THE GOLD STANDARD MICRO-SCALE SCHEME PROJECT DESIGN DOCUMENT FORM - Version 2.2

CONTENTS

A. Annexes

SECTION A. General description of micro-scale project activity

A.1 Title of the micro-scale project activity:

South Western Household Water Project (SWHWP) - Masha

>> *Date & version of the PDD*

Date: 06.09.2016

Version: V1.02

A.2. Project participants:

The project participants are:

Name of Party involved ((host) indicates a host Party)	Private and/or public entitiesproject participants (as applicable)	Party involved wishes to be considered as project participant (Yes/No)
Uganda	Samaritan's Purse Uganda (SPU)	No
Germany	Geschenke der Hoffnung e.V.	No
Germany	Klima ohne Grenzen gemeinnützige GmbH (KoG)	No

Samaritan's Purse Uganda (SPU) is the local branch of Samaritan's Purse (SP) an evangelical Christian humanitarian organization based in the USA. Samaritan's Purse has been active across Uganda since the late 1990s. *SPU* is especially interested in ensuring access to safe drinking water supplies accompanied by education in sanitation and hygiene. *SPU* is the project owner and the local contact in Uganda. *SPU* is responsible for the implementation and monitoring of the project.

Geschenke der Hoffnung e.V. (GH) is a non-profit organization (NPO) based in Germany. It is part of Samaritan's Purse global network. *GH* supports various community based projects in developing countries.

Klima ohne Grenzen (KoG) is a non-profit organization (NPO) based in Germany. Its vision is a low-carbon society. KoG follows this vision by fighting climate change and poverty together. With its consulting services and its climate mitigation projects *KoG* supports individuals and public / private entities in their efforts to address the challenges linked with climate change and poverty. *KoG* assists *SPU* in developing the carbon program and markets the carbon credits (agreement signed August 2013).

A.3 Description of the micro-scale project activity:

A.3.1. Location of the micro-scale project activity:

A.3.1.1.	Host Country:

The Republic of Uganda

A.3.1.2.	Region/State/Province etc.:

Western Region, Isingiro District, Masha sub-county

A.3.1.3.	City/Town/Community etc:

The project boundary includes the following villages and towns:

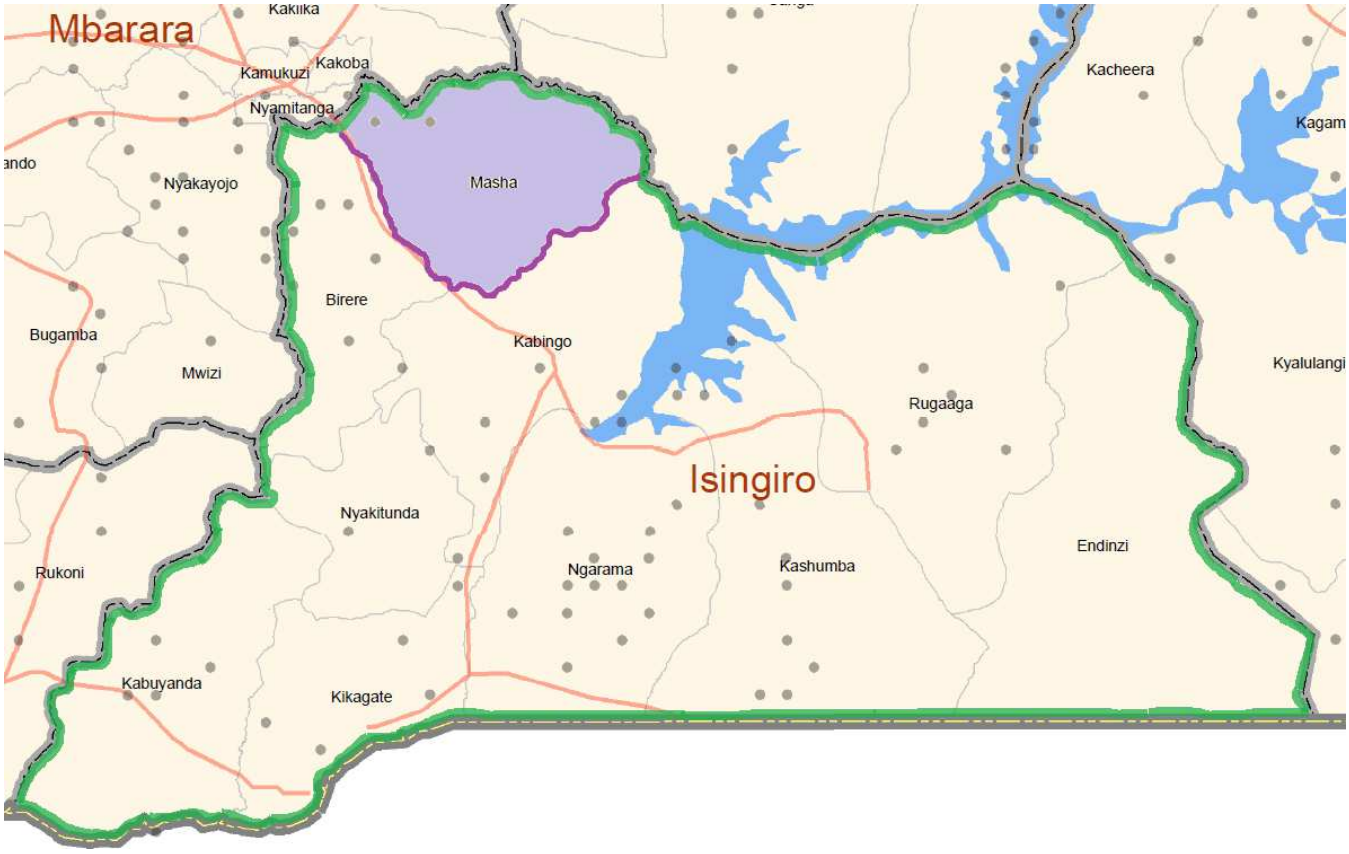
No	***Village***	***No***	***Village***
1	Nyakakoni A	23	Buyonzwa
2	Nyakakoni B	24	Nyamitanga
3	Nyakakoni C	25	Rumuri
4	Masha	26	Kakyeka
5	Rwembogo	27	Nyabushozi
6	Kyenyangi	28	Rwakahunde
7	Nyabweshongoza	29	Nyamitsindo
8	Butenga I	30	Rwenyanga
9	Butenga II	31	Kyekyakyire
10	Kyabutoto	32	Kakuuto A
11	Rutsya	33	Kakuuto B
12	Kabare I	34	Rwendenzi
13	Kabare II	35	Rwenshebashebe
14	Kishuro	36	Rukuuba
15	Nyarubungo I	37	Nyamabare
16	Nyarubungo II	38	Akafunda
17	Nyakasharara	39	Kiyenje (Kabaare V)
18	Omukabare	40	Nyakabungo (Kabaare II)
19	Igyereka	41	Karubanda (Kabaare IV)
20	Ruyonza	42	Rubeeho (Kabaare VI)
21	Rwengando	43	Kaganda (Kabaare VII)
22	Katerera	44	Omukabare II

A.3.1.4. Details of physical location, including information allowing the unique identification of this micro-scale project activity:

Masha sub-county is located in the northwestern corner of the Isingiro district.

Country	Region	District	Sub-county	Geographical Reference
Uganda	Western Region	Isingiro	Masha	Masha Village S 00º 43.126', E 030º 43.906'

Map 1: Regions and districts of Uganda



Map 2: Isingiro District (green line) and Masha sub-county (purple)

A.3.2. Description including technology and/or measure of the micro-scale project activity:

This micro-scale project activity will distribute 3,000 BioSand Filters (BSFs) in various small community based projects in the Masha sub-county of the Isingiro District of Uganda's Western Region. The BSFs will displace the combustion of fire wood used to purify water in the absence of the project activity.

