Gold standard for the global goals

Monitoring report

"VPA - Spouts - 2" (GS6444)

by Believe Green LLC

Gold Standard for the Global Goals

June 2017, version 1

Title of the project	VPA - Spouts-2
Gold Standard project id	GS6444
Version number of the monitoring report	V05
Completion date of the monitoring report	07/04/20
Date of project design certification	15/08/2019
Start date of crediting period	01/09/2017
Duration of this monitoring period	(01/09/2017) to (31/08/2019) – *(see section A.1)*
Duration of previous monitoring period	This is the first period
Project representative(s)	Dr. Federico Gallo Managing Director of Believe Green LLC
Host Country	Uganda
Certification pathway (activity certification/impact certification)	Impact certification
SDG Contributions targeted (as per approved PDD)	1 – SDG13 – **Emission Reductions** 2 – SDG 12 – **Quantity of fuel burned avoided from domestic consumption** 3 – SDG 6 – **Proportion of population using safely managed drinking water services**
Gold Standard statement/product certification sought (GSVER/ADALYs/RECs etc.)	GSVER
Selected methodology(ies)	"Technologies and Practices to Displace Decentralized Thermal Energy Consumption" Version 3.1, August 2017.
Estimated amount of annual average certified SDG impact (as per approved PDD)	1 – SDG13 – **Emission Reductions 9,497 tCO2e/year** 2 – SDG 12 – **Quantity of fuel burned avoided from domestic consumption 7,081 Tonnes of wood** 3 – SDG 6 – **Proportion of population using safely managed drinking water services 0.04%**
Total amount of certified SDG impact (as per approved methodology) achieved in this monitoring period	***Period 2017-2018: (see Section A.1.b)*** 1 – SDG13 – **Emission Reductions 9,421 tCO2/year** 2 – SDG12 – **Quantity of fuel burned avoided from domestic consumption 6,013 Tonnes of wood** 3 – SDG 6 – **Proportion of population using safely managed drinking water services 0.04 %**

	Period 2018-2019: (see Section A.1.b) 1 – SDG13 – **Emission Reductions 9,193 tCO2/year** 2 – SDG12 – **Quantity of fuel burned avoided from domestic consumption 5,868 Tonnes of wood** 3 – SDG 6 – **Proportion of population using safely managed drinking water services 0.04 %**

Vintage break up		**Spouts-2**	**Spouts-2_2Y**
year	***Period***	***tCO2***	***tCO2***
2017	01/09/2017 to 31/12/2017	2,119	0
2018	01/01/2018 to 31/12/2018	7,302	2,426
2019	01/01/2019 to 31/08/2019	0	6,767
	Total	***9,421***	***9,193***

Document Control			
Rev.	***Data***	***Approved***	***Description and reason of revision***
00	10/09/19	F. Gallo	Verification – Issuance I
01	29/11/19	F. Gallo	Verification – Issuance I – Round 1
02	31/01/20	F. Gallo	Verification – Issuance I – Round 2
03	24/02/20	F. Gallo	Verification – Issuance I – Round 3
04	28/03/20	F. Gallo	Verification – Issuance I – Round 4
05	07/04/20	F. Gallo	Verification – Issuance I – Round 4

SECTION A. Description of project

A.1. Purpose and general description of project

>> (Provide a brief summary of the detailed description given in section B.1 including purpose of the project, brief description of the installed technology and equipment and relevant dates for the project (e.g. construction start/end, commissioning, continued operation periods, etc.)

"Believe Green Safe Drinking Water – Spouts–2" is a Gold Standard micro-programme activity (VPA) which aims to reduce biofuel consumption, such as wood, as is traditionally used to boil water to make it safe to drink. This is done by offering low income populations affordable and easily accessible treated water that is safe to drink. Since these people usually use inefficient cook stoves that cause large amounts of smoke leading to respiratory diseases, the project also has significant health co-benefits. Also, the project generates significant employment and income opportunities for the local villagers, who are invited to join the project across the production and delivery chain.

Believe Green LLC is responsible for coordinating all aspects related to the Gold Standard Certification, as well as designing and managing all the monitoring activities.

Spouts of Water is the local partner in Uganda. **Spouts of Water** provides Ugandan communities with increased access to safe drinking water by manufacturing and distributing the Purifaaya ceramic water filter, the only locally manufactured water filter in Uganda. The Purifaaya is affordable even to poorer communities at 20 USD, providing a tested solution to people who need it most.

By replacing the common practice of boiling, families and especially women save money, time, and fuel.

A.1.a - Technology - Distribution channels - Strategy - Awareness campaigns

The Purifaaya water filter uses ceramic filtration technology. Ceramic water filters are an innovative product offered as an appropriate clean water solution in Uganda. An assessment on the use of ceramic water filters in Cambodia by UNICEF states, "[Ceramic] filters have the advantage of being lightweight, portable, relatively inexpensive, chemical-free, low-maintenance, effective, and easy to use."

To distribute the filters across the entire nation, SPOUTS segments the market by income level, targeting all households while also working with NGOs to provide clean drinking water to refugee camps, schools, prisons, clinics and other public spaces. In urban and peri-urban areas, SPOUTS products are sold in retails shops, targeting households that can afford the upfront cost of the filter.

In Section B.1, Tab.2.a and Tab.2.b show the filters quantity sold per Account Type.

'Spouts -ERC' spreadsheet, 'Sales Tracker-Database' worksheet shows each detail of the filters distribution.

A.1.b - The Monitoring Period - Vintage wise break-up (year 2017, 2018, 2019)

Since the project meets the requirement of the GS4GG PRINCIPLES AND REQUIREMENTS, Section 3.4.7, i.e.:

- the Project Start Date has already occurred prior to the first submission of Preliminary Review information to Gold Standard
- the Project was submitted for Preliminary Review within 1 year of the Project Start Date

and

Since the project meets the rule (3.4.10.13) of the GS4GG PRINCIPLES AND REQUIREMENTS, i.e.:

- the Project Start Date is two years prior to Project Design Certification to unless otherwise stated in a specific Methodology or Product Requirements.

(see tab on the cover page)

then this project may be deemed as a Retroactive Design Certification Project.

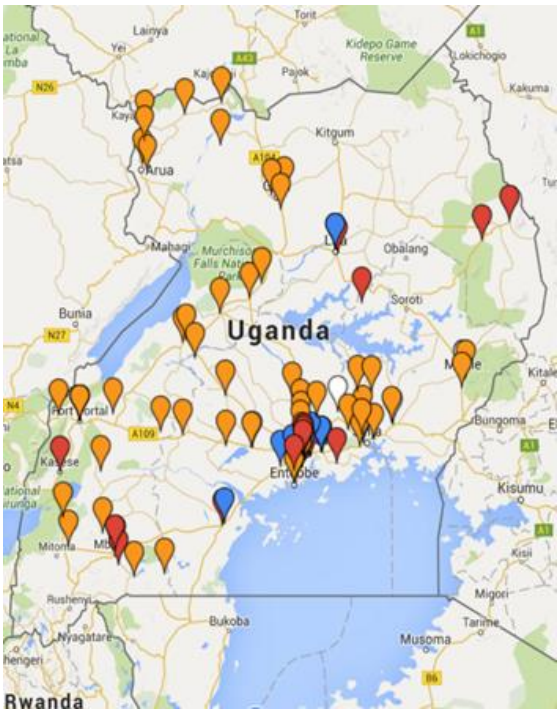
The start date of this project was 01/09/2017 and this is the first issuance for the period 2017-2019.

A.2. Location of project

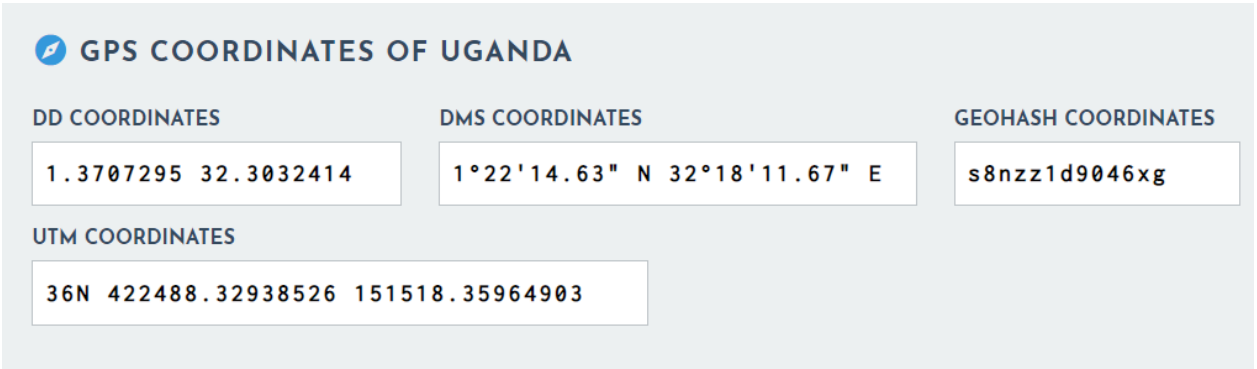
>> (Provide host country, state/province, city/town details along with GPS co-ordinates.)

Host country: Uganda

Spouts of Water distributes filters in over 200 communities across all four regions of Uganda. The map and the table below show the distribution points in Region/City:



Central	East	North	West
Bugolobi	Jinja	Adjumani	Bundibugyo
Bukoto	Kumi	Arua	Bushenyi
Entebbe	Mbale	Lira	Fort Portal
Kajjansi		Moroto Town	Isingiro
Kampala		Moyo	Kabwohe
Kampala Rd			Kasese
Kasubi			Kyenjojo
Kawempe			Masindi
Kigo			Mbarara
Kikubo			
Kireka			
Kisimenti			
Kiyinda			
Kololo			
Lubowa			
Mubende			
Mukono			
Nakulabye			
Nsangi			
Ntinda			
Old Kampala			
Rubaga			
Seguku			



REGIONS OF UGANDA SERVED BY SPOUTS OF WATER

A.3. Reference of applied methodology

>>(Indicate title and version number of the methodology.)

Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 3.1 (TPDDTEC).

A.4. Crediting period of project

>> (*Provide start date and length of the crediting period as given in approved PDD.)*

01/09/2017 31/08/2022

5 years in first crediting period, renewable two times up to 15 years.

SECTION B. Implementation of project

B.1. Description of implemented project

>> (*Provide information on the implementation status of the project during this monitoring period. Specify any deviations / delays compared to information in approved project.)*

To distribute the filters across the entire nation, **Spouts of Water** segments the market by income level, targeting all households while also working with NGOs to provide clean drinking water to refugee camps, schools, prisons, clinics and other public spaces.
Spouts of Water products are sold in retails shops, targeting households that can afford the upfront cost of the filter.'Spouts – ERC' spreadsheet contains details of filter sales records.

Tab 1.a - ***Filters distribution by Region/City - (Period 2017-2018)***

Micro	Spouts-2

Sum of Quantity	**Column Labels**	
Row Labels	**2018**	**Grand Total**
Central	**3073**	**3073**
Old Kampala	1500	1500
Ntinda	1500	1500
Kampala	61	61
unrecorded	10	10
Entebbe	1	1
Kololo	1	1
East	**67**	**67**
Jinja	42	42
unrecorded	25	25
West	**50**	**50**
Mbarara	50	50
unrecorded	**367**	**367**
unrecorded	367	367
Grand Total	**3557**	**3557**

Tab 1.b - ***Filters distribution by Region/City - (Period 2018-2019)***

Micro	Spouts-2_y2

Sum of Quantity	Column Labels		
Row Labels	**2018**	**2019**	**Grand Total**
Central	**1895**	**93**	**1988**
Old Kampala	901		901
Kiyinda	750		750
unrecorded	105	52	157
Kampala	115	35	150
Rubaga	12	4	16
Bugolobi	7		7
Kikubo	2	2	4
Kisimenti	3		3
Nsangi		0	0
East	**122**		**122**
unrecorded	110		110
Jinja	12		12
West	**0**		**0**
Mbarara	0		0
unrecorded	**1154**	**207**	**1361**
unrecorded	1154	207	1361
Grand Total	**3171**	**300**	**3471**

Tab 2.a - ***Filters distribution by Account Type - (Period 2017-2018)***

Micro	Spouts-2

Sum of Quantity	Column Labels	
Row Labels	**2018**	**Grand Total**
CBOs	25	25
D2C Program	354	354
Individual	36	36
INGOs	3047	3047
Other	0	0
Retail & Wholesale	29	29
SACCOs & Coops	51	51
School	15	15
Grand Total	**3557**	**3557**

Tab 2.b - ***Filters distribution by Account Type - (Period 2018-2019)***

Micro	Spouts-2_y2

Sum of Quantity	Column Labels		
Row Labels	**2018**	**2019**	**Grand Total**
CBOs	106	10	116
D2C Program	866	191	1057
Individual	79	23	102
INGOs	1707	54	1761
Microfinance Institutions	51		51
Other	25	4	29
Retail & Wholesale	259	14	273
SACCOs & Coops	46		46
School	32	2	34
Supplier		2	2
Grand Total	**3171**	**300**	**3471**

Tab 3.a - ***Filters distribution by Product Name - (Period 2017-2018)***

Micro	Spouts-2

Sum of Quantity	Column Labels	
Row Labels	**2018**	**Grand Total**
Filter Pot	0	0
Purifaaya	1501	1501
Purifaaya Commercial	280	280
Purifaaya Financing	135	135
Purifaaya Upfront	69	69
Purifaaya XL	1572	1572
Grand Total	**3557**	**3557**

Tab 3.b - ***Filters distribution by Product Name - (Period 2018-2019)***

Micro	Spouts-2_y2

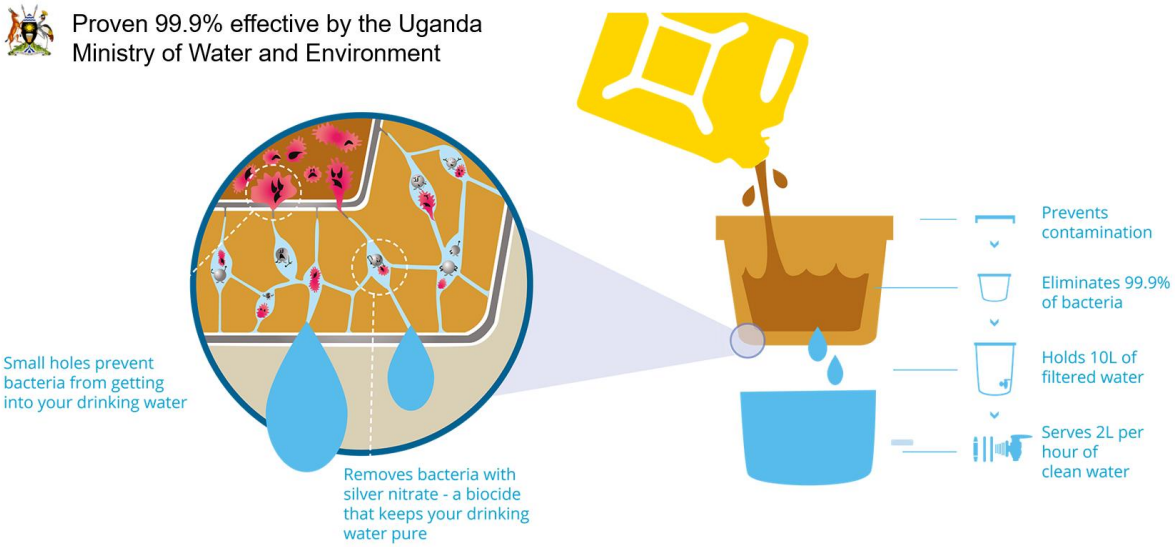
Sum of Quantity	Column Labels		
Row Labels	**2018**	**2019**	**Grand Total**
Buckets sold		0	0
Filter Pot	0	0	0
Purifaaya	17	282	299
Purifaaya Aid	12		12
Purifaaya Commercial	1762		1762
Purifaaya Financing	604		604
Purifaaya Upfront	248		248
Purifaaya XL	480	18	498
Purifaaya XL Aid	15		15
Purifaaya XL Commercial	33		33
Replacement Pot	0		0
Grand Total	**3171**	**300**	**3471**

TECHNOLOGY

The *Purifaaya* water filter uses ceramic filtration technology. Ceramic water filters are an innovative product offered as an appropriate clean water solution in Uganda. An assessment on the use of ceramic water filters in Cambodia by UNICEF states, "[Ceramic] filters have the advantage of being lightweight, portable, relatively inexpensive, chemical-free, low-maintenance, effective, and easy to use."[1]

The base of the filter is a ceramic pot with microscopic holes, which trap bacteria, enabling only clean drinking water to pass through. In order to maximize safety, all of our filters are subjected to strict quality control and then coated with an additional layer of silver nitrate, an effective biocide. Water from any source can be sanitized through the ceramic filtration system and stored at the bottom of the filter ready to drink. At the bottom of the filter is a tap, which makes the clean drinking water easily accessible. The household *Purifaaya* stores 20 liters of water, whilst the *Purifaaya* XL stores 60 liters, making it ideal for public spaces such as schools, hospitals and prisons. In 2015 The Ugandan Ministry of Water and Environment tested and approved the filter stating that SPOUTS OF WATER filters are "efficient and effective to produce water that meets the recommended standard of water for human consumption."[2] Test results conclude that the *Purifaaya* kills 99.9% of disease-causing bacteria, as well as removing the turbidity of the water, thus producing drinking water that is both safe and clean.

