A	Farmer	Clemence Kafuba	Phone Call	07.05.2014	Y
A	Kagera Cooperative Union (1990) Ltd	Mr. Vedastus Ngaiza (kcubukoba@gmail.com)	Email	02.05.2014	N
A	Kagera Cooperative Union (1990) Ltd	Mr. Joram Katorogo (katorogo@yahoo.co.uk)	Email	02.05.2014	N
A	Councilor	Zidina Murshid	Phone Call	07.05.2014	Y
A	Councilor	Fulgence Frederick	Phone Call	07.05.2014	Y
B	Community Development Officer, Kyerwa district	Filbert Binamungu	Phone Call	07.05.2014	Y
B	Planning Officer, Karagwe district	Kiwango R.A.	Phone Call	07.05.2014	Y
B	Water District Engineer	Walter Kirita (wkiritasi@yahoo.co.uk)	Email/ Letter	02.05.2014	Y
B	Medical District Officer	Mr. Mayala (karagwedded@yahoo.co.uk)	Email/ Letter	02.05.2014	Y
B	Education District Officer	District council (Karagwedded@yahoo.co.uk)	Email	02.05.2014	N
B	Regional Water Engineer	Agonza Lwakatare (kifuba@yahoo.co.uk)	Email	02.05.2014	M
B	National Institute for Medical Research	Dr. Hamisi Masanja Malebo	Email	02.05.2014	Y

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		(malebo@hotmail.com)			
B	Ministry of Health and Social Welfare	Robert Mussa (robertmussa@gmail.com)	Email	02.05.2014	N
C	DNA Secretariat, Tanzania	Richard S. Muyungi (tanzania37@gmail.com)	Email	02.05.2014	N
D	SHIPO	Morten van Donk (info@shipo-tz.org)	Email	02.05.2014	N
D	Evidence Action	Nabil Mansour (nmansouri@poverty-action.org)	Email	02.05.2014	Y
D	APCCC	Edward Manaaba (edwardbkb@yahoo.com)	Email	02.05.2014	Y
D	MSABI	Dr. Niklaus Holbro (n.holbro@gmail.com)	Email	02.05.2014	N
D	PCI Tanzania	Michael Mulford (mmulford@pcitanzania.org)	Email	02.05.2014	N
D	Population Services International (PSI)	Melissa Higbie (mhigbie@psi.or.tz)	Email	02.05.2014	N
D	Population Services International (PSI)	Dr. Mathew Mwanjili (mmwanjili@psi.or.tz)	Email	02.05.2014	N
D	SAFE Water Ceramics of East Africa	Tracy Hawkins (tracy.hawkins@safewaternow.org)	Email	02.05.2014	Y
D	Vestergaard-Frandsen	Alexandre Doyen (ad@vestergaard-frandsen.com)	Email	02.05.2014	Y
D	World Vision (Bukoba Office)	Mr. Misigaro (mpipimisigaro.mpipi@wvi.org)	Email	02.05.2014	N
D	SON International	Todd & Ann Ziems (sonintl@jrwebworks.net)	Email	02.05.2014	N

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D	Mavuno	Mr. Bahati (mavuno@gmail.com)	Email	02.05.2014	N
D	Chema Programme	Mr. Kileo (kileo@chematanzania.org)	Email	02.05.2014	Y
D	Sawaka		Letter	02.05.2014	N
D	Karadea	karadea@yahoo.co.uk	Email	02.05.2014	N
D	World Vision, Karagwe Branch		Letter	02.05.2014	N
D	ELCT	elctkzacc@yahoo.com	Email	02.05.2014	N
D	Red Cross Bukoba/Karagwe	redcrosskaragwe@gmail.com	Phone call	02.05.2014	N
D	Womeda		Letter	02.05.2014	N
E	Gold Standard Foundation	Johann Thaler (johann.thaler@goldstandard.org)	Email	02.05.2014	Y
F	A World Institute for a Sustainable Humanity	Michael Karp (michael@awish.net)	Email	02.05.2014	N
F	Action Carbone (Good Planet Foundation)	Nitin Pagare (nitin@actioncarbone.org)	Email	02.05.2014	N
F	Ashanti Social Welfare Association (ASWA)	Habibul Alam (director.aswa@gmail.com)	Email	02.05.2014	N
F	Atmosfair	Dietrich Dr. Brockhagen (cdmabteilung@atmosfair.de)	Email	02.05.2014	N
F	Bangladesh Centre for Advanced Studies	Mozaharul Alam (mozaharul.alam@bcas.net)	Email	02.05.2014	N
F	BASE (Basel Agency for Sustainable Energy)	Daniel Magallon (daniel.magallon@energy-base.org)	Email	02.05.2014	N
F	Carbon Watch	Deepak Mawandia (deepak.mawandia@car	Email	02.05.2014	N

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		bonwatch.com)			
F	Care International	Kit (Christopher) Vaughan (kvaughan@careclimatechange.org)	Email	02.05.2014	Y
F	CASA (Citizens's Alliance for Saving the Atmosphere and Earth)	Mitsutoshi Hayakawa (office@casa.bnet.jp)	Email	02.05.2014	N
F	Chinansi Foundation	Simplex Chithyola (chinansifoundation07@gmail.com)	Email	02.05.2014	N
F	Clean Air–Cool Planet	Adam Markham (amarkham@cleanair-coolplanet.org)	Email	02.05.2014	N
F	Clean Energy Nepal	Bhusan Tuladhar (ed@enpho.org)	Email	02.05.2014	N
F	Climate Action Network South Africa	Dorah Lebelo (dorah@gendercc.net)	Email	02.05.2014	N
F	David Suzuki Foundation	Paul Lingl (paul@davidsuzuki.org)	Email	02.05.2014	N
F	Development Alternatives	Ashok Khosla (tara@devalt.org)	Email	02.05.2014	N
F	Dhammanart Foundation	Songklod Indhukarn (indhukarns@hotmail.com)	Email	02.05.2014	N
F	E+Co	Gina Rodolico (gina.rodolico@eandco.net)	Email	02.05.2014	N
F	Earth Advantage, Inc.	Sean Penrith (spenrith@earthadvantage.org)	Email	02.05.2014	N
F	EnerGHG India	Narendra Paruchuri (narendra@energhg.in)	Email	02.05.2014	N
F	Energy Forum	Wathsala Herath (eforum@slt.net.lk)	Email	02.05.2014	N