The organization implementing and supervising the project on-site in Uganda is Samaritan's Purse Uganda (SPU) which will guide the manufacturing process and the installation of the BSFs. In its work, Samaritan's Purse Uganda especially focuses on the provision of safe water as well as sanitation and hygiene education. The organization already runs several projects concerning safe water provision in Uganda, in the context of which it has also provided BSFs to rural communities in Northern Uganda. Samaritan's purse Uganda is thus experienced in manufacturing and distributing BSFs in rural Uganda. With the BSF each family receives a jerry can so that the clean storage of the filtered water is secured. Additionally, the beneficiaries are provided with a sanitation and hygiene training, teaching them how to protect the filtered water from recontamination.

The BSFs distributed by the project activity will be produced and distributed locally. SPU´s trained staff will build the filters in the villages and install them. SPU´s will monitor the usage of the filters within the project period. The beneficiaries (poor households) will contribute to the manufacturing of the filters by assisting to source locally and for free available materials (e.g. sand, gravel) needed for the construction of the BSFs. Since the BSFs are constructed in the villages, the costs as well as the

emissions caused by transportation of material are kept low. GHG emissions arising from production, transport, installation and delivery will not reach 5% or more of the overall emissions.

Most of the production material is sourced locally. Therefore the transportation of these materials is no major source of GHG emissions. The construction of the concrete filter container (~100kg) leads to GHG emissions of less than 20 kg CO_2e. (Online database ProBas (concrete): 107 kgCO2e/t)[1]

The majority of the beneficiaries live close to a production site and can use trolleys provided by the project to transport the filters to their homes. Only a few filters are delivered by a truck.

The beneficiaries do not have to pay for receiving a filter. The distribution and installation of the BSFs is financed by donations from SP Uganda´s partner *Geschenke der Hoffnung* and by marketing carbon credits. *Geschenke der Hoffnung* and *Klima ohne Grenzen* signed the agreement (PIN) to partly finance the project by marketing carbon credits in August 2013. SP Uganda was only able to go ahead with the project since KoG agreed in this document to finance the BSF with revenues from the carbon market. (PIN – BioSand Filter Project, Western Uganda – Carbon Credit Program" / section 1: *"Klima ohne Grenzen (KoG) will financially support this project with proceeds from the sale of carbon credits. Without this financial support the project cannot be implemented due to the lack of funds."*)

[1] http://www.probas.umweltbundesamt.de/php/prozessdetails.php?id={707E23CA-304F-485C-83A6-90C0A0F1BAA6}