In addition to *Purifaaya's* technical excellence, SPOUTS 'ceramic filters are also culturally and socially acceptable in Uganda due to the long-standing tradition in villages of storing drinking water in clay pots. The local population prefers the taste of the water from ceramic filters and is accustomed to maintaining ceramic products.



[1] Unicef. "Improving Household Drinking Water Quality: Use of Ceramic Water Filters in Cambodia." August 2007. https://www.unicef.org/eapro/WSP_UNICEF_FN_CWP_Final.pdf

[2] Record of Approval: http://spouts.org/wp-content/uploads/2016/09/SPOUTS_Purifaaya-Intro.pdf

B.2. Post-registration changes

B.2.1. Temporary deviations from Certified Key Project Information, Project Design Document, Monitoring & Reporting Plan, applied methodology or applied standardized baseline

>> (Indicate whether any temporary deviations have been applied during this monitoring period. If applied, provide a description of the deviation(s). Include the reasons for the deviation(s), how it deviates from the monitoring plan, applied methodology(ies) and/or applied approaches, the duration for which the deviation(s) is(are) applicable and justification on the conservativeness of the approach. Also indicate if prior approval from GS-TAC have been sought on the deviation.)

No temporary deviations have been applied during this monitoring period

B.2.2. Corrections

>> (Indicate whether any corrections to project information or parameters fixed at validation have been applied.)

No corrections to project information or parameters fixed at validation have been applied

B.2.3. Changes to start date of crediting period

>> (Indicate whether any changes to the start date of the crediting period have been approved by Gold Standard that is relevant for this monitoring period.)

No changes to the start date of the crediting period have been introduced.

B.2.4. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

>> (Indicate whether any permanent changes from the approved monitoring plan, applied methodologies or applied approaches have been approved by GS-TAC that is relevant for this monitoring period.)

No permanent changes from the approved monitoring plan, applied methodologies or applied approaches have been introduced.

B.2.5. Changes to project design of approved project

>> (Indicate whether any changes to the design of the project have been approved by GS-TAC that is relevant for this monitoring period.)

No changes have been made to the project design.

SECTION C. Description of monitoring system applied by the project

This project's monitoring included the following elements:

1. A Total Sales Record

The project proponent continuously maintains an accurate and complete sales record, which is backed up electronically.

'Spouts -ERC' spreadsheet, 'Sales Tracker-Database' worksheet shows each detail of the filters distribution.

Double counting with other carbon standards

The following steps ensure that we are avoiding double counting with other carbon standards:

1. We are only claiming and certifying water purchased from Spring Health, and we are keeping a precise record of this amount, as detailed elsewhere in this monitoring report and VPA.

2. We are only certifying this project with the Gold Standard / SustainCert: we are not certifying it under other standards.

3. Data collected for carbon certification purposes under this project is only shared internally within the team, and with the Gold Standard / SustainCert, so no other third parties can certify this project either.

4. We are not aware of other projects seeking carbon credits in our area of operation.

5. We asked to each customer to inform us about any proposal of participation in another program. (see Appendix 3)

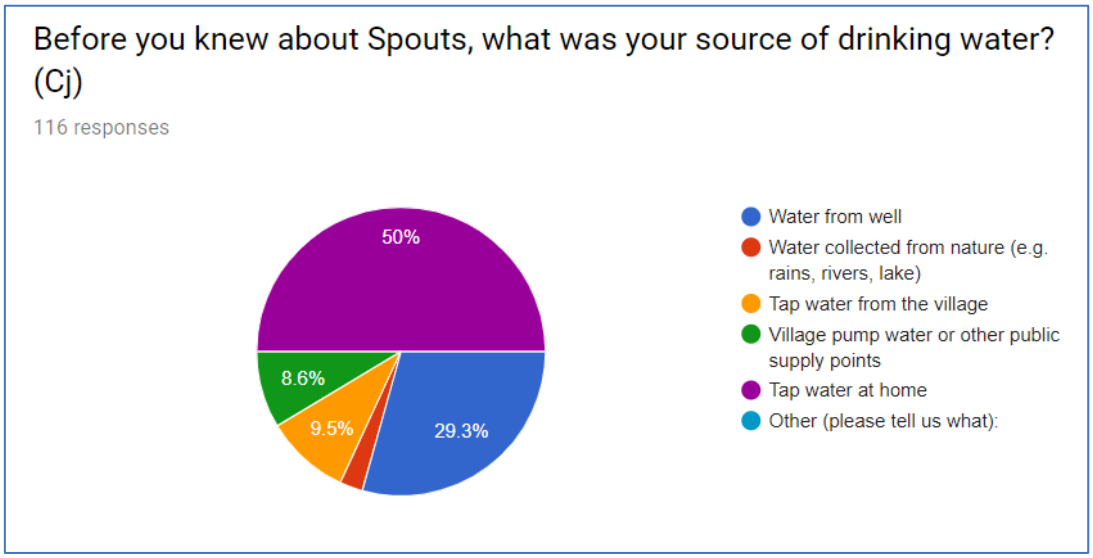
Training activities

The team assigned to carry out the surveys carried out the training activities described in:

- Annex A - *Training Manual: Teaching a community to use the filter*
- Annex B - *SPOUTS of Water Usage Study - Surveys and Training Manual*

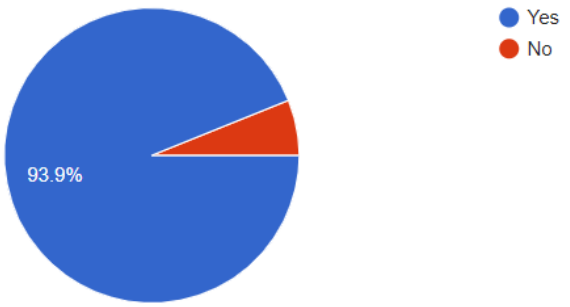
2. A monitoring survey, including a baseline survey and usage survey.

We have conducted a survey in July 2019. This section presents the results of the survey. The text includes the questions asked in the questionnaire and, immediately below, the relevant answers. The detailed results from the survey are included in the 'Survey 2019' worksheet of the 'Spouts – ERC' spreadsheet.



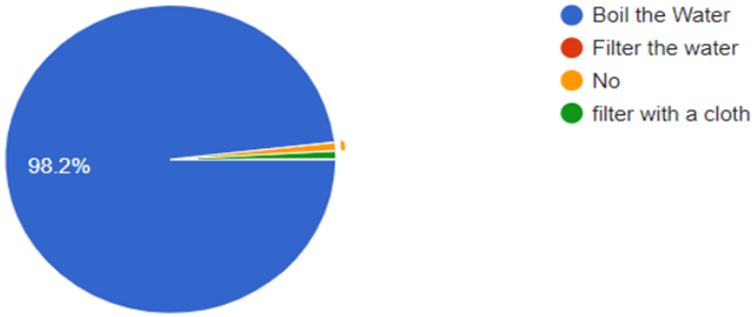
Before Spouts, did you disinfect the water before drinking it? (X_Boil)

115 responses



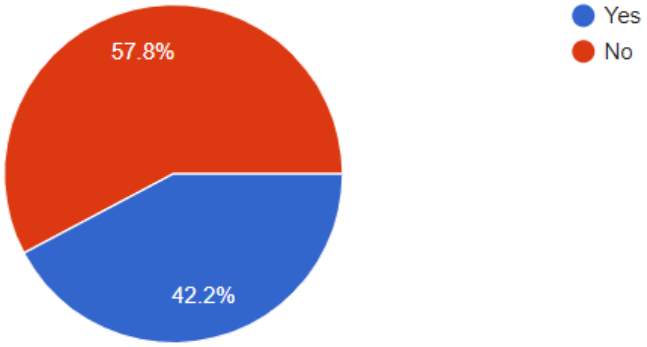
If you used to disinfect your water, how did you do it? (X_Boil)