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F	Euronatura—Center for Environmental Law and Sustainable Development	Sara Dourado (geral@euronatura.pt)	Email	02.05.2014	N
F	European Business Council For Sustainable Energy e5	Julio Lambing (lambing@e5.org)	Email	02.05.2014	N
F	Fair Climate Network	Sudha Dr. Padmanabha (sudha@fairclimate.com)	Email	02.05.2014	N
F	FLO-CERT Regional Office	Chris Schmeling (kisima@habari.co.tz)	Email	02.05.2014	N
F	Forum for the Future	Iain Watt (i.watt@forumforthefuture.org.uk)	Email	02.05.2014	N
F	Fundacion Ecodiversidad Colombia	Carlos Kurimoto (carloskurimoto@ecodiversidad.org)	Email	02.05.2014	N
F	Fundacion Ecologia y Desarrollo	Cecilia Foronda (cecilia.foronda@ecodes.org)	Email	02.05.2014	N
F	Fundación MDL de Honduras	Suyapa Zelaya (fundacionmdl06honduras@yahoo.com)	Email	02.05.2014	N
F	Germanwatch	Christoph Bals (bals@germanwatch.org)	Email	02.05.2014	N
F	Gevalor	Georges Morizot (georges.morizot@gevalor.org)	Email	02.05.2014	N
F	GIZ	Mr. Falk Negrazus (kmukama@wwftz.org)	Email	02.05.2014	N
F	Global Environmental Institute (GEI)	Lili Xu (llxu@geichina.org)	Email	02.05.2014	N
F	Green Camel Bell (Gansu)	Ran Liping (ranlp@gcbsn.org)	Email	02.05.2014	N

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F	Green Wave (Ecoclub) UA	Anna Vilde (anna.vilde@ecoclub.kiev.ua)	Email	02.05.2014	N
F	GRIAN (Greenhouse Ireland Action Network)	Pat Finnegan (coord@grian.ie)	Email	02.05.2014	N
F	HELIO International	Helene O'Connor-Lajambe (helio@helio-international.org)	Email	02.05.2014	N
F	Hivos	Harry Clemens (sed@hivos.nl or h.clemens@hivos.nl)	Email	02.05.2014	N
F	Impact Carbon	Caitlyn Toombs (ctoombs@impactcarbon.org)	Email	02.05.2014	N
F	Indonesia Forum for Environment (WALHI)	Pantoro Tri Kuswardono (info@walhi.or.id)	Email	02.05.2014	N
F	Indonesian Climate Action Network	Fabby Tumiwa (fabby@nusa.or.id)	Email	02.05.2014	N
F	Initiative Développement	Olivier Lefebvre (carbone@id-ong.org)	Email	02.05.2014	N
F	International Centre for Eradication of Poverty	Dr. Bhausheb Ubale (bubale@rogers.com)	Email	02.05.2014	N
F	Kangmei Institute of Community Development and Marketing	Jiawei Wu (wujiawei1128@yahoo.com.cn)	Email	02.05.2014	N
F	Kiko Network	Mie Asaoka (kikonet@jca.apc.org)	Email	02.05.2014	N
F	KLIMA	Angela Consuela Ibay (klima@observatory.ph)	Email	02.05.2014	N
F	Mercy Corps	Nicholson (dnicholson@dc.mercycorps.org)	Email	02.05.2014	Y
F	Miombo	Otto Formo	Email	02.05.2014	N

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		(otto@miombo.no)			
F	Miriam-PEACE	Rosario Wood (mwood@mc.edu.ph)	Email	02.05.2014	N
F	Myclimate	Franziska Heidenreich (franziska.heidenreich@myclimate.org)	Email	02.05.2014	N
F	National Center for Appropriate Technology (NCAT)	Holly Hill (hollyh@ncat.org)	Email	02.05.2014	N
F	National Trust For Nature Conservation (NTNC)	Ngamindra Dahal (ndahal@ntnc.org.np)	Email	02.05.2014	N
F	Nexus, Carbon for Development	Samuel Bryan (s.bryan@nexus-c4d.org)	Email	02.05.2014	N
F	Noé21	Chaim Nissim (cnissim@noe21.org)	Email	02.05.2014	Y
F	Non-Conventional Energy and Rural Development Society	Sathiajothi Kamaraj (info@nerdsocietycoimbatore.org)	Email	02.05.2014	Y
F	NOVA Institute	Christiaan Pauw (christiaan.pauw@nova.org.za)	Email	02.05.2014	N
F	ONKE Training	Mmathabo Mrubata (mkhuseli@telkomsa.net)	Email	02.05.2014	N
F	Pelangi	Moekti Handajani Soejachmoen (Kuki) (pelangi@pelangi.or.id)	Email	02.05.2014	N
F	Pembina Institute for Appropriate Development	Rich Wong (richw@pembina.org)	Email	02.05.2014	N
F	Philippine Network on Climate Change	Dr. Ramon Faustino M. Sales (ramonfms@yahoo.com)	Email	02.05.2014	N
F	Philippine Solar Energy	Dr. Ruperto Sangalang (rssangalang@yahoo.co	Email	02.05.2014	N

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	Society	m)			
F	Planetair	Karine Oscarson (karine.oscarson@unisfe ra.org)	Email	02.05.2014	N
F	Plantons Utile	Eric Lemetais (eric.lehavre@wanadoo.f r)	Email	02.05.2014	N
F	PURE the Clean Planet Trust	Robert Rabinowitz (info@puretrust.org.uk)	Email	02.05.2014	N
F	Rainforest Alliance	Julianne Barooddy (info@ra.org)	Email	02.05.2014	N
F	REEEP	Katrin Harvey (katrin.harvey@reeep.or g)	Email	02.05.2014	N
F	Renewable Energy & Energy Efficiency Institute	Kudakwashe Ndhlukula (kndhlukula@polytechni c.edu.na)	Email	02.05.2014	N
F	Rural Education for Development Society- REDS	M. C. Raj and Jyothi Raj (jothiraj12@rediffmail.co m, mcraj.reds@gmail.com)	Email	02.05.2014	N
F	Save the Earth Cambodia	Akhteruzzaman Sano (sano.stec@gmail.com)	Email	02.05.2014	N
F	Shanshui Conservation Center, China	Fangyi YANG (fyang@shanshui.org)	Email	02.05.2014	N
F	Sibol ng Agham at Teknolohiya	Victoria M. Lopez (vmlopez12@yahoo.com)	Email	02.05.2014	N
F	SKG Sangha	Vidya Sagar Devabhaktuni (skgsangha@gmail.com)	Email	02.05.2014	N
F	SolarAid	Nick Sireau (nick@solar-aid.org)	Email	02.05.2014	N
F	SouthSouthNorth	Stefan Raubenheimer (stef@southsouthnorth.	Email	02.05.2014	N