Picture 1: Beneficiaries with BSF

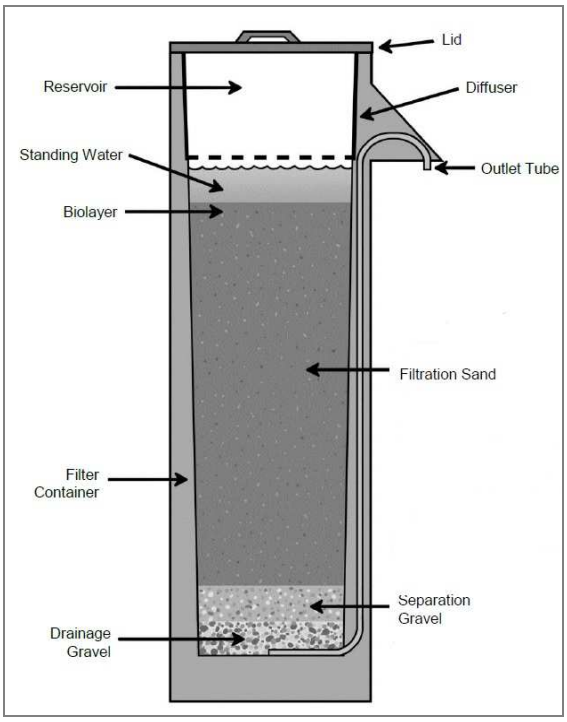

Picture 2: BSF construction

Picture 3: Labeling filters

Applied technology

The BioSand Water Filter is an adaptation of slow-sand filtration that is designed for use by families at the household level. This award-winning water filtration technology was developed by Dr. David Manz, a former University of Calgary professor. BSFs are an established water treatment system and are used and supported by internationally active NGOs such as, for example, UNICEF and WHO, or the non-profit entity CAWST[2,3]. They have successfully been used as water treatment systems in communities for more than two decades and have been documented to be an effective water treatment technology[4,5,6]. The filter removes organisms responsible for diseases spread by water, such as cholera, typhoid fever, and amoebic dysentery. The filter also strains out particles causing cloudiness, and much of the organic matter responsible for taste, color and odor.

From start to finish the filters can be constructed in roughly 10 days. The filter is very durable[7], constructed from concrete, sand, gravel, and PVC piping. These materials can be found in almost every country and enable community members to help construct the filters on location.



Picture 4: BSF components (CAWST 2009)

Water is poured into the top of the filter and flows down through sand. Water that requires filtration usually contains various types of organic matter, sediment, and living organisms. The water first passes through the diffuser plate, which reduces the disruptive force of the input water and large debris, and protects a delicate biological layer. The filter sand functions as a physical barrier that traps particles and larger organisms, causing them to accumulate in the uppermost layers of the filter. Organic

[2] Huisman & Wood. 1974. "Slow Sand Filtration". WHO.
[3] Clasen. 2009. "Scaling up household water treatment among low-income populations". WHO.
[4] Clasen, WHO. "Scaling up household water treatment among low-income populations". 2009.
[5] Hijnen at al. "Quantitative assessment of the removal of indicator bacteria in full-scale treatment plants". 2004.
[6] Liang et al. "Improving Household Drinking Water Quality. Water and Sanitation Program". 2010.
[7] CAWST: Estimated Lifespan 30+ years (http://biosandfilters.info/technical/fact-sheet-biosand-filter) Liang et al. "Improving Household Drinking Water Quality. Water and Sanitation Program". 2010. (p.14, Fig. 4)