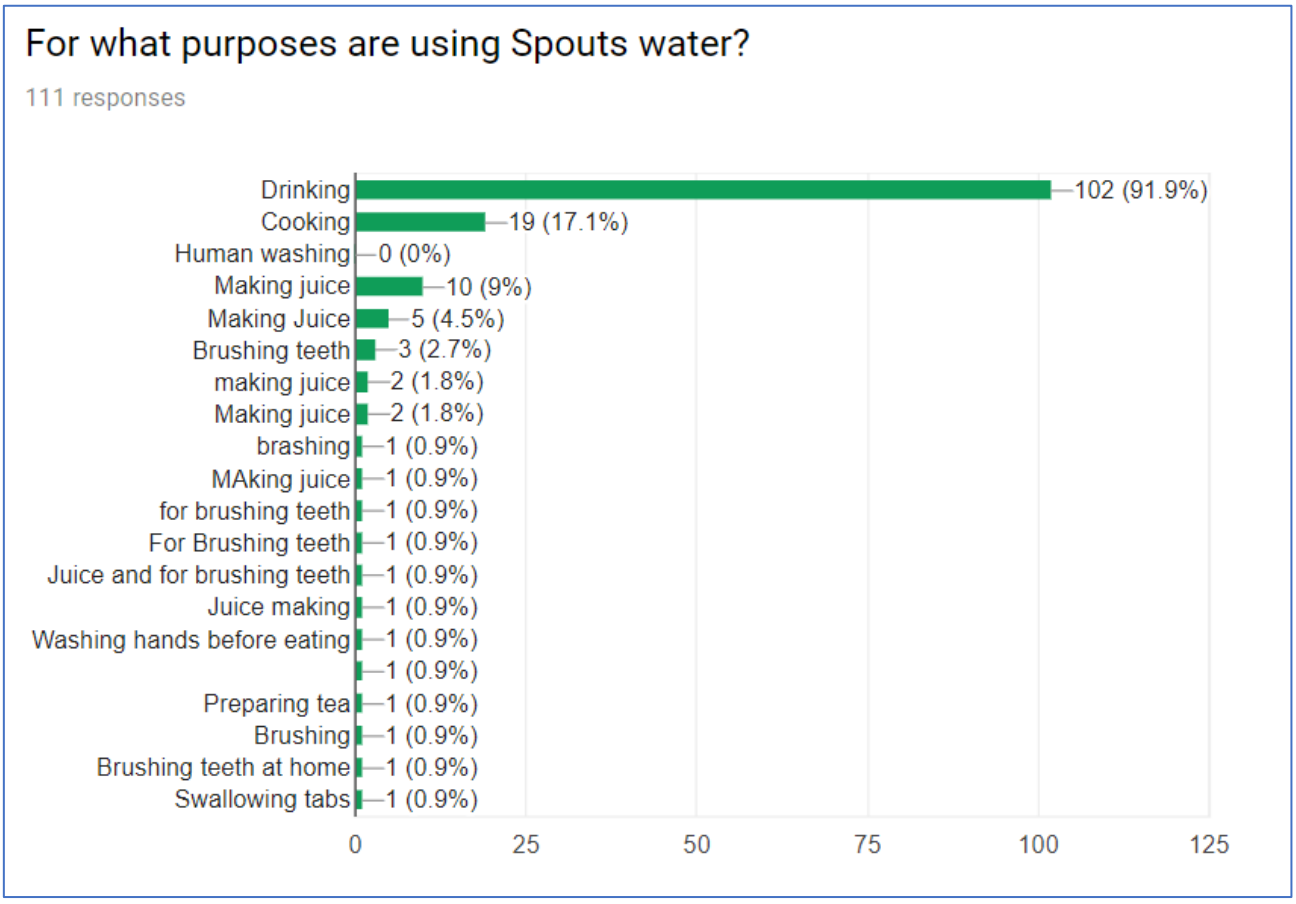
111 responses

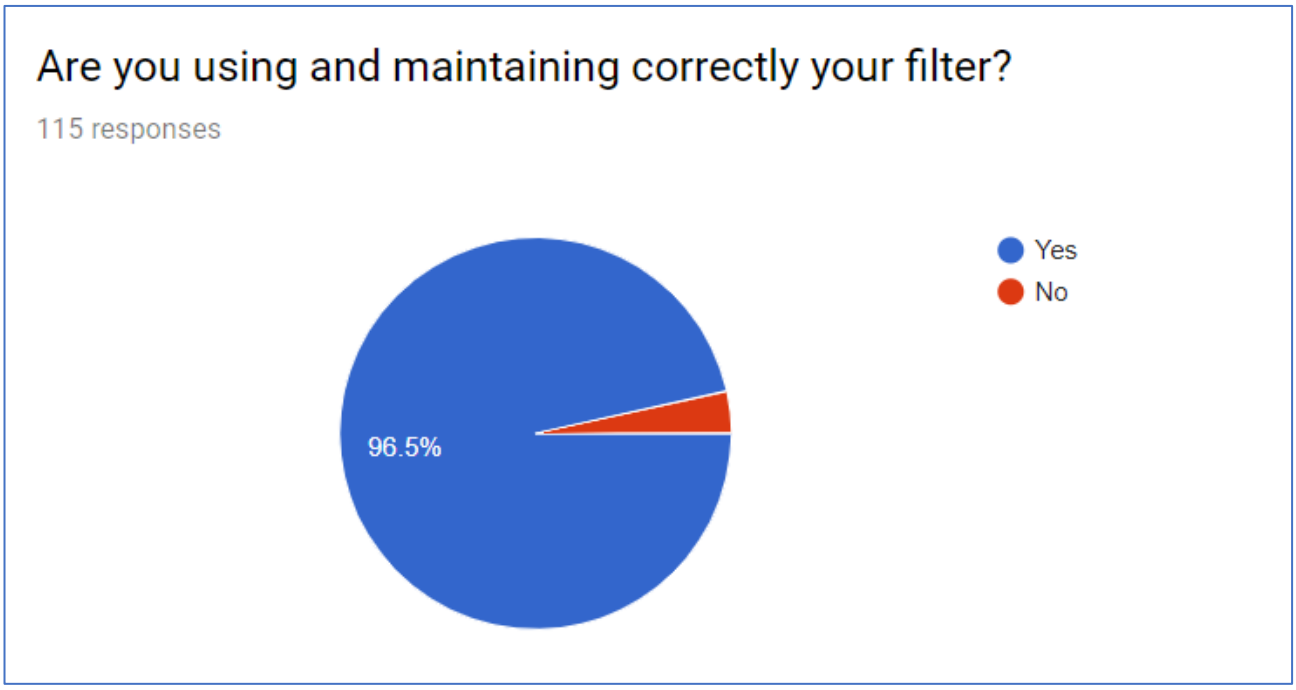


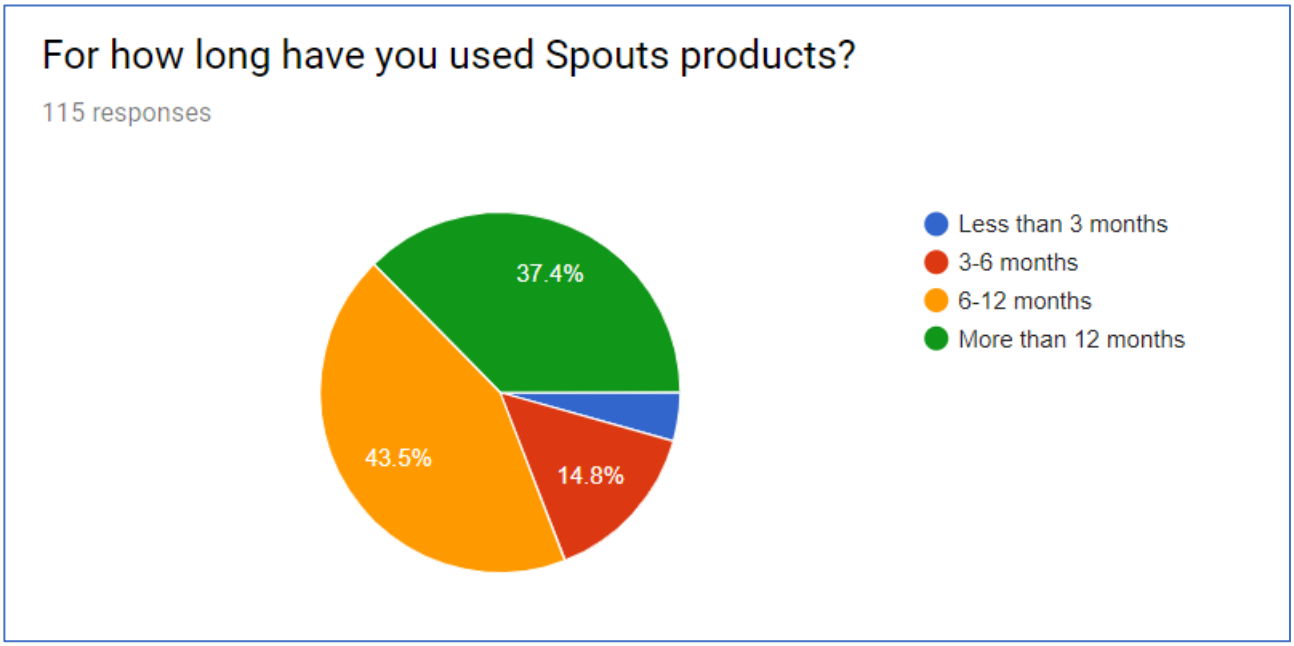
Do you use Spouts water for purposes other than drinking?

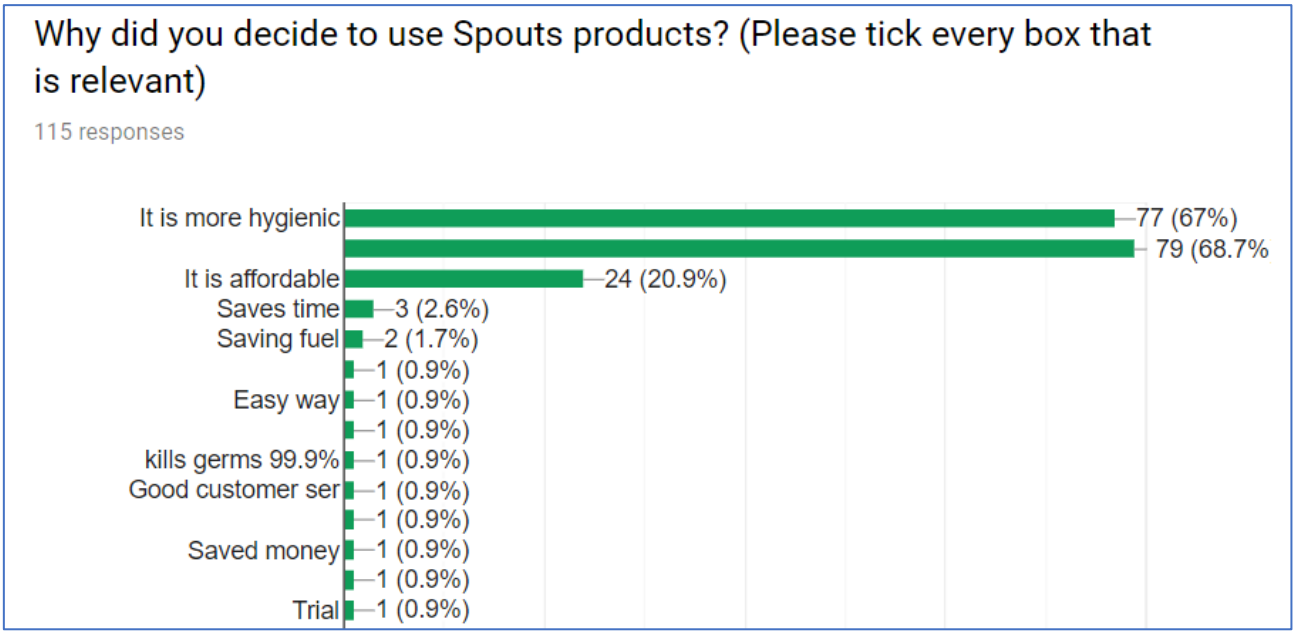
116 responses




For what purposes are using Spouts water?
111 responses
Drinking
Cooking
Human washing
Making juice
Making Juice
Brushing teeth
making juice
Making juice
brashing
MAking juice
for brushing teeth
For Brushing teeth
Juice and for brushing teeth
Juice making
Washing hands before eating
Preparing tea
Brushing
Brushing teeth at home
Swallowing tabs
102 (91.9%)
19 (17.1%)
0 (0%)
10 (9%)
5 (4.5%)
3 (2.7%)
2 (1.8%)
2 (1.8%)
1 (0.9%)
0
25
50
75
100
125

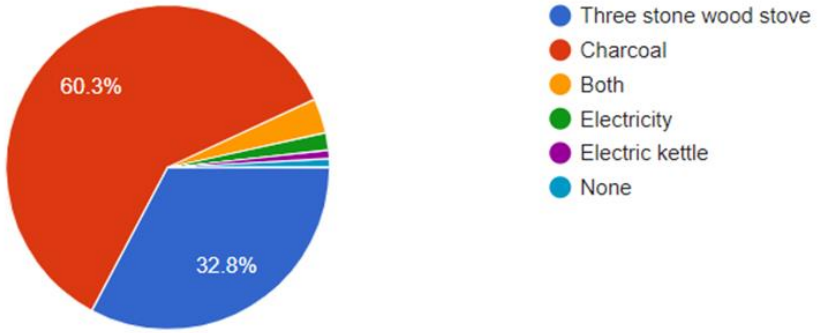

Are you using and maintaining correctly your filter?
115 responses
Yes
No
96.5%


For how long have you used Spouts products?
115 responses
37.4%
43.5%
14.8%
Less than 3 months
3-6 months
6-12 months
More than 12 months


Why did you decide to use Spouts products? (Please tick every box that is relevant)
115 responses
It is more hygienic
77 (67%)
79 (68.7%
It is affordable
24 (20.9%)
Saves time
3 (2.6%)
Saving fuel
2 (1.7%)
1 (0.9%)
Easy way
1 (0.9%)
1 (0.9%)
kills germs 99.9%
1 (0.9%)
Good customer ser
1 (0.9%)
1 (0.9%)
Saved money
1 (0.9%)
1 (0.9%)
Trial
1 (0.9%)

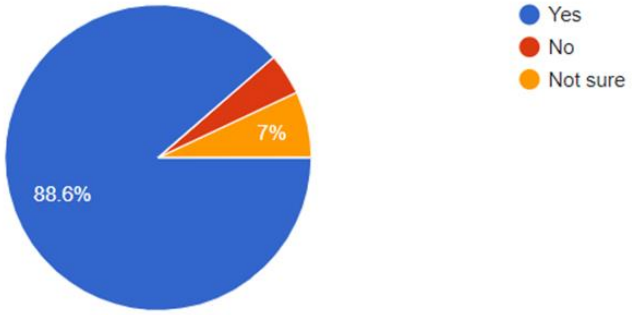
What type of cook stove do you use in your kitchen? (W)

116 responses



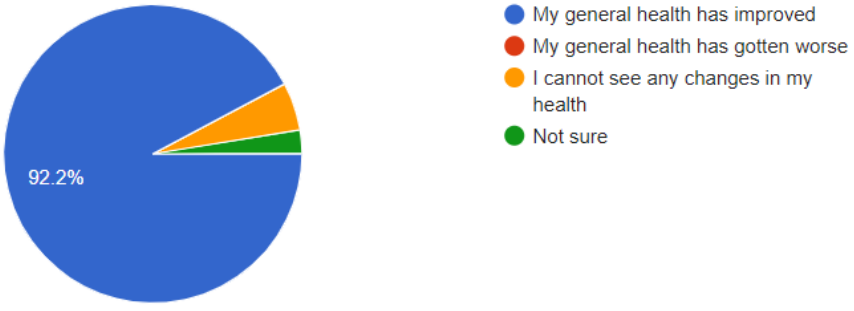
Have you reduced the amount of firewood you use at home to boil water?

114 responses



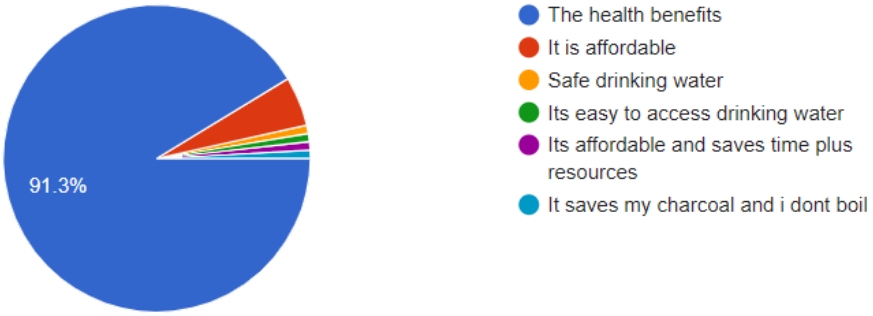
Has there been any change to your health since you started to using Spouts water?

116 responses



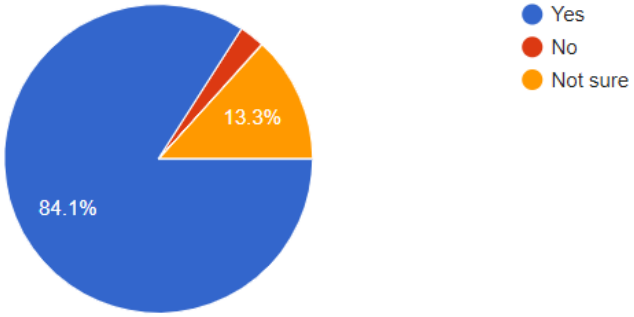
What do you like about Spouts products and services?

115 responses



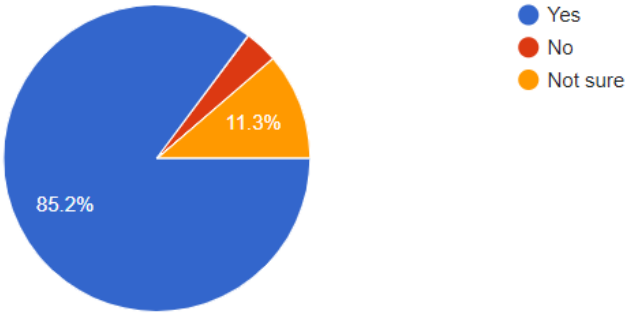
Do you think that the quality of air in your home has improved over the last year, (if you no longer needed to boil water)?