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		org)			
F	Sustainable Travel International (STI)	Nick Piedmonte (nickp@sustainabletravel.com)	Email	02.05.2014	N
F	The Climate Group (China)	Lili He (lhe@theclimategroup.org)	Email	02.05.2014	Y
F	The Environmental Investigation Agency	Sascha Von-Bismarck (saschavonbismarck@eia-international.org)	Email	02.05.2014	N
F	The Whitemore Initiative Society	Tom Morris (bcjtom@shaw.ca)	Email	02.05.2014	N
F	Winrock International India	Debajit Das (debajit@winrockindia.org)	Email	02.05.2014	N
F	Winrock International Nepal	Binod Prasad Shrestha (binod@winrock.org.np)	Email	02.05.2014	N
F	World Vision Australia	Dr. Dean C Thomson (Dean.Thomson@worldvision.com.au)	Email	02.05.2014	N
F	WWF International	Bella Roscher (bella.roscher@wwf.ch)	Email	02.05.2014	Y
F	WWF ESARPO	Robert Ddamulira (rddamulira@wwfuganda.org)	Email	02.05.2014	N
F	Yunnan Green Environment Development Foundation, China	Ms. Mei Wang (wangmei.tracy@163.com)	Email	02.05.2014	N
F	Zero: Regional Environment Organisation	Johannes Chigwada (johannes@zeroregional.com)	Email	02.05.2014	N

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iv) Text of email invitation (sent on May 2, 2014)

Invitation to Attend a Stakeholder's Consultation Meeting: 9:00am – 12:30pm, Friday 23 May 2014, Karagwe (Tanzania)

Karagwe Development and Relief Services (KADERES), Basic Water Needs and South Pole Carbon Asset Management are pleased to invite you to participate in a local stakeholder consultation to discuss the environmental and social impacts of a planned household water treatment project, and to provide an opportunity for you to ask questions and provide feedback on the project.

The proposed project aims at creating awareness about water-borne diseases and at the same time building up sustainable distribution channels for Tulip household water filters in Karagwe and Kyerwa districts. For more information, please see the attached non-technical summary.

In addition to providing access to safe water, the project is contributing to the mitigation of global climate change, as a result of reducing boiling rates for water treatment. The project is developed under the Gold Standard Foundation. The title of the project is "Tulip Filters in Tanzania" and will be registered either as a standalone micro-scale project or become part of a micro-scale Program of Activities which will be developed by South Pole Carbon Asset Management as the coordinating/managing entity. The revenue from the carbon markets is used to finance the project.

The meeting will take place in Karagwe on **Friday 23 May 2014 at 9:00am at Angaza Hall, Kayanga Town** as per the agenda below:

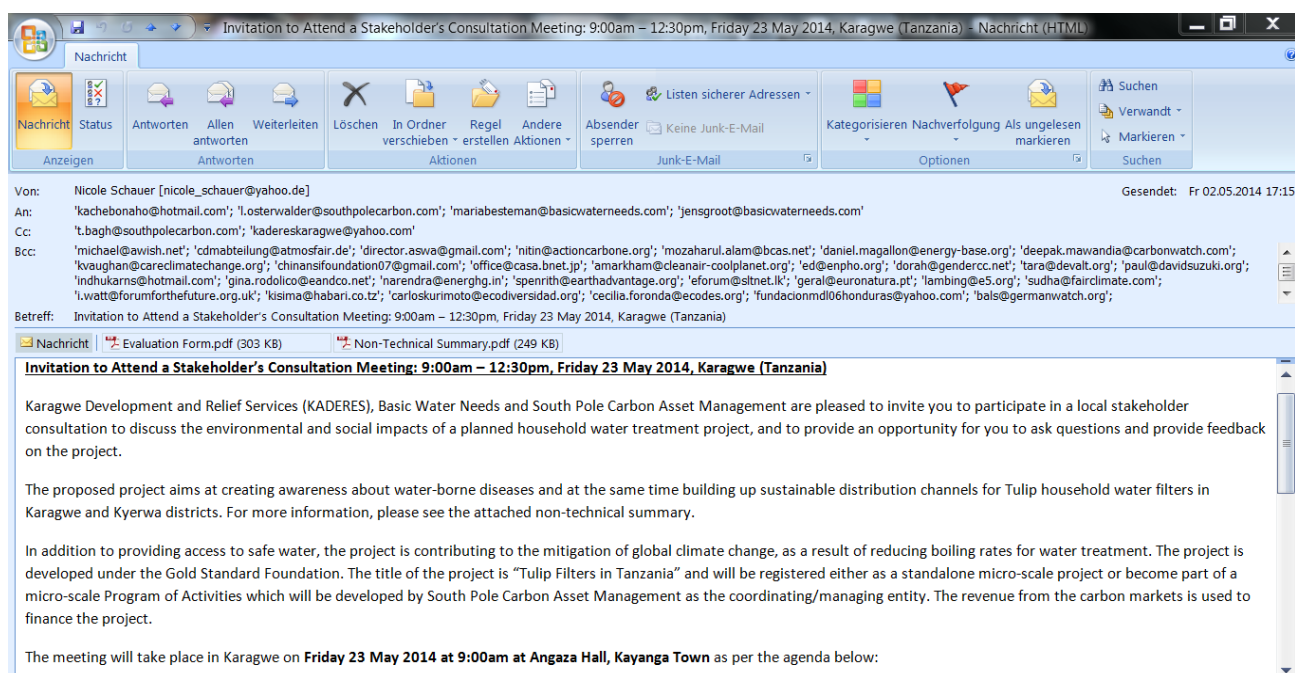
- 09:00 – 10:00 Opening of the meeting, explanation of the project and question round
- 10:00 – 11:30 Feedback round about environmental and social impacts of the project
- 11:30 – 12:30 Discussion of a continuous input/grievances mechanism
- 12:30 Closure of the meeting, refreshments

During the consultation, stakeholders will have an opportunity to provide input on each of the activities to ensure that they are implemented in the most effective and beneficial way possible, taking into account national and local social and environmental issues. Should you not be able to participate in the meeting, we would also welcome your comments on the proposed project via the attached Evaluation Form, which you may return by email to KADERES (nicole_schauer@yahoo.de).

Kindly RSVP for the local stakeholder consultation meeting to KADERES (nicole_schauer@yahoo.de) by 16 May 2014. However, if you miss the RSVP deadline, please feel free to attend anyway. Also please share these consultation opportunities with other organizations or individuals that would also be interested in participating.

Sincerely,

Nicole Schauer



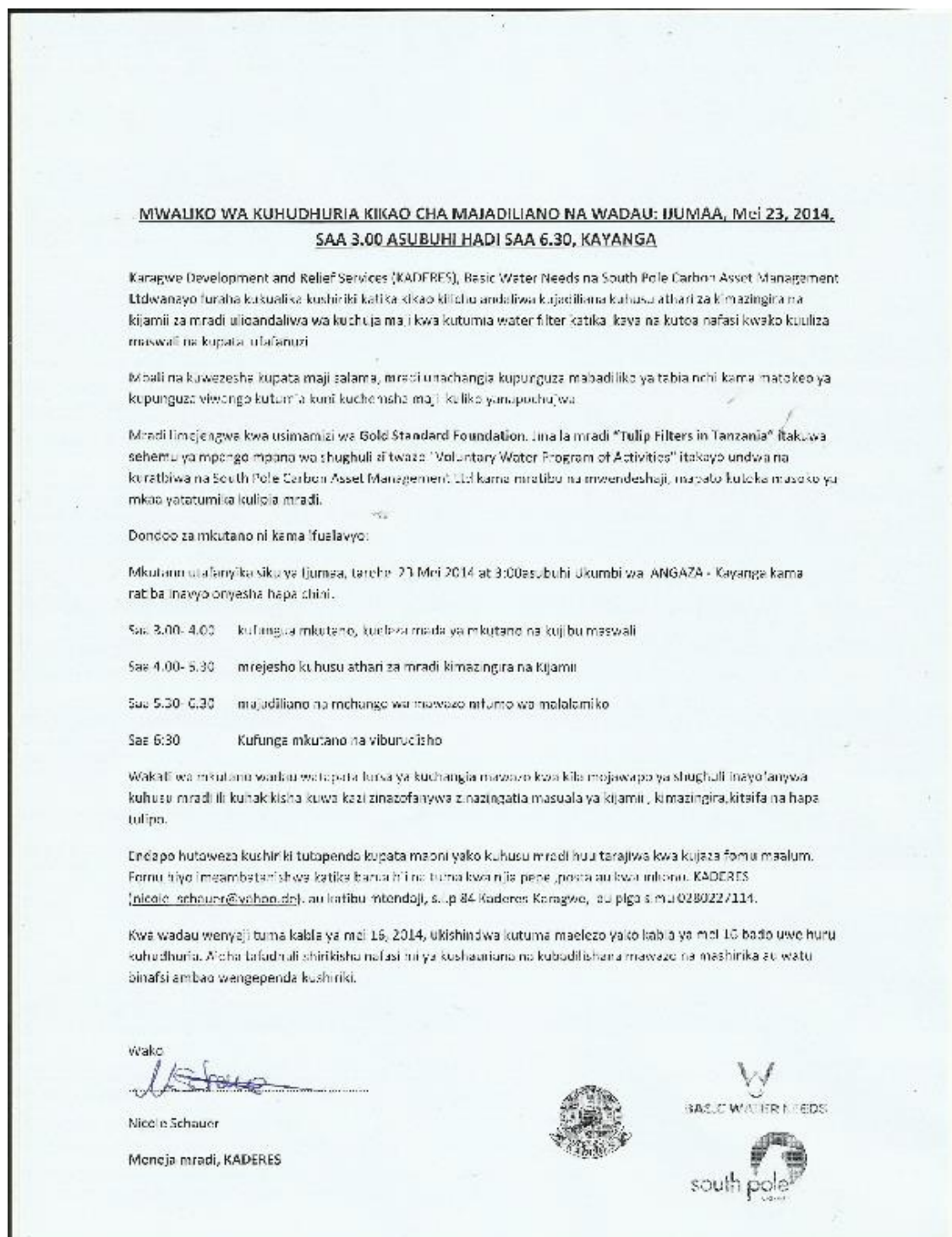
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v) Text of invitations to local stakeholders

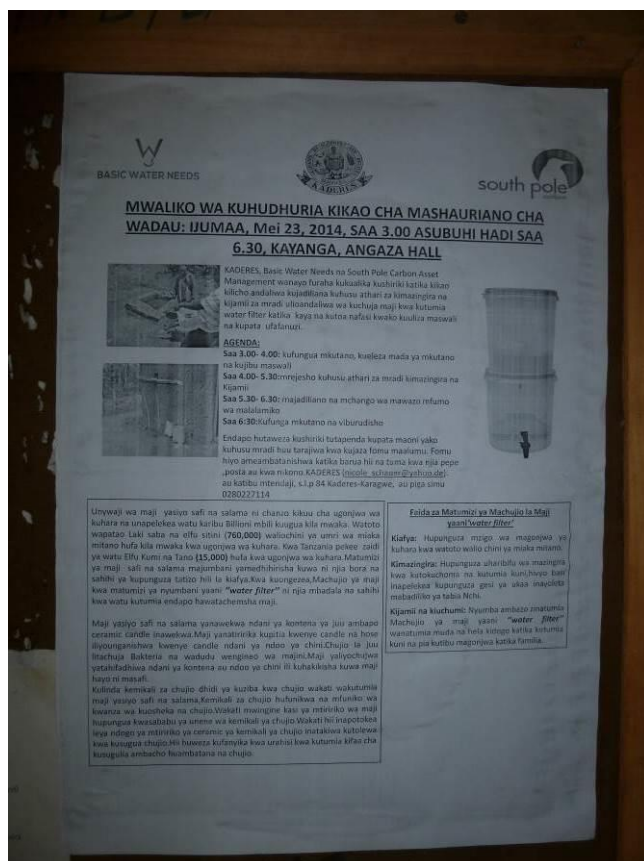
Local key stakeholders were invited by letters (in Swahili) and direct phone calls.



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vi) Text of public invitations

The general public in the project area was made aware about the LSC meeting through posters (in Swahili) placed at SACCOS offices (Savings and Credit Cooperative Societies) and at the district headquarters in Karagwe and Kyerwa.



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C.2. Summary of the comments received:

i) Minutes of the meeting

The venue of the meeting had to be changed from 'Angaza Hall' to 'KDVTC College' because the booking of the initial venue was cancelled the day before the LSC meeting. Invited stakeholders who had confirmed the participation were informed about the changes by phone. In addition, a person from KADERES was present at the Angaza Hall to inform stakeholders who had not confirmed their participation about the new venue.

The meeting was recorded on video. The video documentation can be made available by South Pole Carbon Asset Management Ltd. on request.

Tulip Filters in Tanzania – GS Local Stakeholder Consultation

Friday, 23 May 2014 at 9:00 – 12:30 am at KDVTC College, Kayanga Town, Tanzania

A non-technical summary of the project (in Swahili) and an evaluation form (in English/Swahili) were given to all participants at the beginning of the meeting.

1. Opening

The meeting started at 9:30 am when most of the participants had arrived at the venue. Leonard Kachebonaho, general manager of KADERES/KPD, officially opened the meeting by emphasizing the importance of safe drinking water for communities in Karagwe and Kyerwa districts. He also gave a short introduction about Karagwe Development and Relief Services (KADERES).

2. Explanation of the Project

Maria Besteman (Basic Water Needs) gave an introduction to the health risks related to unsafe drinking water and the usage of the Tulip Table-Top household water filter. She also briefly explained the planned project design.

Afterwards Lars Osterwalder (South Pole Carbon) briefly explained about the planned registration of the project under the Gold Standard (as standalone micro-scale project or as part of a micro-scale program of activities) and the financing structure of the project. He also shared first results of the baseline survey (48 households) which showed that around 77% of the population reported to be boiling the drinking water. Two third of water samples from households (point-of-consumption) showed fecal contamination (positive result for E. coli in a 10 ml sample).