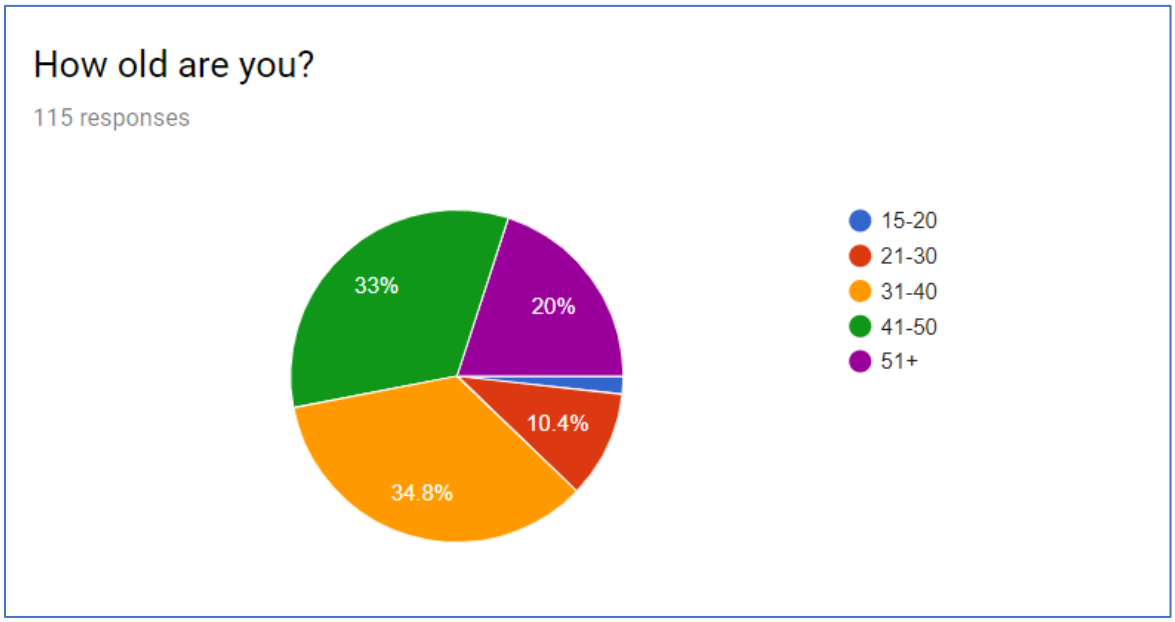
113 responses

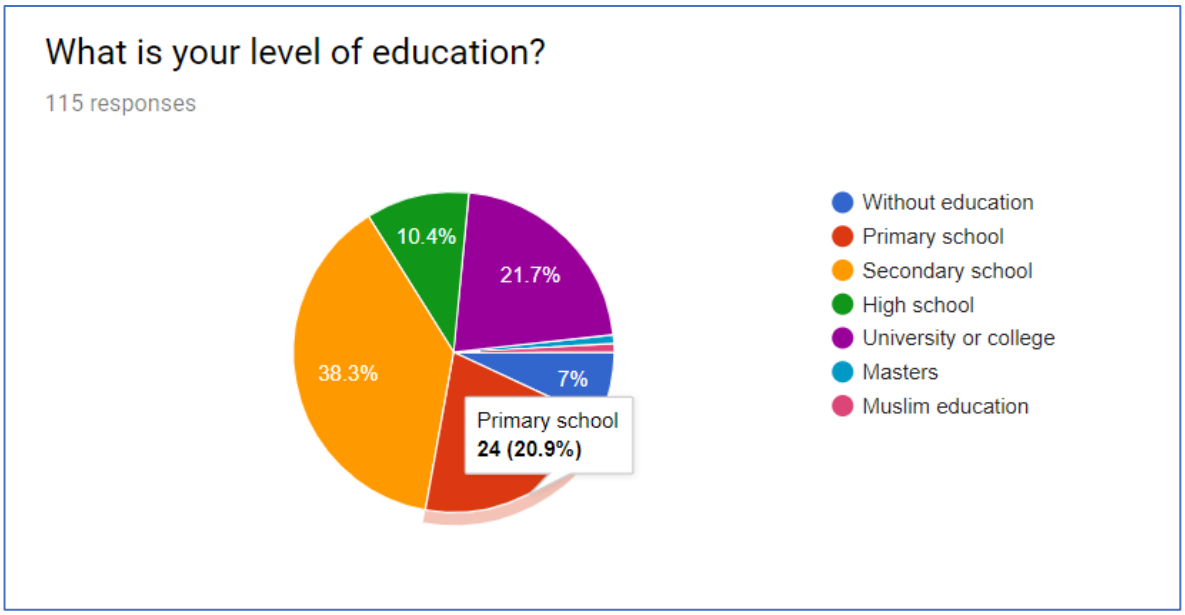


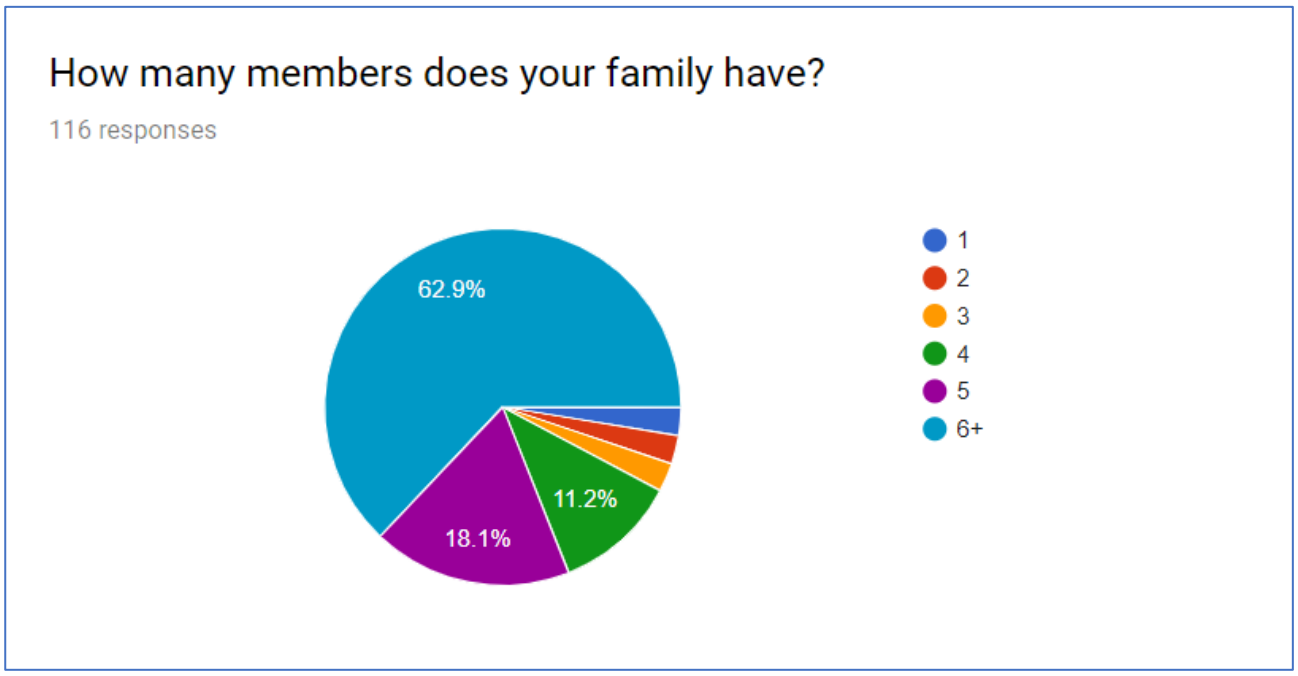
Do you think that the project created opportunities to meet other people of the village and to interact with them?

115 responses




How old are you?
115 responses
33%
20%
10.4%
34.8%
15-20
21-30
31-40
41-50
51+

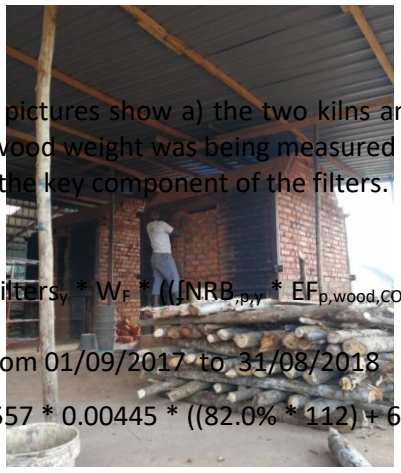

What is your level of education?
115 responses
10.4%
21.7%
38.3%
7%
Primary school
24 (20.9%)
Without education
Primary school
Secondary school
High school
University or college
Masters
Muslim education



3. Leakage (Ly)

Emissions from filter production

The project activity will need firewood to fuel the kilns to fire the ceramic pots that make the key component of the ceramic filters (see pictures below). PP is accounting for the emissions coming from those activities by measuring the quantity of wood used while cooking the ceramic filters in the kilns. The calculations are available in the Emission Calculations spreadsheet.



The above pictures show a) the two kilns and the wood arranged before use in the firings; b) an instance when the wood weight was being measured to estimate the amount of wood used to cook the ceramic pots that make the key component of the filters.

$L_y = L_{Kiln} = Filters_y * W_F * (([NRB_{p,y} * EF_{p,wood,CO2}) + EF_{p,wood,nonCO2}) * NCV_{p,wood}$

Period: from 01/09/2017 to 31/08/2018

L_{Kiln} = 3,557 * 0.00445 * ((82.0% * 112) + 6.424) * 0.015 = 23 tCO2

Period: from 01/09/2018 to 31/08/2019

L_{Kiln} = 3,471 * 0.00445 * ((82.0% * 112) + 6.424) * 0.015 = 23 tCO2

Where:

L_{Kiln}	Leakage carbon emitted in the wood kilns during production of the ceramic filters, measured in tCO2.
$Filters_{y7,8}$	Number of filters sold from 01/09/2017 to 31/08/2018 = 3,557 Filters
$Filters_{y,8,9}$	Number of filters sold from 01/09/2018 to 31/08/2019 = 3,471 Filters
W_F	The amount of wood used to produce one ceramic filter in the kiln = 0.00445 tonnes of wood
$fNRB_{,p,y}$	Non Renewable Biomass = 82.0 %
$EF_{p,wood,CO2}$	CO2 Emission Factor for Wood = 112 tCO2/TJ
$EF_{p,wood,nonCO2}$	non CO2 Emission Factor for Wood = 6.424 tCO2/TJ
$NCV_{p,wood}$	Net Calorific Value of Wood = 0.015 TJ/tonne

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

(Copy this table for each piece of data and parameter)

Relevant SDG	**12 – Ensure sustainable consumption and production patterns**
Data / Parameter:	$W_{b\text{-}wood}$ / $W_{b\text{-}charcoal}$ **3-4-nm**
Data unit:	Tonnes/litre
Description:	Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b
Source of data used:	Baseline water Boiling test
Value applied:	$W_{b\text{-}wood}$ = 0.000427 - $W_{b\text{-}charcoal}$ = 0.000088
Choice of data or measurement methods and procedures	The value provided above was derived from water boiling tests as recommended by the GS Methodology. (See 'Spouts-ERC' spreadsheet, 'Boiling Test parameter W' worksheet)
Purpose of data	Definition of tCO2 emission reductions and Tons of burnt wood avoided
Any comment:	n.a.

Relevant SDG	13 – 'Climate Action - Carbon emission reductions'
Data / Parameter:	$EF_{b,wood,CO2}$ **5-nm**
Data unit:	tCO2/TJ
Description:	CO2 emission factor arising from use of fuels in baseline/project scenario

Source of data used:	IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Energy, Chapter 2, Stationary Combustion, Table 2.5 [3]
Value applied:	$EF_{b,wood,CO2}$ = 112 The value of these parameters is included in 'Spouts-ERC' spreadsheet.
Choice of data or measurement methods and procedures	Determined as per IPCC default figures. The value is the same during both the baseline and project implementation (However, it is noted that during the project there is no fuel being used, as the filters do not require fuel and work on gravity).
Purpose of data	Definition of tCO2 emission reductions
Any comment:	n.a.

Relevant SDG	13 – 'Climate Action - Carbon emission reductions'
Data / Parameter:	$EF_{b,charcoal,CO2}$ **6-nm**
Data unit:	tCO2/TJ
Description:	CO2 emission factor arising from use of fuels in baseline/project scenario
Source of data used:	IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Energy, Chapter 2, Stationary Combustion, Table 2.5 [4]
Value applied:	$EF_{b,charcoal,CO2}$ = 112 The value of these parameters is included in 'Spouts-ERC' spreadsheet.
Choice of data or measurement methods and procedures	Determined as per IPCC default figures. The value is the same during both the baseline and project implementation (However, it is noted that during the project there is no fuel being used, as the filters do not require fuel and work on gravity).
Purpose of data	Definition of tCO2 emission reductions
Any comment:	n.a.
Relevant SDG	13 – 'Climate Action - Carbon emission reductions'
Data / Parameter:	$EF_{b,wood,nonCO2}$ **7-nm**
Data unit:	tCO2e/TJ
Description:	Non-CO2 emission factor arising from use of fuels in baseline/project scenario
Source of data used:	IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Energy, Chapter 2, Stationary Combustion, Table 2.5 [5]

[3] http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf

[4] http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf

[5] http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf

Value applied	$EF_{b,wood,nonCO2}$ = 6.424 The value of these parameters is included in 'Spouts-ERC' spreadsheet.
Choice of data or measurement methods and procedures	Determined as per IPCC default figures. The Global Warming Potential (GWP) for CH4 it is 21, while for N2O it is 310. Source: UNFCCC . So, the value was calculated using the following formula: EFp,wood,nonCO2 = ((CH4=0.3*GWPCH4 25) + (N2O=0.004*GWPN2O 295)) = = ((CH4=0.3*21) + (N2O=0.004*310)) = 6.424 The value is the same during both the baseline and project implementation.
Purpose of data	Definition of tCO2 emission reductions
Any comment:	n.a.

Relevant SDG	13 – 'Climate Action - Carbon emission reductions'
Data / Parameter:	$EF_{b,charcoal,nonCO2}$ **8-nm**
Data unit:	tCO2e/TJ
Description:	Non-CO2 emission factor arising from use of fuels in baseline/project scenario
Source of data used:	IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Energy, Chapter 2, Stationary Combustion, Table 2.5 [6]
Value applied	$EF_{b,charcoal,nonCO2}$ = 4.51 The value of these parameters is included in 'Spouts-ERC' spreadsheet.
Choice of data or measurement methods and procedures	Determined as per IPCC default figures. The Global Warming Potential (GWP) for CH4 it is 21, while for N2O it is 310. Source: UNFCCC [7]. So, the value was calculated using the following formula: ((CH4=0.2*GWP 25) + (N2O=0.001*GWP 295)) = 5.29. $EF_{p,charcoal,nonCO2}$ = ((CH4=0.2*GWP_{CH4}) + (N2O=0.001*GWP_{N2O})) = = ((CH4=0.3*21) + (N2O=0.004*310)) = 4.51
Purpose of data	Definition of tCO2 emission reductions
Any comment:	n.a.

Relevant SDG	12 – 'Ensure sustainable consumption and production patterns'
Data / Parameter:	$NCV_{b,wood}$ **9-nm**
Data unit:	TJ/ton
Description:	Net calorific value of the fuels used in baseline/ project scenario
Source of data used:	Wood fuels handbook – European Biomass Association. Table 2.7.1 [8]

[6] http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf

[7] https://unfccc.int/ghg_data/items/3825.php

[8] http://www.biomasstradecentre2.eu/scripts/download.php?file=/data/pdf_vsebine/literature/wood_fuels_handbook.pdf

Value applied	$NCV_{b,wood}$ = 0.015 The value of these parameters is included in 'Spouts-ERC' spreadsheet.
Choice of data or measurement methods and procedures	Default value used by the European Biomass Association, as described in the above document. The value is the same during both the baseline and project implementation.
Purpose of data	Definition of tCO2 emission reductions
Any comment:	n.a.

Relevant SDG	12 – 'Ensure sustainable consumption and production patterns'
Data / Parameter:	$NCV_{b,charcoal}$ **10-nm**
Data unit:	TJ/ton
Description:	Net calorific value of the fuels used in baseline/ project scenario
Source of data used:	IPCC Guidelines for National Greenhouse Gas Inventories. Table 1.2 [9]
Value applied	$NCV_{b,charcoal}$ = 0.0295 The value of these parameters is included in 'Spouts-ERC' spreadsheet.
Choice of data or measurement methods and procedures	Default value used by the IPCC, as described in the above document. The value is the same during both the baseline and project implementation.
Purpose of data	Definition of tCO2 emission reductions
Any comment:	n.a.

D.2. Data and parameters monitored

(Copy this table for each piece of data and parameter)

Exceptionally the Value applied will be valid for periods 2017/2018 and 2018/2019. (see 'Survey 2019' worksheet.)

Relevant SDG	6 – 'Clean Water and Sanitation - Safe drinking water provide'
Data / Parameter:	C_j **1-m**
Data unit:	Percentage
Description:	Portion of users of project safe water supply who were already in baseline using a non-boiling safe water supply
Measured/calculated/default	Measured (See 'Spouts-ERC' spreadsheet, 'Survey 2019' worksheet)

[9] https://www.ipcc.ch/meetings/session25/doc4a4b/vol2.pdf

Source of data used:	Across Uganda drinking water is not safe and is not considered to be safe by the government authorities Cj=0.[10,11,12,13,14,15] However, from the survey we found that: Cj = 9.5%
Value applied	C_j = 9.5%
Monitoring frequency	Only in the baseline study.
Monitoring frequency	Annually (Exceptionally the Value applied will be valid for periods 2017/2018 and 2018/2019)
Calculation method	n.a.
QA/QC procedures	Development of surveys and data recording in accordance with the requirements of the Quality Management System.
Purpose of data	Baseline definition
Additional comments	n.a.

Relevant SDG	6 – 'Clean Water and Sanitation - Safe drinking water provide'
Data / Parameter:	X_{boil} **2-m**
Data unit:	Percentage
Description:	Percentage of premises that would have used other non-GHG emitting technologies like chlorine treatment techniques, if available, in the absence of the project activity.
Measured/calculated/default	Measured
Source of data used:	(See 'Spouts-ERC' spreadsheet, 'Survey 2019' worksheet)

[10] Bain, R., Cronk, R., Wright, J., Yang, H., Slaymaker, T., & Bartram, J. (2014). Fecal Contamination of Drinking-Water in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis. PLoS Medicine, 11(5). http://doi.org/10.1371/journal.pmed.1001644

[11] Haruna, R., Ejobi, F., & Kabagambe, E. K. (2005). The quality of water from protected springs in Katwe and Kisenyi parishes, Kampala city, Uganda. African Health Sciences, 5(1), 14–20.