The presentations were translated to Kiswahili by Joseph Ochuma (KADERES) with the support of Teresia Olemako (WWF) and Omary Bura (SWCEA).

3. Feedback Round & Questions for Clarification

The participants had the chance to ask questions and provide general feedback about the project. A summary of the questions and responses is given below in the section 'assessment of stakeholders comments' (combined with inputs/feedback from the evaluation forms).

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The overall feedback was very positive: reduced child mortality, improved health, less unproductive days due to reduction of waterborne diseases, reduced costs for treating water, increased income, time savings, reduced firewood demand, less soil erosion due to reduced deforestation, and conservation of the environment by reduced deforestation. The participants requested to start the project as soon as possible and the chairperson of Kibare village promised that the village councils will fully support the project, e.g. by organizing community meetings.

Some participants raised their concerns about the indicated price of 30'000 TSH per filter and said that this could be an obstacle to the project.

After the question and feedback round the 'blind sustainable development exercise' was conducted. The stakeholders pointed out that the project implementer needs to ensure proper disposal of the water filters once they are being replaced. Nevertheless, a majority scored the indicator for other pollutants as positive. Two participants raised concerns that the income of poor community members may be reduced because they will not be able to sell the same amount of firewood and charcoal when people switch from boiling water to using household water filters. All other participants scored the indicator on quantitative employment and income generation positive. The two skeptical participants agreed that the overall impact of the project is positive and that the project should not be stopped.

Air quality, water quality and quantity, livelihood of the poor, human and institutional capacity, and technology transfer and technological self-reliance were scored positive by all participants. The participants found that the project will have no impact on the soil condition, and on the balance of payments and investment.

4. Discussion of Continuous Input/Grievance Mechanism

The participants were informed that the report about the LSC meeting will be made available in due time. Any additional questions or feedback can be given to KADERES.

5. Closure

Mr. Joseph Ochuma (KADERES) officially closed the meeting at 1:30 pm.

The district water engineer of Karagwe district (Walter Kirita, 076 761 62 23, wkiritasi@yahoo.co.uk) was not able to attend the LSC meeting but was visited in his office by the project team on Wednesday, 28 May 2014:

He was very supportive and requested to be informed as soon as the filters arrive so that he can buy one and promote it. The district water engineer advised the project team to put enough emphasis on the promotion activities, training of trainers and hygiene education. In his opinion the selling point of the filter will be the time saved rather than the money saved (for reduced firewood/charcoal consumption).

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Active participation of stakeholder during the LSC meeting



Coffee break in front of the meeting room

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ii) List of participants

A scanned copy of the original participant list is attached in Annex 3.

Participants list					
#	Category Code	Name of participant	Male/Female	Organisation/Function	Contact details
1	A	Willfred Willibard	M	Farmer, Kituntu SACCOS	0787952803
2	A	Juvenary Katabaro	M	Farmer, Kituntu SACCOS	0786839740
3	A	Erasto Waziri	M	Farmer, chairman Kibaize	0766666515
4	A	Daudi Serestin	M	Farmer, chairman Mabira	0784761516
5	A	Eustas Kubazyemda	M	Farmer, chairman Kikukuru	0787515234
6	A	Salvinus Leonidas	M	Farmer, chairman Businde	0786660475
7	A	Froni B. Nestory	M	Farmer, chairman Rwabigaga	0782013377
8	A	Theodory Kibombo	M	Farmer, chairman Kimsemaki	0787738629
9	A	Levina Vedasto	F	Farmer, Kituntu SACCOS	0782011371
10	A	Clevina Chrisant	F	Farmer, Kituntu SACCOS	0782753578
11	A	Samuel Pasha	M	Farmer, Kituntu SACCOS	0782532560
12	A	William Baligubwa	M	Farmer, Kituntu SACCOS	0783173322
13	A	Maria Fidres Emil Kokutona	F	Farmer, Kituntu SACCOS	0752210268
14	A	Salvatory Chatuka	M	Farmer, chairman Kigarama	0786787377
15	A	Alphonse Kajwiga	M	Farmer, Kimuli SACCOS	0764635330
16	A	Clemence Kafuba	M	Farmer	0756763599
17	A	Fulgence Frederick	M	Councillor, Kyerwa District	0755848361
18	A	Philemon Binemungu	M	Farmer, chairman Nyamiyaga	0756426058
19	A	Evarister K. Jeremiah	M	Farmer, chairman Bugaro	0784488773
20	A	Sospateli Rwiru	M	Farmer, chairman Kitwe	0782125018
21	A	Zakaria Gitano	M	Farmer, chairman Katembe	0787262324
22	A	Paulo Byanushengo	M	Farmer, Kituntu SACCOS	0783709082
23	A	Gabriel Thomas	M	Farmer, Kyerwa SACCOS	0683930852
24	A	Charles Amosi	M	Farmer, chairman Murongo	0754918791
25	A	Zidina Murshid	F	Famer, Kituntu SACCOS	0786461008
26	A	Norbert Magezi	M	KDCU Ltd.	
27	A	Juhudi Feha	M	News Editor, FADELO	0756601054
28	A	Jastine Bweme	M	Journalist, FFR	0756250984
29	A	Christopher Visensio	M	Katibu Mwanawaka SACCOS	0686367754

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30	B	Filbert Binamungu	M	Community Development Officer, Kyerwa district	0755848361
31	D	Omary Bura	M	SWCEA, Arusha	0765626620
32	D	Emmanuel Andrew	M	Mavuno	0684068603
33	D	Adeland Ndibalema	M	CHEMA	0784723850
34	D	Benson Mulaki	M	CHEMA	0756217054
35	D	Fabian Lorbach	M	CHEMA	
36	D	Horace Kamkoto	M	ELCT-KAD	0756849784
37	D	Kevin Gervas	M	KARADEA	0763462598
38	D	Evelyne Benjamin	F	WOMEDA	0767544905
39	D	Hacks Bahati	M	World Vision	0789179309
40	D	Telesphory Kalemara	M	KADENVO	0767550615
41	D	Teresia R. Olemako	F	WWF Tanzania	0758251002
42	D	Joseph Ochuma	M	KADERES	0758222706
43	D	Julia Faustine	F	KADERES	0767517604
44	D	Nicole Schauer	F	KADERES	0768060968
45	D	Fahim Ally	M	KADERES	0754207978
46	D	Maria Besteman	F	Basic Water Needs	+31654730454
47	D	Lars Osterwalder	M	South Pole Carbon	+251912795817

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iii) Evaluation forms

Scanned copies of all evaluation forms are attached in Annex 4.