[12] World Health Organization (WHO), & Unicef. (2012). Uganda WASH Statistics. Geneva. Retrieved from https://www.wssinfo.org/documents

[13] http://www.onewater.org/stories/story/uganda

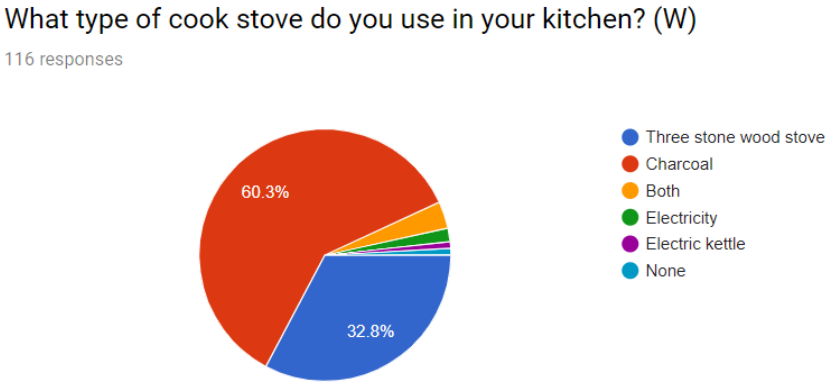
[14] https://www.monitor.co.ug/News/National/Water-Kampala-safe-WHO/688334-2658314-dbx3ku/index.html

[15] https://www.monitor.co.ug/SpecialReports/How-safe-water-consume/688342-4348206-5y8ijuz/index.html

Value applied	X_{boil}= 6.1 %
Monitoring equipmet	Survey equiment
Monitoring frequency	Annually (Exceptionally the Value applied will be valid for periods 2017/2018 and 2018/2019)
Calculation method	n.a.
QA/QC procedures	Development of surveys and data recording in accordance with the requirements of the Quality Management System.
Purpose of data:	Baseline definition
Any comment	n.a.

Relevant SDG Indicator	6 – 'Clean Water and Sanitation - Safe drinking water provide'
Data / Parameter:	$Q_{p,y}$ **11-m**
Data unit:	Litres per person per day
Description:	Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day
Measured/calculated/default	This is a default value recommended by the WHO and approved by the GS: see Annex A.3.2 of the TPDDTEC methodology.
Source of data used:	This is a default value recommended by the WHO and approved by the GS: see Annex A.3.2 of the TPDDTEC methodology.
Value applied:	$Q_{p,y}$ = 4 L/person.day
Monitoring equipment	Survey equipment
Monitoring frequency	Annually (Exceptionally the Value applied will be valid for periods 2017/2018 and 2018/2019)
Calculation method	n.a.
QA/QC procedure	Data recording in accordance with the requirements of the Quality Management System.
Purpose of data	Definition of proportion of population using safely managed drinking water services
Any comment:	n.a.

Relevant SDG Indicator	12 – 'Ensure sustainable consumption and production patterns'
Data / Parameter:	π_W, π_C **12-13-m**
Data unit:	Percentage

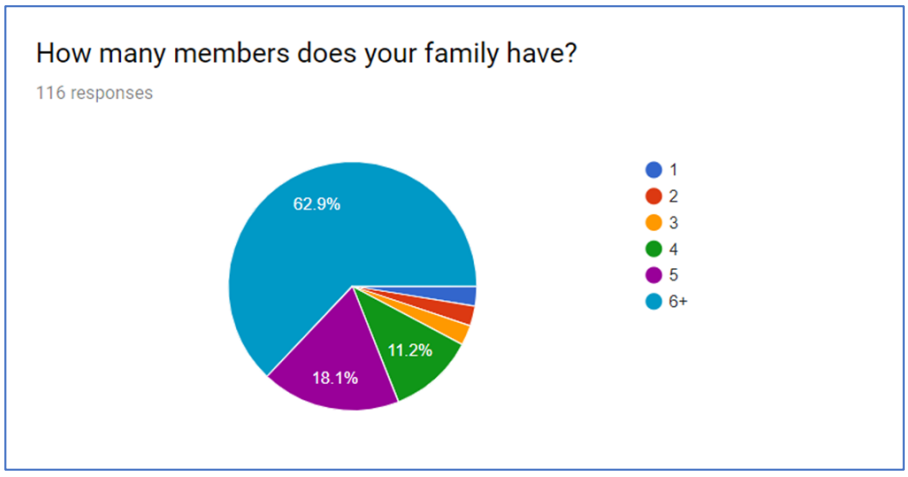
Description:	Percentage of people using wood or charcoal to boil water.
Measured/calculated/default	Measured/calculated (See 'Spouts-ERC' spreadsheet, 'Survey 2019' worksheet)
Source of data used:	Our internal survey. (See 'Spouts-ERC' spreadsheet, 'Survey 2019' worksheet)
Value applied	π_W = 57 - π_C, = 43
Monitoring equipment	Survey equipment
Monitoring frequency	Annually (Exceptionally the Value applied will be valid for periods 2017/2018 and 2018/2019)
Calculation method	The values were obtained from our internal survey. The graph below shows the obtained results.  A small fraction of the urban population uses electricity to boil water. For simplicity, we assume that the amount of CO2 emitted in these cases is zero (i.e. we are not counting the emissions reductions from electricity – this reduces the potential carbon credits that we can claim, but we decided to forgo them to simplify the calculations).
QA/QC procedures	Development of surveys and data recording in accordance with the requirements of the Quality Management System.
Purpose of data	Definition of tCO2 emission reductions

Any comment:	The percentage of people who use wood or coal to boil water has been invested between the first and the second period, i.e .: 2018: π_W = 78 - π_C = 22 2019: π_W = 35 - π_C = 65 **We have adopted average values:** **π_W = 57 - π_C = 43**

Relevant SDG	6 - 'Clean Water and Sanitation - Safe drinking water provide'
Data / Parameter	Filters_Y **14-m**
Data unit	Number of filters.
Description	Number of filters sold in years Y and Y-1. Since the filters have a lifetime of two years, we consider as 'active' only those filters sold that were sold in the two years prior to each year's VER issuance request. In other words, filters older than two years are not counted towards the carbon emission reductions.
Measured/calculated/default	Measured/calculated
Source of data used	The data collected continuously by the sales. Each sale is recorded in a cloud based system using SalesForce. Information is collected on the date of sale, specific customer details, location etc. The relevant information is included in the Emissions Reductions spreadsheet.
Value applied	Period 2017-2018 → 3,557 Period 2018-2019 → 3,471
Monitoring equipment	Survey equipment
Monitoring frequency	Annually
Calculation method	The data is gathered continuously as filters are sold, using SalesForce software.
QA/QC procedure	Development of surveys and data recording in accordance with the requirements of the Quality Management System.
Purpose of data	Definition of proportion of population using safely managed drinking water services
Any comment	n.a.

<table>
<tr><td>Relevant SDG</td><td>6 - ‘Clean Water and Sanitation - Safe drinking water provide’</td></tr>
<tr><td>Data / Parameter</td><td>nj 15-m</td></tr>
<tr><td>Data unit</td><td>People per household</td></tr>
<tr><td>Description</td><td>Average number of people per household.</td></tr>
<tr><td>Measured/calculated/default</td><td>Measured/calculated</td></tr>
<tr><td>Value applied</td><td>nj = 5.60</td></tr>
<tr><td>Monitoring equipment</td><td>Survey equipment</td></tr>
<tr><td>Monitoring frequency</td><td>Annually (Exceptionally the Value applied will be valid for periods 2017/2018 and 2018/2019)</td></tr>
<tr><td>Calculation method</td><td>The source of this data is our internal survey.
(See ‘Spouts-ERC’ spreadsheet, ‘Survey 2019’ worksheet)

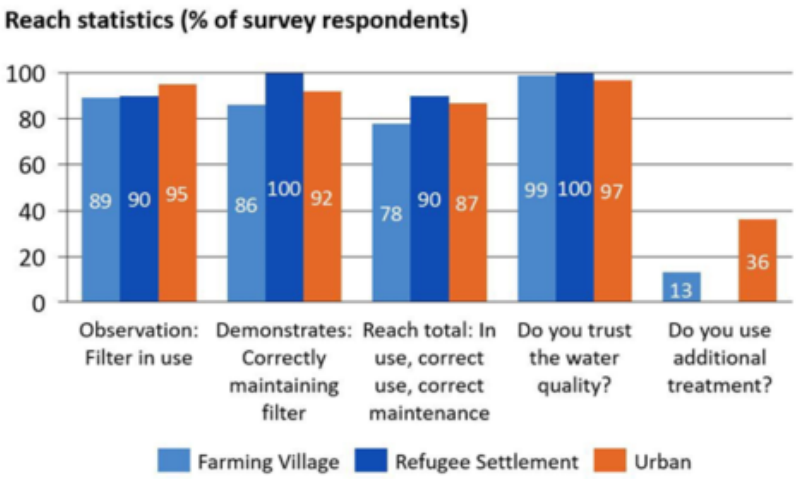
<table>
<tr><th colspan="3">Number of people per household</th></tr>
<tr><th>HH size</th><th>Frequency</th><th>Weighted HH size</th></tr>
<tr><td>1</td><td>2.6%</td><td>0.026</td></tr>
<tr><td>2</td><td>2.6%</td><td>0.052</td></tr>
<tr><td>3</td><td>2.6%</td><td>0.078</td></tr>
<tr><td>4</td><td>11.2%</td><td>0.448</td></tr>
<tr><td>5</td><td>18.1%</td><td>0.905</td></tr>
<tr><td>6+</td><td>62.9%</td><td>4.0885</td></tr>
<tr><td></td><td>Total</td><td>5.5975</td></tr>
</table>

Since generally one filter serves one household, the value nj of the average number of people in each household quantified also the average number of people served by each filter on average.</td></tr>
<tr><td>QA/QC procedure</td><td>Development of surveys and data recording in accordance with the requirements of the Quality Management System.</td></tr>
</table>

Purpose of data:	Definition of proportion of population using safely managed drinking water services
Any comment	n.a.

Relevant SDG	6 - 'Clean Water and Sanitation - Safe drinking water provide'
Data / Parameter:	$U_{p,y}$ **16-m**
Data unit:	Fraction
Description:	Cumulative usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate (Up,y)
Source of data used:	Internal survey, see results below.
Value applied:	$U_{p,y}$ = 82%

Choice of data or measurement methods and procedures	We followed the guidelines in Annex 9 of the TPDDTEC Methodology. The figure below shows the responses to the questions related to product reach broken down by region. Out of all 155 households surveyed, 90% are using their filter and 90% demonstrate correct use and cleaning protocol, however, only **82% are both using their filter and using and maintaining it correctly**. 
Any comment:	n.a.

Relevant SDG	6 - 'Clean Water and Sanitation - Safe drinking water provide'
Data / Parameter	$N_{p,y}$ **17-m**
Data unit	Number of Person.days
Description	Number of person.days consuming water supplied by project scenario p through year y
Measured/calculated/default	calculated

Source of data used	The value is calculated using the monitored data and the following formula: Np,y = Filters_Y * nj * 365 Where Filters_Y and nj are measured empirically, as described above.
Value applied	$N_{p,y}$ = 7,269,895
Monitoring equipment	Survey equipment
Monitoring frequency	Annually
Calculation method	The value is calculated using the monitored data and the following formula: Np,y = Filters_Y * nj * 365 Where Filters_Y and nj are measured empirically, as described above.
QA/QC procedure	Development of surveys and data recording in accordance with the requirements of the Quality Management System.
Purpose of data:	Ensure that the population consumes drinking water.
Any comment	n.a.

Relevant SDG	12 – 'Ensure sustainable consumption and production patterns'
Data / Parameter	$f_{nrb,bl,y}$ **18-m**
Data unit	Fractional non-renewability
Description	Non-renewability of woody biomass fuel during year y
Measured/calculated/default	calculated
Source of data used	(see 'Spouts - ERC' spreadsheet, 'fNRB Uganda' worksheet)
Value applied	$f_{nrb,bl,y}$ = 82.0
Monitoring equipment	Survey equipment
Monitoring frequency	Fixed by baseline study for a given crediting period. Annually (Exceptionally the Value applied will be valid for periods 2017/2018 and 2018/2019)
Calculation method	(see 'Spouts - ERC' spreadsheet, 'fNRB Uganda' worksheet)
QA/QC procedure	Development of surveys and data recording in accordance with the requirements of the Quality Management System.
Purpose of data	Definition of the quantity of wood fuel burned avoided
Any comment:	n.a.

Relevant SDG	12 – 'Ensure sustainable consumption and production patterns'
Data / Parameter:	W_F (Kiln) - (Leakage from filter production in the wood kiln)
Data unit:	Tonnes of wood / filter **19-m**
Description:	Amount of wood used to cook one filter in the wood kiln.
Measured/calculated/default	Calculated
Source of data used:	The parameter is estimated empirically by measuring the amount of wood used in the kiln. More specifically, two quantities are measured: • Amount of wood used as fuel • Number of filters cooked (this number if fixed) The parameter W_F is calculated by dividing the amount of wood by the number of filters produced. This measurement is carried out several times to obtain an average. Detailed data and calculations are presented in the Emission Reduction Calculations spreadsheet.
Value applied	W_F (Kiln) = 4.45E-03
Monitoring equipment	Survey equipment
Monitoring frequency	This quantity will be reassessed if and when the technology to produce the filters (i.e. the kiln) is changed.
Calculation method	(see 'Source of data used')
QA/QC procedure	Development of surveys and data recording in accordance with the requirements of the Quality Management System.
Purpose of data	This parameter is used in the following formula: LKiln = Filtersy * WF * ((∫NRB,p,y * EFp,fuel,CO2) + EFp,fuelnonCO2) * NCVp,fuel
Any comment:	n.a.

Relevant SDG	6 - 'Clean Water and Sanitation - Safe drinking water provide'
Data / Parameter:	Water Quality (carried by and accredited, ISO certified lab[16]) **22-m**
Data unit:	The test measures concentrations of several levels of pollutants. The table below is a screenshot from one example water test. In particular, it shows the units used for each pollutant
Description:	Twice a year a water sample from every village is sent for analysis to an ISO certified lab (this is four times more frequently than the requirement by the Methodology, i.e. once every two years by accredited labs)
Measured/calculated/default	Measured
Source of data used:	The laboratory receives water samples from each village
Value applied:	Value applied: Absent (i.e. absence of e.coli and other coliforms). In all the tests carried out, it has been found that total colonies of e.coli and total coliform were absent. This was expected from the application of chlorine (see box above).
Monitoring equipment	Survey equipment
Monitoring frequency	Twice a year in every village (this is four times more frequently than the requirement by the Methodology, i.e. once every two years by accredited labs).
Calculation method	n.a.
QA/QC procedure	The water tests are carried out by a third party lab that is ISO certified.
Purpose of data	To ensure the provision of safe drinking water
Any comment:	*(See Appendix 2 - Water Quality Test - Results)*

TEST RESULT

Sr. No.	Test Parameters	Standard Methods	Result
1	pH	APHA 22nd Edition 4500 H+(A+B)	6.62
2	Fluoride (as F)	APHA 22nd Edition 4500 F-(D)	0.005 mg/L
3	Iron (as Fe)	APHA 22nd Edition 3500 Fe (B)	Absent
4	Nitrate- Nitrogen (as NO_3)	APHA 22nd Edition 4500 N-(B)	0.52 mg/L
5	Sulphate (as So_4)	APHA 22nd Edition 4500-So_4 (C+D+E)	Absent
6	Total Colonies	APHA 22nd Edition	Absent
7	Total Coliform (MPN Technique)	APHA 22nd Edition	Absent

[16] Sai Biocare Pvt. Ltd.

D.3. Implementation of sampling plan

>> (If data and parameters monitored described in section D.2 above are determined by a sampling approach, provide a description on how project participants implemented the sampling plan and surveys for those data and parameters according to the approved PDD.)