Name	Horace Kamkoto Kainika
Function/Job/Organization:	ELCT-KAD, project coordinator
Number/Email:	075 684 97 84
Male/Female:	Male
What is your impression of the meeting?	<ul style="list-style-type: none"> - The meeting was good and will help much on water and sanitation in the community - Will reduce drinking water costs - Forest cutting will be reduced - Water quantity and quality will be improved
What do you like about the project?	<ul style="list-style-type: none"> - The project is good and is invited to the area - Other challenges will remain the same but you are advised to do more on the chemical pollution
What do you not like about the project?	<ul style="list-style-type: none"> - If the project leads to some negative impacts to the environment - If the spare parts are not available or expensive - If disposal of products causes environmental pollution

Name	Hacks Bahati
Function/Job/Organization:	World Vision Karagwe, cluster team leader
Number/Email:	078 917 93 09
Male/Female:	Male
What is your impression of the meeting?	Fairly good!
What do you like about the project?	<ul style="list-style-type: none"> - It will potentially reduce waterborne diseases - It will reduce deforestation
What do you not like about the project?	Mradi unaweza kuongeza uchafuzi wa mazingira kutokona na uchomaji wa plastic containers.

Name	Telesphery Marini Kalemara
Function/Job/Organization:	Karagwe Development Network of Voluntary Organization (KADENVO), chairperson
Number/Email:	076 755 06 15
Male/Female:	Male
What is your impression of the meeting?	To establish, develop and sustain the project

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What do you like about the project?	<ul style="list-style-type: none"> - Equipment availability, usability and durability - Livelihood sustainability to the community
What do you not like about the project?	Nil

Name	Philemon Binemungu
Function/Job/Organization:	Farmer and chairman Nyamiyaga
Number/Email:	075 642 60 58
Male/Female:	Male
What is your impression of the meeting?	<ul style="list-style-type: none"> - Environmental conversation - Eradication of waterborne diseases
What do you like about the project?	<ul style="list-style-type: none"> - People will drink safe water - The project will avoid waterborne diseases - Reduction of carbon dioxide - Income generation
What do you not like about the project?	<ul style="list-style-type: none"> - High price for selling the filter will be an obstacle for buying - Members of this societies have low income so that few people will manage to buy the filter

Name	Filbert Binamungu
Function/Job/Organization:	Kyerwa district council, community development officer
Number/Email:	075 584 83 61
Male/Female:	Male
What is your impression of the meeting?	The meeting is okay and highly impressing as it has brought about a new knowledge and technology to the participants.
What do you like about the project?	<ul style="list-style-type: none"> - I like the project because it is encouraging and empowering the community on health improvements - Protecting people form infections - It is an income generating project - It saves time which ultimately can be utilized in income generating activities - It will serve the money and lives of people
What do you not like about the project?	The price should be reduced to an amount which is affordable to the community.

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Name	Fabian Lorbach
Function/Job/Organization:	CHEMA, Engineer Without Borders
Number/Email:	-
Male/Female:	Male
What is your impression of the meeting?	-
What do you like about the project?	<ul style="list-style-type: none"> - Using a filter on my own – good experiences! - Displacing the need of boiling water (energy, emissions, time, money) - Easy to use – high effect on health
What do you not like about the project?	<ul style="list-style-type: none"> - The used material for the containers is not as durable as metal and doesn't save water from UV radiation - Not producing in the region, knowledge transfer just for usage not for manufacturing

iv) Assessment of stakeholders comments

Stakeholder comment	Was comment taken into account (Yes/ No)?	Explanation (Why? How?)
Will spare parts be made available?	Yes	Replacement filters and spare parts will be made available as long as there is an interest by the customers. Carbon revenue can subsidize the filter promotion and distribution for up to 21 years.
How do the users know when the filter is not working anymore? What happens when it is expired?	Yes	Information on lifespan and a simple test will be provided together with the filter. When the candle filter is not thick enough anymore (based on simple test) the family needs to replace the candle. An expired filter does not remove the specified number of pathogens.
The candle filters need to be replaced after 6 – 12 months but some careless people may not do it and continue to drink unsafe water.	Yes	The project implementer will emphasize the importance of replace the candle once it is no longer thick enough. On-going promotion and awareness creation campaigns are planned also after the initial introduction phase.
How will the filters be disposed? Emissions from burning the plastic buckets may pollute the environment.	Yes	The candle filter needs to be replaced every 6 -12 month but ceramic does not pose any risk to the environment and the little plastic is equivalent to the waste of few plastic bags used for other purposes. The plastic housing

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		of the filters need to be replaced around every five years and will generate more solid waste. However, compared with other household waste it will still be a relatively small amount. Nevertheless, the project implementer will assess possible ways to collect and centrally dispose used filters.
Does the Tulip filter remove chemicals from the water? Can you add something to the filter to remove chemicals?	Yes	The filter removes microbiological contamination, turbidity and colour/taste (but not salinity or heavy metals as such a product would be too expensive).
Do you test the water after treating?	Yes	The Tulip filter was accredited by the Tanzanian Bureau of Standards and removes 99.995% of all bacteria (based on laboratory testing). As part of the project monitoring a random sample of filters will be tested annually.
Is the filter big enough? Is it possible to provide a bigger filter?	Yes	No bigger filters are available. The safe water container contains 10 L. If a family fills the filter in the morning and in the evening, a total of 20 L will be available for the full day. This should be sufficient for most families. In few families two filters may be required.
Metal buckets would be more durable and cause less pollution to the environment.	Yes	Metal buckets are more expensive than plastic buckets and may be introduced as an alternative product for wealthier households in the future. The project implementer argues that the overall impact on the environment does not vary greatly between metal and plastic buckets.
Children may play with the filters and destroy the plastic buckets.	Yes	The households will be advised to keep the filters at a safe place, out of the reach of small children. As people will pay for the filter it is more likely that they will make sure that their children do not damage the filter.
When does the project start? Are the filters already now accessible?	Yes	The project is expected to officially start in July or August 2014. By now some filters are being tested in few selected households.
For how long will the project provide filters?	Yes	The goal of the project is to introduce sustainable distribution channels for Tulip

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		filter in Karagwe and Kyerwa districts providing access to the filters for as long as not everyone has access to piped safe water at home.
What will the filters cost?	Yes	The filter will cost around TSH 30'000 but subsidies (mainly for poorer household) may be considered. The price will be fixed as soon all costs for shipping and importation are known.
Is it possible to pay for the filter in instalments?	Yes	The project implementer plans to introduce the filters through SACCOS (Savings and Credit Cooperative Societies) who are likely to introduce sales on payments in rates.
Will there be a discount on the filters so that everyone can afford it?	Yes	There might be ways to give subsidies to some families. The project implementers will ensure that the product is made available. The carbon revenue can be used for promotion and/or subsidies.
Why do you not supply the filters for free and generate many carbon credits?	Yes	The carbon revenue is not sufficient to sustainably cover the full cost of the project. Furthermore, people often do not take care of things they are getting for free and sense of ownership needs to be created.
What happens with the profit?	Yes	Basic Water Needs and South Pole Carbon are private companies and aim to sustainably make available a new health product in Karagwe and Kyerwa districts. Profit margins are low.
How and by whom will the people in the villages be trained on how to use the filters?	Yes	It is important to conduct awareness creation and education at village level. KADERES field staff will be trained on training SACCOS and local entrepreneurs in how to correctly use the filters. Household will then receive a short training when they buy the filter.
How will the filter be distributed to the villages?	Yes	The filters will be sold at SACCOS and shops. Basic Water Needs will build up sustainable distribution channels for spare parts and replacement filters.
Will everyone in Karagwe and	Yes	The project implementers do not give away