The samples are taken randomly from the customers database. First, we randomly select a number of regions served by the project. Then, within each region, we select at random a number of customers to be interviewed to match the sample size required by the methodology.

- Monitoring Survey sample sizing and data collection.

The following guidelines were used to determine the minimum sample size :

i. Group size <300: Minimum sample size 30 or population size, whichever is smaller
ii. Group size 300 to 1000: Minimum sample size 10% of group size
iii. Group size > 1000: Minimum sample size 100.

Since our group size is larger than 1000, we randomly survey at least 100 customers, which meets the requirements shown above in iii.

- Monitoring Survey Representativeness. The TPDDTEC Meth requires that:

"End users from the project scenario are selected using representative sampling techniques to ensure adequate representation. Common sampling approaches such as representative random sampling are allowed and geographic distribution should be factored into selection criteria. End users can be surveyed at any time throughout the year with care taken to collect information pertaining to seasonal variations in technology and fuel use patterns."

To meet the above requirement, we use a random sampling approach that factors in geographic distribution. This is implemented as follows:

1. To factor geographic distribution, we select separate regions where respondents will then be sampled randomly.
2. In each of the identified regions, we select respondents randomly.
3. The total number of interviewees shall be at least 100 to ensure that the sample size requirement above (case iii) is met.

Detail on the Sampling Process

This section describes in detail how the sampling process was carried out.

The survey was collected using Google Forms.

Spouts of Water maintains a database of all its customers.

In 'Spouts-ERC' spreadsheet, 'Survey 2019' worksheet we reproduce the entire collected dataset and the original diagram output on Google Forms.

It is deemed that the survey (conducted in July 2019) properly responds to the analysed monitoring period.

Our goal was to interview at least 100 respondents. We considered the option of selecting 116 respondents randomly from the above database (see 'Spouts-ERC' spreadsheet, 'Sampling 2019' worksheet).

In Seccion B.1 the tables Tab 1.a, Tab 1.b, Tab 2.a, Tab2.b, Tab 3.a, Tab 3.b show details of the water filters distribution:

SECTION E. Calculation of SDG outcomes

E.1. Calculation of baseline value or estimation of baseline situation of each SDG outcome

>> (*Provide details of equations and approaches used to calculate/estimate baseline values.)*

1 – SDG13 – Climate Action

UN TARGET (13.B) : "Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities"

RELEVANT MONITORING INDICATOR: **Carbon Emission Reductions**

In order to calculate the **Emission Reduction of CO2** we use the following equations. These equations are presented in detail in the PDD and are also implemented in the Emission Reduction Calculation.

BASELINE

$BE = Filter\_Y * tCO_2/Filter$

PERIOD 2017-2018:

$BE_1 = 3{,}557 * 3.238 = 11{,}518\ [tCO_2]$

PERIOD 2018-2019:

$BE_2 = 3{,}471 * 3.238 = 11{,}240\ [tCO_2]$

PROJECT

$PE = L_{Kiln} = Filters\_Y * W_F * ((\sum NRB_{,p,y} * EFp_{,wood,CO_2}) + EF_{p,wood,nonCO_2}) * NCV_{p,wood}$

PERIOD 2017-2018:

$PE_1 = L_{Kiln} = 3{,}557 * 4.45E\text{-}03 * ((82\% * 112) + 6.424) * 0.015 = 23\ tCO_2$

PERIOD 2018-2019:

$PE_2 = L_{Kiln} = 3{,}471 * 4.45E\text{-}03 * ((82\% * 112) + 6.424) * 0.015 = 23\ tCO_2$

NET BENEFIT - *PERIOD 2017-2018*

$ER_1 = BE * (1\text{-}U_y) – PE = 11{,}518 * (1\text{-}82\%) – 22 =$ **9,421 [tCO2]**

NET BENEFIT - *PERIOD 2018-2019*

$ER2 = BE * (1-U_y) – PE = 11,240 * (1-82\%) – 21 =$ **9,193 [tCO_2]**

NET BENEFIT *(TWO YEARS):*

$ER = (BE * (1-U_y) – PE) = (11,518 + 11,240) * (1-82\%) – (23 + 23)$

$=$ **18,614 [tCO_2]**

Where:

- BE = *Baseline emissions*
- PE = *Project emissions*
- ER = *Emission Reduction of CO_2*
- Filters-Y = *N° filters*
- W_F = The amount of wood used to produce one ceramic filter in the kiln
- tCO_2/Filter = Weighted Carbon per filter
- f_{NRB}= % *Non Renewable Biomass*
- $EFp_{,wood,CO_2}$= *CO_2 Emission Factor for Wood*
- $EFp_{,wood,CO_2}$= *Non CO_2 Emission Factor for Wood*
- $NCV_{p,wood}$ = Net Calorific Value of Wood
- L_{Kiln} = *Leakage*
- U_y = *Usage rates*

2 – SDG 12 – Ensure sustainable consumption and production patterns

UN TARGET (12.2) : "By 2030, achieve the sustainable management and efficient use of natural resources"

UN RELEVANT MONITORING INDICATOR **(12.2.1) : Domestic material consumption (Quantity of wood fuel burned avoided)**

BASELINE

PERIOD 2017-2018:

$BW_{b1} = Ly * W_b * \pi_W * Filters\text{-}Y = 6,948 * 0.00042687 * 0.57 * 3,557 =$
$= 6,013$ Tonnes of wood

PERIOD 2018-2019:

$BW_{b2} = Ly * W_b * \pi_W * Filters\text{-}Y = 6,948 * 0.00042687 * 0.57 * 3,471 =$
$= 5,868$ Tonnes of wood

PROJECT:

BW_p = 0 (zero) Tonnes of wood

NET BENEFIT *PERIOD 2017-2018:*

$BW_{NB1} = BW_b - BW_p$

= 6,013 - 0 = **6,013 Tonnes of wood**

NET BENEFIT *PERIOD 2018-2019:*

$BW_{NB2} = BW_b - BW_p$

= 5,868 - 0 = **5,868 Tonnes of wood**

NET BENEFIT *(TWO YEARS):*

$BW_{NB} = BW_b - BW_p$

= ((6,013 + 5,868) - 0) = **11,881 Tonnes of wood**

Where:

- BW_b = Quantity of fuel burned during the baseline
- BW_p = Quantity of fuel burned during the project
- BW_{NB} = Net Benefit in the quantity of fuel burned during the baseline
- Ly = Eligible litres per year-hh
- Filters_Y = N° filters
- W_b = Fuel required to boil 1 litre of water
- π_W = Percentage using wood

3 – SDG 6 – Clean Water and Sanitation

UN TARGET (6.1): "By 2030, achieve universal and equitable access to safe and affordable drinking water for all"

UN RELEVANT MONITORING INDICATOR (6.1.1): **Proportion of population using safely managed drinking water services**

BASELINE

PSWb[17] = Cj = 9.5 %

PROJECT:

[17] Prior to the project, Spouts did not provide water filters.

PSWp= Cj + N_p / P_U= 9.5 + (19,919 / 44,270,563) = **9.54 %**

NET BENEFIT:

$PSW_{NB} = PSW_p - PSW_b$

= 9.5 + (19,919 / 44,270,563) – 9.5 = **0.04 %**

Where:

- **P_U** = Population of Uganda[18]
- **N_p** = Number of persons consuming water supplied by the project[19]
- **PSWb** = Proportion of population using safely managed drinking water services in the baseline
- **PSWp** = Proportion of population using safely managed drinking water services in the project
- **PSW_{NB}** = Net Benefit in the proportion of population using safely managed drinking water services
- **Cj** = % users who used clean water prior to the project.

E.2. Calculation of project value or estimation of project situation of each SDG outcome

>> (*Provide details of equations and approaches used to calculate/estimate project values.)*

The calculation of the project situation is presented in section E.1.

E.3. Calculation of net benefits as difference of baseline and project values or direct calculation for each SDG outcome

The calculation of the net benefit is presented in section E.1.

[18] https://en.wikipedia.org/wiki/Uganda

[19] Please refer to the Emission Reductions spreadsheet which includes the data presented here.

E.4. Summary of ex-post values of each SDG outcome for the current monitoring period

Item	Baseline estimate	Project estimate	Net benefit	
			Period 2017-2018	Period 2018-2019
SDG 13	'17-'18 → 11,518 tCO_2 '18-'19 → 11,240 tCO_2	'17-'18 → 2,097 tCO_2 '18-'19 → 2,047 tCO_2	9,421 tCO_2	9,193tCO_2
SDG 12	'17-'18 → 6,013 Tonnes '18-'19 → 5,868 Tonnes	0 Tonnes	6,013 Tonnes	5,868 Tonnes
SDG 06	9.50 %	9.54 %	0.04 %	0.04 %

E.5. Comparison of actual value of outcomes with estimates in approved PDD

Item		Values estimated in ex ante calculation of approved PDD *(2 years)*	Actual values achieved during this monitoring period *(2 years)*
SDG 13	Emission Reduction	18,994 tCO_2	18,614 tCO_2
SDG 12	Wood not burned	14,162 Tonnes	11,881 Tonnes
SDG 06	Proportion of population using safely managed drinking water services	0.08 %	0.08 %

E.6. Remarks on difference from estimated value in approved PDD

a) The decrease in wood fuel avoided by the project is due to the decrease in the percentage using wood in relation to that assumed in the VPA-DD.

Consequently there was also an increase in the number of filters sold to reach the amounts of tCO_2 hypothesized in the VPA-DD.

b) The decrease in reduced tCO_2 is due to the elimination of filters sold abroad, that is, outside of Uganda.

SECTION F. Stakeholder inputs and legal disputes

F.1. List all inputs/grievances which have been received for the project during the monitoring period together with their respective answers/actions

Solicitation of comments from stakeholders

Since Spouts is being registered as retroactive, no physical Stakeholder Consultation meeting was carried out prior to the start of the project activity. On the other hand, we carried out a Stakeholder Consultation via other channels, which allowed us to collect feedback, comments and suggestions from stakeholders.

This section below describes who we contacted and how.

We identified over 30 stakeholders that are impacted by or support Spouts in a variety of forms.

We sent an introductory email to all stakeholders. This included a link to a dedicated webpage[20] with details of the project, including a video and external links with additional information, such as Spouts website.

The webpage included a form allowing stakeholders to submit comments. Comments could also be submitted by email to info@believegreen.org.

Below is the email we sent to the stakeholders:

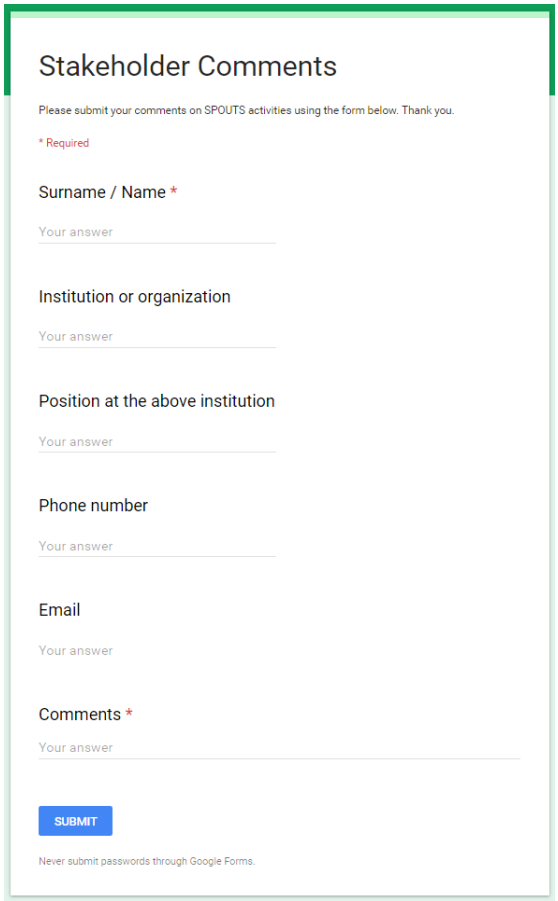
> *Dear Stakeholder,*
>
> *We greatly appreciate your involvement with Spouts. As a next step to understanding the impact Spouts has on our mission of getting clean water to all Ugandans we would like you to share your views of the Purifaaya filter and Spouts.*
>
> *Please go to the link* https://federicogallo1.wixsite.com/believegreen/spouts-local-stakeholder-consultati *(password: lsc) and answer the questions in the form "Stakeholder comments" at the bottom of the page.*
>
> *We hope you can fill this form out as soon as possible as it will enable us to meet one of the requirements for carbon credits. The Spouts water filter replaces boiling water for many families, reducing the amount of wood and charcoal used. This saves carbon and Spouts hopes to receive carbon credits for this work.*
>
> *Thank you,*
>
> *Spouts of Water*

[20] https://federicogallo1.wixsite.com/believegreen/spouts-local-stakeholder-consultati (password: lsc)

Since not all stakeholders responded to the above invitation, we sent the email below to the stakeholders who had not responded in order to increase the response rate:

> *Dear Stakeholder,*
>
> *More children in Uganda die from waterborne illness' than either malaria or AIDS (WHO Child Mortality Estimates 2015) and more than half the population still leaves their water untreated (Uganda Bureau of Statistics 2014).*
>
> *SPOUTS of Water directly addresses this need by building ceramic pot filters costing less than 1/5th of the cost of other filters on the Ugandan market, but we are currently operating with significant help from donor funding. Combined with the Gold Standard carbon finance program we can become a unique and economically sustainable business which improves public health.*
>
> *PLEASE TAKE 5 MINUTES, click this link (password: lsc) and fill out this very short stakeholder survey asking for feedback from our valuable supporters and partners. Your feedback is a critical step to receiving carbon credits for the work we do to displace burning of charcoal and wood for boiling water.*
>
> *Thank you so much for your time and continued involvement!*
>
> *Spouts of Water*

The box below shows the form used to obtain the comments by the stakeholders. This is included at the bottom of the stakeholder consultation webpage. (Comments could also be submitted by email to info@believegreen.org)



Stakeholder Comments

Please submit your comments on SPOUTS activities using the form below. Thank you.

* Required

Surname / Name *

Your answer

Institution or organization

Your answer

Position at the above institution

Your answer

Phone number

Your answer

Email

Your answer

Comments *

Your answer

SUBMIT

Never submit passwords through Google Forms.

Non-technical summary of the Programme

A webpage was created to provide the stakeholders with a non-technical summary of the programme: https://federicogallo1.wixsite.com/believegreen/spouts-local-stakeholder-consultati *(password: lsc)*

The box below shows a copy of the introduction section of the Consultation webpage that stakeholders were invited to visit:

Local Stakeholder Consultation

SPOUTS Safe Drinking Water Project, Uganda

Believe Green and Spouts are pleased to invite you to submit your comments for the Local Stakeholder Consultation for the project "Believe Green Spouts safe drinking water project" in Uganda.

Ten million Ugandans, or one third of the population, lack access to a clean source of water. This results in negative health, social, economic and environmental consequences. To make water safe for drinking, many families boil it, using wood, charcoal or other biomass which comes from non-renewable sources. Many families also are unaware of the health risks and continue to drink unsafe water.

To help address this challenge, Spouts has developed an innovative business approach whereby it manufactures and distributes Purifaaya ceramic water filters that are then used by low income families to purify and disinfect their drinking water at home.

However, a limiting factor for Spouts to accelerate its growth is access to investments and capital. To help overcome this obstacle, Spouts has partnered with Believe Green (BG) to certify the carbon emission reductions arising from avoided boiling of water to make it safe to drink. The resulting carbon credits generate a much needed source of additional revenue that allows Spouts to accelerate its growth and reach more communities across Uganda.