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Kyerwa districts get a filter?		the filters for free to all households. Only if all households in the two districts decide to buy a filter, full coverage can be reached. This is, however, rather unlikely.
Will some filter be given to schools?	Yes	Giving filters to schools will be considered as a promotion option.
The income of poor community members may be reduced because they will not be able to sell the same amount of firewood and charcoal when people switch from boiling water to using household water filters.	Yes	The baseline survey showed that more than 90% of the population uses firewood for cooking and only very few people are actually buying firewood. Reduced expenditures on treating diarrheal diseases may even increase the number of households buying firewood for cooking (as there is now some more money available). The project implementers and the majority of the meeting participants argue that the loss of income will be minimal.

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

The stakeholders' comments will be taken into account while designing the details of the project implementation mechanism. Attention needs to be given to a proper training of end users on the use of the household water filters. In addition the project implementer will decide on a strategy for how to handle old water filters when they are being replaced.

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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	<u>KADERES office:</u> P.O Box 84, Kaisho Street, Kayanga, Karagwe, Kagera, Tanzania	Boxes for written comments can be found in the KADERES office in Kayanga and in all places where household water filters are sold. Inputs or grievances can be given at any time directly to KADERES staff who would then report to the project manager in charge.
Telephone access	<u>KADERES:</u> +255 28 222 71 14, +255 28 222 71 06 <u>South Pole Carbon:</u> +41 43 501 35 50	In the KADERES office in Kayanga and in all places where household water filters are sold the phone numbers of KADERES, Basic Water Needs (a local agent in Tanzania still needs to be identified) and South Pole Carbon are provided.
Internet/email access	<u>Basic Water Needs:</u> info@basicwaterneeds.com <u>South Pole Carbon:</u> iwpp@southpolecarbon.com <u>Gold Standard:</u> info@goldstandard.org	In the KADERES office in Kayanga and in all places where household water filters are sold the email addresses of Basic Water Needs, South Pole Carbon and the Gold Standard (regional manager Africa) are provided.
Nominated Independent Mediator (optional)	N/A	Taking into account the geographical dispersion of the chlorine dispensers, the selection of a Nominated Independent Mediator was not considered as an appropriate method for continuous input and grievance expression.

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C.5. Report on stakeholder consultation feedback round:

For the Stakeholder Feedback Round the following steps are planned:

- An invitation for the Stakeholder Feedback Round will be sent out to all stakeholders who were invited and/or attended the Local Stakeholder Consultation on 23 May 2014
- The project documentation, as well as further supporting documents, will be made available on the webpage of South Pole Carbon and Gold Standard.
- A hardcopy of the project documentation will be made available at all locations where household filters will be sold
- A hardcopy of the project documentation will be made available at the KADERES office in Kayanga

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Annex 1

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

Organization:	South Pole Carbon Asset Management Ltd.
Street/P.O.Box:	Technoparkstrasse 1
Building:	
City:	Zurich
State/Region:	
Postfix/ZIP:	8005
Country:	Switzerland
Telephone:	+41 43 501 35 50
FAX:	+41 43 501 35 99
E-Mail:	info@thesouthpolegroup.com
URL:	thesouthpolegroup.com
Represented by:	
Title:	Senior Consultant
Salutation:	Mr.
Last Name:	Osterwalder
Middle Name:	
First Name:	Lars
Department:	
Mobile:	
Direct FAX:	
Direct tel:	+251 912 79 58 17
Personal E-Mail:	l.osterwalder@thesouthpolegroup.com

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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

See separate ODA declaration form.

Annex 3

ORIGINAL PARTICIPANT LIST

Annex 3 is provided as separate file

Annex 4

ORIGINAL EVALUATION FORMS

Annex 4 is provided as separate file

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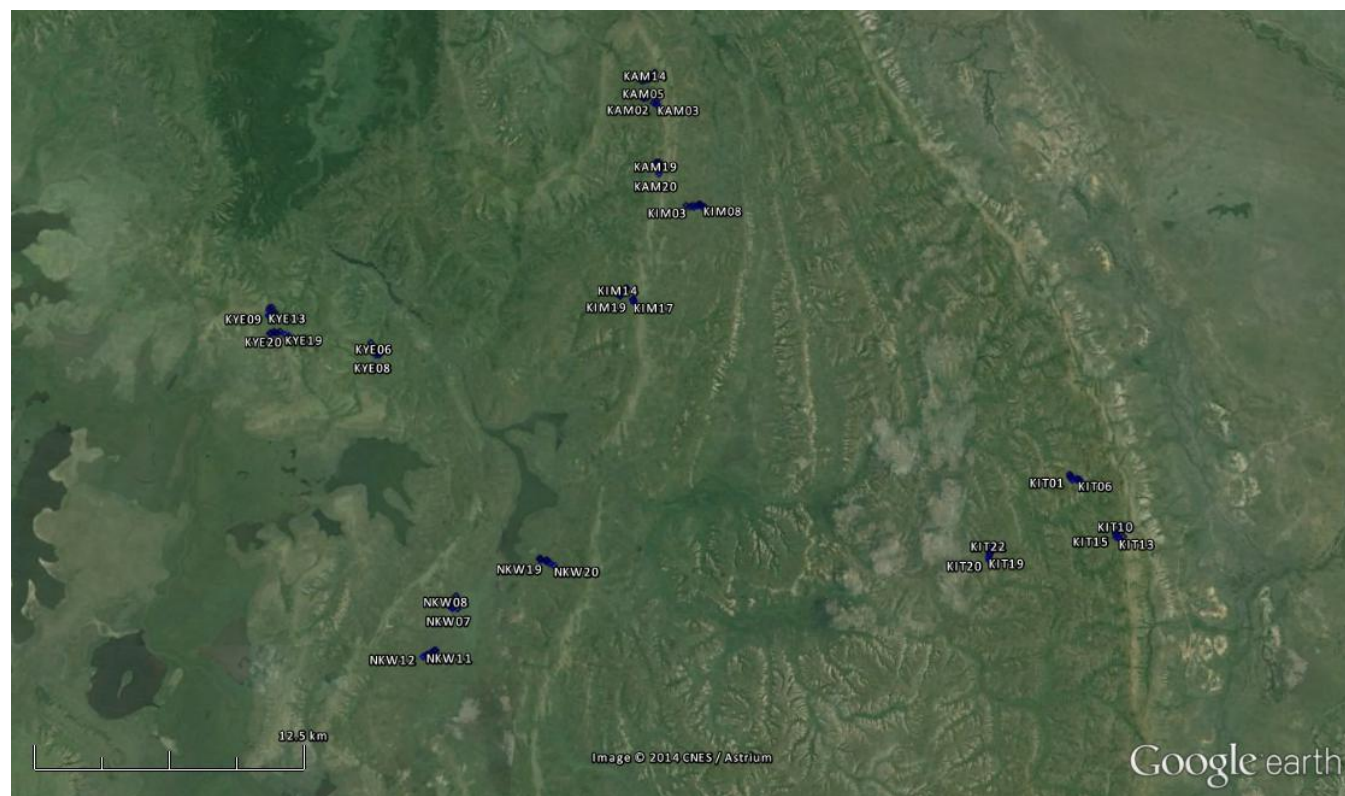
Annex 5