As part of the carbon certification process, we would greatly appreciate your participation and support in this stakeholder consultation to help advance this project. The purpose of the consultation is to discuss positive and negative impacts of Spouts' activities and to give stakeholders and the general public an opportunity to express their views. You can submit your comments in the contact form below or by emailing us at info@believegreen.org.

For more information on Spouts' business model and activities or Believe Green's carbon finance process, please check the video and links below.

The webpage also provides detailed and easily digested information via videos and external links. In particular:

a. a link to Spouts' website, which describes in detail its activities,

b. a weblink to technical details on Purifaaya ceramic filters,

c. a video explaining Believe Green's carbon finance contribution.

The webpage also includes a form to submit comments, which can also be submitted via email.

Invitation tracking table

The table below summarizes the stakeholders that were invited and responded to our consultation.

Stakeholder #	Category	Name & surname	Email	Telephone	Institution	Responded?
1	C	Hon. Sam. Cheptoris	samcheptoris@gmail.comug	(256) 772 997722	Ministry of Water and Environment	No
2	C	Chebet Maikut	chmaikut@yahoo.com, chmaikut@gr	(256) 701 69 414	Ministry of Water and Environment	No
3	A	Benson Nduhura	nduhurabenson@gmail.com	(256) 701 467 968	Besania SACCO	Yes
4	D	Mariko Fuwa	fuwa.mariko@savechildren.or.jp	771388475	Save the Children	Yes
5	D	Florence Ringe	ringeflorence@gmail.com	(256) 772357880	POPOW	Yes
6	A	Francis	kiima_foods@yahoo.com	(256) 785 471 880	Kiima Foods	Yes
7	A	Elinor Awchem	eawchem@yahoo.com	0772 514 661, 0751 069 065		Yes
8	D	Humphrey Lukatome	hlutakome@livinggoods.org	0774 005 040	Living Goods	No
9	B	Ian Kyeyune			Wakiso District	No
10	B	Ezekiel	NO EMAIL	0753 898 324	Nakawuka Town / Kasuku Cell	No
11	D	Sharmin	sharminsharif1@gmail.com		BRAC	No
12	A	Kyaka Twaha	twahakyaka06@yahoo.com		UCSCU	No
13	D	Ruth Kim	esmruthkim@gmail.com	0782 611 217	ENTS	Yes
14	A	Stella Kivela	stellakivila@vine.co.ug	774004448	Vine Pharmacies	Yes
15	A	Modester	busiusacco@yahoo.co.uk	772192237	Busiu SACCO	Yes
16	A	Rita		788159368	Mushanga SACCO	No
17	A	Stephen Katenge	katenge888@yahoo.com	783366598	Katosbec SACCO	Yes
18	A	Robert Kaheebwa	kaheebwarobert@gmail.com	774738741	Kyarusozi Microfinance	Yes
19	A	Robert/Peterson		703774812	Kihuura SACCO	No
20	A	Humphrey Wamami	humphreywamani@yahoo.com	704855745	UCSCU	Yes
21	A	Nyangaro Collins	collinsnyangaro@gmail.com	782300601	UCSCU	Yes
22	A	Julius	julius@enventureenterprises.org	702314130	ENVenture	No
23	D	Julie Mwebesa	mwebesa@unhcr.org	772710140	UNCHR	Yes
24	D	Tracy Lamwaka	tracy.lamwaka@oxfamnovib.nl	772463979	Oxfam	Yes
25	A	Julius	julius.mubiru@finca.org	256 705 031 830	FINCA	Yes
26	A	Richard	Richard.Ndahiro@finca.org	752721011	FINCA	No
27	D	Shilpa	shilpa.alva@surgeforwater.org	1 312-899-6298	Surge for Water	No
28	A	Andrew	ajohnston@rti.org	784177720	RTI	No
29	A	Augustine Bagenda	augustines@pedn.org		PEDN	Yes
30	A	Marjolijn	M.Wilmink@mvonederland.nl		Kajjansi Project	No
31	A	Thies	thies.timmermans@gmail.com	772458796	Eco-tourism projects/recycling	No
32	A	Charles	cnjubakiwa@gmail.com	775107701	BRAC	No
33	A	Paul		772962310	Kinyara Sugar	No
34	A	Tito	muhereza2tito@gmail.com	0777682258 / 0759401247	BUFA	No
35	A	Kayondo Mugagga	kayondomugagga@ymail.com	755816444	MAMEDICOT	Yes
36	A	Denis Wabuki	wabuyidenis@gmail.com	782888360	Busiu SACCO	Yes
37	A	Andrew Bownds	andy@ugandamarathon.com	751447181	Masaka Marathon	Yes
38	A	Robert Chanceatenyi		774738741	Kyarusozi Microfinance	Yes

During the Monitoring Period, the project received no grievances and no legal disputes.

The table below presents the feedback that we have received.

Surname / Name	Comments
KAYONDO MUGAGGA	The intervention that Spouts of water has come up with, shall help a lot in helping the rural communities adapt to climate change, through reducing on the number of number of trees cut down for wood fuel.
Wabuyi Denis	We are glad to be in collaboration with Spouts of Water and for your being responsive to all the questions at least most of the times

Andrew Bownds	We have been able to buy over 50 20L filters and sell them onto rural based families in Masaka Region. The feedback we have had from the families is that the filters have reduced their daily living costs as they no longer need to use other systems for purifying there drinking water. We have found that Spouts of Water is a great program that can really make a large impact on both the environment and families own sustainability. Thank You
Nyangaro Collins	The purifaaya is such a reliable and cost-saving water dispenser.
Benson Nduhura	The filters you built are fine. My customers really like the product, people are appreciating the product very much. No problem so far for us and I think the product is good.
Robert Kaheebwa	We like the filters. The customers are very thankful, those who have taken filters have no problems.
Humphrey Wamani	The filter is so good and my dad bought one for at home in the village that we use as a family. Whoever comes there and takes water loves it. When I'm marketing it they feel the price is too high, but people who have it love it.
Francis	The customers like what is written on the bucket. Sometimes it is difficult to explain that the filters really do work and remove germs because it is a new technology. We would like to improve that. We would like to put some in public places to help market them because they are a good product.
Julius Mubiru	The Purifaaya has helped families in Western Uganda not only by giving them access to clean and safe water for drinking but also reducing on both fuel costs and time taken boiling water. It's reducing on the deforestation rate in the region by providing the easiest way of making water safe for drinking than boiling it with charcoal and firewood which are the main sources of fuel to most families in the region.
Stella Kivela	We work with SPOUTS to provide water to our clients. Secondly we are selling the filters. The filters are amazing, that's for sure, they are affordable, our clients love them!
Modester	Customers are complaining that the cost has increased. We hoped we would increase our market but our customers are not buying the product, they do not buy the product.

Stephen	My experiences that the SPOUTS are delicate and the filters are sometimes breaking and customers are upset and don't want to pay. The customers like the product, but many of them feel that 75K is too high a price. transportation is difficult, very delicate materials and high selling prices
Julie Mwebesa	First, the initiative is good. Locals need water treatment. Yes, it is a great thing, a great initiative, we like working with Spouts. Based on the reports from the field, people wanted a higher flowrate, so if that can improve it would be better. It is not adequate to provide drinking water for a large family. The affordability is also a challenge when we are dealing with refugees. Some of them are able to afford, especially when saving with a Sacco, but there are others who would need the filters and are not able to afford.
Ringe Florence	The filters in schools enable children not only to take clean and safe water,but also concentrate in class as they do not have to move in and out of class in such of drinking water. Households with Water filters no longer suffer from water Born diseases hence increased production and productivity as a result of hood health.
Ruth Kim	Yes I am very thankful to SPOUTS in Uganda. These people who do not have access to clean water are able to drink clean water. Wonderful. Ideally we pray that many more people will purchase this from Spouts to live a healthy. I hope this continues even in other countries in Africa.
Bagenda Augustine	Purifaayas are impacting greatly to the young people in the schools in areas to do with better health, regarding reduction of water borne diseases, thereby enabling the young people to attend school, and learn better which leads to better performance.
Mariko Fuwa	We are really happy with the filter, both myself and with the project. What works really well was that Spouts came and did the training of the trainer and even now our volunteer is still training so this was helpful. I think we need to figure out how the filter can be maintained sustainably because a few are getting cracked and then do not get used. We need to discuss with the schools to figure out a system to make this more sustainable.
Elinor Awchem	I like the filters very much, I am personally a user and I use it at home. I have told my family and friends and most of them have taken it because it has reduced the cost of buying fuel for boiling water. In addition to the economy they are also very easy to use and clean.

Robert Chanceatenyi	We have no problem because the clients they want more filters. Yes, they actually are all out of stock because people like them so much. It has helped me as well, I have my own filter. The demand is peaking because more people want filters to help them in their home.
Tracy Lamwaka	The filter is very good, especially in emergency situations where there is no safe water points. They can easily access safe water when it is most needed. It is very critical and essential in emergency situations. It is very good that it is a storage device as well. The taps that people withdraw the water from the bucket and there is no way for the water to be contaminated, so it is simple and safe. It also acts as a storage as well, which is very important. Our partnership at Oxfam with Spouts has been very good. We have volunteers who train people on the filter household use and this is very effective. They follow up afterwards as well and people are still using and like their filter.

Report on consideration of comments received

In our opinion, none of the comments, suggestions or questions received so far requires changes to our Programme design.

F.2. List all inputs/grievances from previous monitoring period where follow up action is to be verified in this monitoring period

This is the first monitoring period

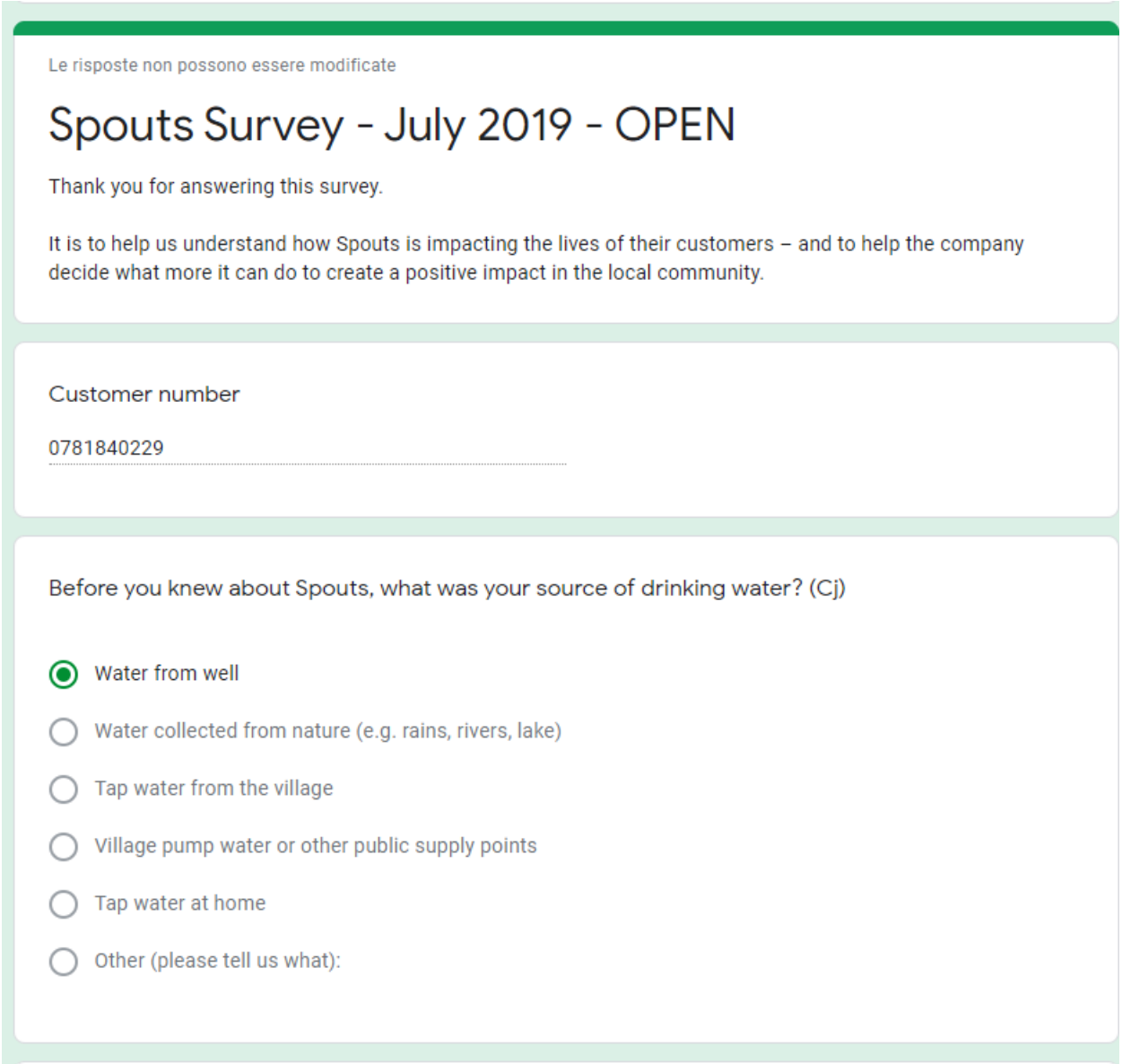
F.3. Provide details of any legal contest or dispute that has arisen with the project during the monitoring period

No legal contest or dispute has arisen with the project during the monitoring period.

Appendix 1 – Sample filled questionnaires

We interviewed 110 respondents. We used Google Forms to write the survey and collect the responses. All individual responses are available.

The screenshots below show the entire survey filled by the first respondent.



Le risposte non possono essere modificate

Spouts Survey - July 2019 - OPEN

Thank you for answering this survey.

It is to help us understand how Spouts is impacting the lives of their customers – and to help the company decide what more it can do to create a positive impact in the local community.

Customer number

0781840229

Before you knew about Spouts, what was your source of drinking water? (Cj)

- (●) Water from well
- ( ) Water collected from nature (e.g. rains, rivers, lake)
- ( ) Tap water from the village
- ( ) Village pump water or other public supply points
- ( ) Tap water at home
- ( ) Other (please tell us what):

Before Spouts, did you disinfect the water before drinking it? (X_Boil)

- (●) Yes
- ( ) No

If you used to disinfect your water, how did you do it? (X_Boil)

- (●) Boil the Water
- ( ) Filter the water
- ( ) Altro: .....

Do you use Spouts water for purposes other than drinking?

- ( ) Yes
- (●) No

If yes, what percentage of the water do you use for purposes other than drinking?

What type of cook stove do you use in your kitchen? (W)

- ○ Three stone wood stove

- ◉ Charcoal
- ○ Altro:

What is your name?

Omona Brian

What is your phone number

0781840229

What is your address?

Kajjansi-Entebbe road

For how long have you used Spouts products?

- ○ Less than 3 months
- ○ 3-6 months
- ○ 6-12 months
- ◉ More than 12 months

Why did you decide to use Spouts products? (Please tick every box that is relevant)

- ☑ It is more hygienic
- ☑ It is better for our family's health
- ☑ It is affordable
- ☐ Altro: .....

Have you reduced the amount of firewood you use at home to boil water?

- (●) Yes
- ( ) No
- ( ) Not sure

Has there been any change to your health since you started to using Spouts water?

- (●) My general health has improved
- ( ) My general health has gotten worse
- ( ) I cannot see any changes in my health
- ( ) Not sure

What do you like about Spouts products and services?

- (●) The health benefits
- ( ) It is affordable
- ( ) Altro: .....

Do you think that the quality of air in your home has improved over the last year, (if you no longer needed to boil water)?

- (●) Yes
- ( ) No
- ( ) Not sure

Do you think that the project created opportunities to meet other people of the village and to interact with them?

- (●) Yes
- ( ) No
- ( ) Not sure

How old are you?

- ( ) 15-20
- (●) 21-30
- ( ) 31-40
- ( ) 41-50
- ( ) 51+

What is your level of education?