BASELINE SURVEY

Baseline Survey

A baseline study was conducted by South Pole Carbon, Basic Water Needs and Karagwe Development and Relief Services on May 20th – 26th, 2014. The survey was conducted at five locations in Karagwe and Kyerwa districts where the project will be launched. A list of 10 sub-locations was provided by a local informant at each location and three of them randomly chosen. At each sub-location 8 randomly selected households were visited (a bottle was turned, then one group visited every third household in the direction of the top of the bottle and a second group visited every third household in the direction of the bottom of the bottle). Due to big distances, in Kimuli only two sub-locations were visited (with 10 randomly selected households each). In total 116 household were visited but only 114 water samples collected as 2 households did not have any drinking water at home.

The group size for the project activity is 4'600 filters which would require a minimum sample size of 100. A total of 116 households were interviewed. GPS coordinates, respondents name and mobile number (if available) were recorded for each household.



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End User Characteristics

The average household size estimated based on the baseline data is 4.7 persons. This number is in line with the data provided in the 2012 Census Report for Tanzania (4.6 persons per household in Karagwe district and 4.8 persons per household in Kyerwa district). The households reported an average use of 22 L/day for drinking, hand and food washing (but not including cooking and cleaning), this suggests that in the project scenario maximum around 4.7 L/day will be treated per person.

In the rainy season the big majority of the households (91%) harvests rain water as their main drinking water source. In the dry season, however more than half of the people (53%) use surface water followed by springs (22%) and handpumps (17%).

Access to Safe Water (C_j)

In total 70 households (61.4%) reported to boil their drinking water at least 50% of the time and in 75 households (65.8%) the drinking water was found to have E. Coli in a 10 ml sample. Only 14 households were found to have safe drinking water at home despite not boiling it. This is very likely because they were using rain water. The number is conservative as it is expected that the number would be lower if the baseline survey was conducted during the dry season (no rain water harvesting).

An internationally recognized presence/absence test for E. Coli in 10 ml (IDEXX Colilert) was used for the water quality testing. In this case, this is more conservative than a presence/absence test in 100 ml as slightly more households are considered to have access to safe drinking water, resulting in a higher and more conservative value for C_j.

Table A1: Access to safe drinking water and prevalence of boiling drinking water

#	Village	District	Sampling Date	No Boiling & Safe	No Boiling & Unsafe	Boiling & Safe	Boiling & Unsafe	Total
1	Kituntu	Karagwe	20/05/2014	2	5	6	10	23
2	Kyerwa	Kyerwa	21/05/2014	1	5	6	12	24
3	Nkwenda	Kyerwa	22/05/2014	5	6	4	9	24
4	Kimuli	Kyerwa	24/05/2014	5	5	3	7	20
5	Kamuli	Kyerwa	26/05/2014	1	9	6	7	23
Total (Number)				14	30	25	45	114
Total (%)				12.3%	26.3%	21.9%	39.5%	100%
No boilers with safe water			12.28%					

A value of C_j = 12.28% is used for the emission reduction calculations.

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Prevalence of HWTS (X_{boil})

Out of the 91 households that reported to make something with their water to make it safe for drinking, 76 reported that they boil (83.5%), 13 households reported to use an inadequate method such as settling or straining through a cloth (14.3%), one household reported to use chlorine (1.1%) and one household reported to only drink bottled water (1.1%).

X_{boil} was established by using the fraction of households that report to boil and households that report to use adequate non-GHG emitting technologies in the baseline situation. Chlorine and bottled water were considered as non-GHG emitting methods. This parameter is only applicable for households under suppressed demand. Thus, 2.56% needs to be multiplied with 32.8% (households that don't or only inadequately treat their drinking water).

Table A2: Prevalence of non-GHG emitting water treatment methods

#	Village	District	Sampling Date	Water made safe?			Boiling	Chlorine	Bottled	Total
				Yes	Inadequate	No				
1	Kituntu	Karagwe	20/05/2014	18	5	1	18	0	0	18
2	Kyerwa	Kyerwa	21/05/2014	19	1	4	19	0	0	19
3	Nkwenda	Kyerwa	22/05/2014	13	3	8	13	0	0	13
4	Kimuli	Kyerwa	24/05/2014	13	4	3	11	1	1	13
5	Kamuli	Kyerwa	26/05/2014	15	0	9	15	0	0	15
Total (Number)				78	13	25	76	1	1	78
Total (%)				67.2%	11.2%	21.6%	97.4%	1.3%	1.3%	100%
Non-GHG emitting technologies				2.56%						

A value of $X_{\text{boil}} = 2.56\% * 32.8\% = 0.84\%$ is used for the emission reduction calculations.

Stoves and Fuel

The survey assessed the fuels and stoves most commonly used for boiling drinking water. A picture of each stove was taken and can be obtained from the CME. Firewood is the most common fuel used in the project area (91%) followed by charcoal (9%). No household reported to use either kerosene or LPG. In average households spend 3.2 hours per week for collecting firewood.

Table A3: Firewood and stoves used in the project area

#	Village	District	Sampling Date	Conventional & Firewood	Improved & Firewood	Conventional & Charcoal	Improved & Charcoal	Total
1	Kituntu	Karagwe	20/05/2014	17	5	2	0	24
2	Kyerwa	Kyerwa	21/05/2014	23	0	1	0	24
3	Nkwenda	Kyerwa	22/05/2014	22	1	1	0	24
4	Kimuli	Kyerwa	24/05/2014	15	1	4	0	20
5	Kamuli	Kyerwa	26/05/2014	20	2	2	0	24
Total (Number)				97	9	10	0	116
Total (%)				83.6%	7.8%	8.6%	0.0%	100%