- ○ Without education
- ○ Primary school
- ○ Secondary school
- ○ High school
- ◉ University or college
- ○ Altro: .....

How many members does your family have?

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ◉ 5
- ○ 6+

Data/ora invio: 09/08/19, 08:23

Appendix 2 – Water Quality Test - Results

A) Ministry of Water & Environmant - *(Set-2019)*

Republic of Uganda

MINISTRY OF WATER AND ENVIRONMENT
NATIONAL WATER QUALITY REFERENCE LABORATORY - ENTEBBE
Certificate of Analysis

Client Name	Spouts of Water			US 201 Drinkimng Water Standards Class I
Client Address	P. O. Box 12042, Rubaga			
Equipment Type	Purifaaya 5.5 Ceramic Water Filter			
Date of Analysis	7-Aug-19			
Purifaaya Ceramic Water Filter	Raw Water Lake	5.5 Purifaaya	Percentage Removal %	
Electrical Conductivity(µS/cm)	110	115	NA	1500
pH	6.5	6.3	NA	6.5 - 8.5
Turbidity (NTU)	8.6	2.4	NA	5
Total Coliforms (CFU/100mls)	TNTC	<1	99.9	<1
E. Coli (CFU/100mls)	28	<1	99.9	<1
Flow rate (l/hr)	NA	4.6	NA	NA

Notes; Samples are analyzed on as received basis. The client does bear sampling responsibility as to the representative characters of the sample delivered. Results are therefore based on the sample delivered and analyzed. mg/l - stands for milligrams per liter
NA Stands for Not Applicable

LABORATORY MANAGER Checked by NWQRL Laboratory Manager NWQRL
NATIONAL WATER QUALITY REFERENCE LABORATORY -ENTEBBE

PRINCIPAL ANALYST LABORATORIES
30 SEP 2019
Issued by
Principal Analyst

Ministry of Water and Environment
Directorate of Water Resources Management Department
Water Quality Management Department
P.O Box 19, Entebbe
Tel: 041-321342
Fax: 041-321368

Republic of Uganda

MINISTRY OF WATER AND ENVIRONMENT
NATIONAL WATER QUALITY REFERENCE LABORATORY - ENTEBBE
Certificate of Analysis

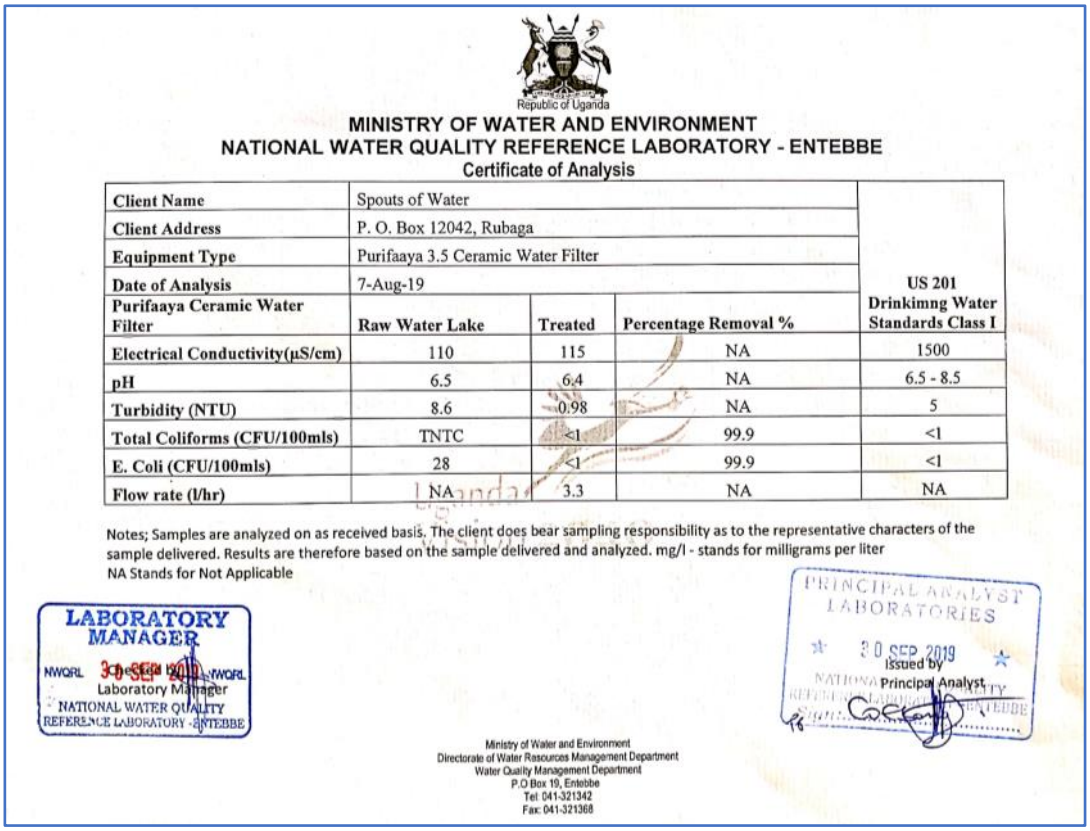
Client Name	Spouts of Water			US 201 Drinkimng Water Standards Class I
Client Address	P. O. Box 12042, Rubaga			
Equipment Type	Purifaaya 4.5 Ceramic Water Filter			
Date of Analysis	7-Aug-19			
Purifaaya Ceramic Water Filter	Raw Water Lake	Treated	Percentage Removal %	
Electrical Conductivity(µS/cm)	110	120	NA	1500
pH	6.5	6.2	NA	6.5 - 8.5
Turbidity (NTU)	8.6	1.8	NA	5
Total Coliforms (CFU/100mls)	TNTC	<1	99.9	<1
E. Coli (CFU/100mls)	28	<1	99.9	<1
Flow rate (l/hr)	NA	4.2	NA	NA

Notes; Samples are analyzed on as received basis. The client does bear sampling responsibility as to the representative characters of the sample delivered. Results are therefore based on the sample delivered and analyzed. mg/l - stands for milligrams per liter
NA Stands for Not Applicable

LABORATORY MANAGER Checked by NWQRL Laboratory Manager NWQRL
NATIONAL WATER QUALITY REFERENCE LABORATORY -ENTEBBE

PRINCIPAL ANALYST LABORATORIES
30 SEP 2019
Issued by
Principal Analyst

Ministry of Water and Environment
Directorate of Water Resources Management Department
Water Quality Management Department
P.O Box 19, Entebbe
Tel: 041-321342
Fax: 041-321368



Republic of Uganda

MINISTRY OF WATER AND ENVIRONMENT
NATIONAL WATER QUALITY REFERENCE LABORATORY - ENTEBBE
Certificate of Analysis

Client Name	Spouts of Water			
Client Address	P. O. Box 12042, Rubaga			
Equipment Type	Purifaaya 3.5 Ceramic Water Filter			
Date of Analysis	7-Aug-19			US 201 Drinkimng Water Standards Class I
Purifaaya Ceramic Water Filter	Raw Water Lake	Treated	Percentage Removal %	
Electrical Conductivity(µS/cm)	110	115	NA	1500
pH	6.5	6.4	NA	6.5 - 8.5
Turbidity (NTU)	8.6	0.98	NA	5
Total Coliforms (CFU/100mls)	TNTC	<1	99.9	<1
E. Coli (CFU/100mls)	28	<1	99.9	<1
Flow rate (l/hr)	NA	3.3	NA	NA

Notes; Samples are analyzed on as received basis. The client does bear sampling responsibility as to the representative characters of the sample delivered. Results are therefore based on the sample delivered and analyzed. mg/l - stands for milligrams per liter
NA Stands for Not Applicable

LABORATORY MANAGER
NWQRL 30 SEP 2019 NWQRL
Laboratory Manager
NATIONAL WATER QUALITY
REFERENCE LABORATORY -ENTEBBE

PRINCIPAL ANALYST
LABORATORIES
30 SEP 2019
Issued by
Principal Analyst

Ministry of Water and Environment
Directorate of Water Resources Management Department
Water Quality Management Department
P.O Box 19, Entebbe
Tel: 041-321342
Fax: 041-321368

B) Chemiphar Laboratory (U) LTD - *(Set-2019)*

chemiphar
LABORATORY

Kampala, 10th August 2018

Spouts of Water Ltd
Attn: Quality Assurance Manager
Busiro Block, Katala
Wakiso District

Dear Sir,

Please find enclosed the results for the requested analysis of the sample.

Sample received on:	1st August 2018
Identification of sample:	Ceramic Water Filter Pot X
Our reference:	18/08/016.1 (Spiked Water Sample)
Sampling by:	Client
Start analysis:	7th August 2018
Page:	1/1

Certificate of Analysis

Microbiology:

Parameter	Method	Units	Results
Pathogens			
Total coliforms	MF-water-T.col	cfu/100ml	46
Escherichia coli	MF-water-T.col	cfu/100ml	34
Faecal streptococci	MF-water-F.entero	cfu/100ml	90
Staphylococcus aureus	PC-food-staph	cfu/100ml	59
Pseudomonas aeruginosa	PC-food-Pseudo_Aer	cfu/100ml	38

Thanking you for your confidence,

Yours Sincerely,

Winnie Nakaayi Kiwanuka
Quality Assurance Manager

Julius Mpalazi
Head of Laboratory

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Test results shall not be reproduced except in full, without a written approval of Chemiphar (U) Ltd.
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Data concerning the measurement uncertainty of the test methods (if applicable) is available in the laboratory.

If you have any doubt about the authenticity of this Certificate, please e-mail us at info@chemiphar.net

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www.chemiphar.net ▪ VAT : 25639-J TIN : 1000033827

chemiphar
LABORATORY

Kampala, 10th August 2018

Spouts of Water Ltd
Attn: Quality Assurance Manager
Busiro Block, Katala
Wakiso District

Dear Sir,

Please find enclosed the results for the requested analysis of the sample.

Sample received on:	1st August 2018
Identification of sample:	Ceramic Water Filter Pot X
Our reference:	18/08/016.1 (Filtrate)
Sampling by:	Client
Start analysis:	7th August 2018
Page:	1/1

Certificate of Analysis

Microbiology:

Parameter	Method	Units	Results
Pathogens			
Total coliforms	MF-water-T.col	cfu/100ml	0
Escherichia coli	MF-water-T.col	cfu/100ml	0
Faecal streptococci	MF-water-F.entero	cfu/100ml	0
Staphylococcus aureus	PC-food-staph	cfu/100ml	0
Pseudomonas aeruginosa	PC-food-Pseudo_Aer	cfu/100ml	0

Thanking you for your confidence.

Yours Sincerely,

Winnie Nakaayi Kiwanuka
Quality Assurance Manager

Julius Mbabazi
Head of Laboratory

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C) Chemiphar Laboratory (U) LTD - *Lake Victoria (Dec-2017)*

chemiphar LABORATORY

Kampala, 1st December 2017

Spouts of Water Ltd
Attn: Quality Assurance Manager
Busiro Block, Katala
Wakiso District

Dear Sir,

Please find enclosed the results for the requested analysis of the sample.

Sample received on:	24th November 2017
Identification of sample:	Sample 1: Lake Water Raw
Our reference	17/11/193
Sampling by	Client
Start analysis:	27th November 2017
Page:	1/1

Certificate of Analysis

Microbiology:

Parameter	Method	Units	Results
Pathogens			
Total coliforms	MF-water-T.col	cfu/100ml	9.0×10^2
Escherichia coli	MF-water-T.col	cfu/100ml	4.0×10^2

Thanking you for your confidence,

Yours Sincerely,

Winnie Nakaayi Kiwanuka
Quality Assurance Manager

Julius Mubazi
Head of Laboratory

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chemiphar
LABORATORY

Kampala, 1st December 2017

Spouts of Water Ltd
Attn: Quality Assurance Manager
Busiro Block, Katala
Wakiso District

Dear Sir,

Please find enclosed the results for the requested analysis of the sample.

Sample received on:	24th November 2017
Identification of sample:	Sample 2: Lake Water Treated
Our reference:	17/11/194
Sampling by:	Client
Start analysis:	27th November 2017
Page:	1/1

Certificate of Analysis

Microbiology:

Parameter	Method	Units	Results
Pathogens			
Total coliforms	MF-water-T.col	cfu/100ml	0
Escherichia coli	MF-water-T.col	cfu/100ml	0

Thanking you for your confidence,

Yours Sincerely,

Winnie Nakaayi Kiwanuka
Quality Assurance Manager

Julius Mutabazi
Head of Laboratory

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chemiphar
LABORATORY

Kampala, 1st December 2017

Spouts of Water Ltd
Attn: Quality Assurance Manager
Busiro Block, Katala
Wakiso District

Dear Sir,

Please find enclosed the results for the requested analysis of the sample.

Sample received on:	24th November 2017
Identification of sample:	Sample 3: Tap Water Treated
Our reference	17/11/195
Sampling by:	Client
Start analysis:	27th November 2017
Page:	1/1

Certificate of Analysis

Microbiology:

Parameter	Method	Units	Results
Pathogens			
Total coliforms	MF-water-T.col	cfu/100ml	0
Escherichia coli	MF-water-T.col	cfu/100ml	0

Thanking you for your confidence.

Yours Sincerely,

Winnie Nakaayi Kiwanuka
Quality Assurance Manager

Julius Ababazi
Head of Laboratory

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www.chemiphar.net = VAT : 25639-J TIN : 1000033827

D) Chemiphar Laboratory (U) LTD - *Tap water - (Dec-2017)*

chemiphar LABORATORY

Kampala, 13th December 2017

Spouts of Water Ltd
Attn: Quality Assurance Manager
Busiro Block, Katala
Wakiso District

Dear Sir,

Please find enclosed the results for the requested analysis of the sample.

Sample received on:	7th December 2017
Identification of sample:	Sample 1: Tap Water Raw
Our reference:	17/12/056
Sampling by:	Client
Start analysis:	11th December 2017
Page:	1/1

Certificate of Analysis

Microbiology:

Parameter	Method	Units	Results
Pathogens			
Total coliforms	MF-water-T.col	cfu/100ml	0
Escherichia coli	MF-water-T.col	cfu/100ml	0

Thanking you for your confidence,

Yours Sincerely,

Winnie Nakaayi Kiwanuka
Quality Assurance Manager

Julius Mbabazi
Head of Laboratory

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www.chemiphar.net = VAT : 25639-J TIN : 1000033827

chemiphar LABORATORY

Kampala, 13th December 2017

Spouts of Water Ltd
Attn: Quality Assurance Manager
Busiro Block, Katala
Wakiso District

Dear Sir,

Please find enclosed the results for the requested analysis of the sample.

Sample received on:	7th December 2017
Identification of sample:	Sample 2: Tap Water Filtered 3.5 L/hr
Our reference:	17/12/057
Sampling by:	Client
Start analysis:	11th December 2017
Page:	1/1

Certificate of Analysis

Microbiology:

Parameter	Method	Units	Results
Pathogens			
Total coliforms	MF-water-T.col	cfu/100ml	0

Thanking you for your confidence,

Yours Sincerely,

Winnie Nakaayi Kiwanuka
Quality Assurance Manager

Julius Mbabazi
Head of Laboratory

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Appendix 3 – Double Counting

December 23th 2019

Dear Customer,

You participate in the Believe Green Safe Drinking Water Carbon Credits Program. This program allows Spouts of Water to provide an affordable, effective and easy-to-use solution for accessing water.

Spouts of Water must strictly avoid 'double counting', meaning that you cannot participate in another similar program.

We kindly ask you to inform us promptly if you receive a proposal to participate in another program.

Thank you for your cooperation.

Daniel Yin

Spouts of Water Chief Executive Officer