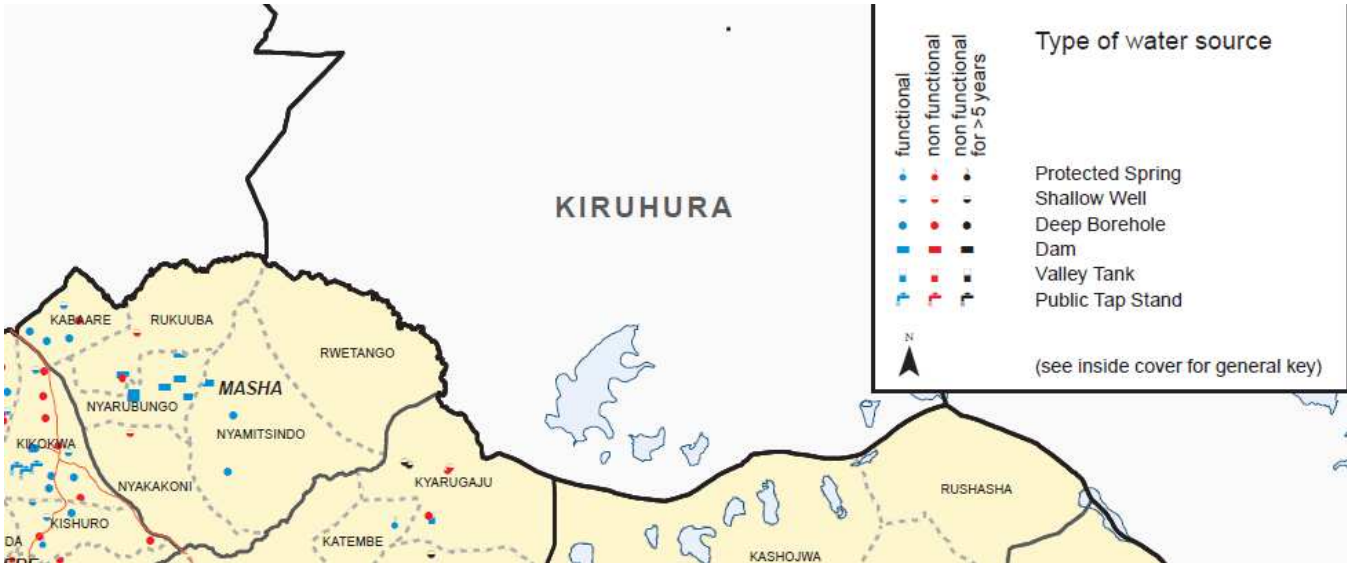
material and organisms caught in the sand eventually develop into a dense population referred to as the biological layer. As the water passes through the biological layer, microbial contaminants such as parasites, bacteria, viruses, and organic contaminants are consumed by the organisms. The filter is designed to hold water above the top of the sand to sustain the biological layer while the filter water is not in use. This provides the constant aquatic environment that is necessary for the organisms present in the biological layer to survive. The fine sand acts as a microscopic sedimentation bed as the water passes through the filter, helping remove cloudiness, odor, taste, and harmful micro-organisms from the water. The size and shape of the sand grains are critical to the formation of the biological layer and therefore the effectiveness of the filter. Sand is specifically selected and prepared to achieve proper filtration. By the time the water reaches the layers of coarse sand and gravel at the bottom of the filter, 95 to 99.0 per cent of microbial contaminants have been eliminated by the BioSand Water Filter. The filtered water flows out of the spout and is collected in a safe storage container to prevent post-treatment contamination. The average flow rate of the filter is one litre per minute, which allows for 60 litres to be filtered per hour, enough to provide a family of eight with sufficient water for their daily drinking, cooking, cleaning, and hygiene needs.

As the filter is used, the biological layer matures and thickens, causing the flow of water through the filter to slow. Recipients of filters are trained to watch for decreased flow and can renew the filter simply by skimming off any debris from the top of the sand, and by gently stirring the sand to break-up the biological layer. The quality of source water will determine how often this process is necessary.

The project region

The Isingiro District consists of 10 sub-counties. According to the Uganda Water Supply Atlas 2016[8] in the Isingiro district only 33% of the population has access to safe water supply services. The access rates vary between 9% in the Insigiro TC sub-county and 74% in the Kabuyanda sub-county. The access rate of people in Masha sub-county of 21% is one of the lowest in the district (see ANNEX 10). In addition, there are reasons to assume that in general the actual number of people who make use of the access to water supply services in everyday life is even lower. This is due to the fact that people have to walk long distances to reach the safe water suppliesWalking of long distances is time-consuming and carrying water over long distances is hard physical labor, especially for girls and women. People thus often draw on unsafe water supplies such as ponds or surface water closer to their homes.

[8] http://www.wateruganda.com/index.php/reports/district/18, accessed 28th April 2016 (see ANNEX 10)



Picture 5: Water source distribution - Masha sub-county (Source: Uganda water supply atlas 2010)

The consumption of unsafe water leads to health problems, such as infections and diarrhea caused by E. coli bacteria. According to the World Health Organization (WHO)[11], 88% of diarrheal diseases worldwide are attributed to unsafe water supply, while 1.8 million people die every year from diarrheal diseases (90% of which are children below the age of five). In Uganda, 90 out of 1000 children die below the age of 5[12]. Consequently, a large percentage of the Ugandan population boils their water to purify it before consumption. Uganda Demographic and Health Survey (2011): Rural households boil their drinking water (38 percent) or do not treat their drinking water (59 percent).[13]

Boiling of water is usually done on a three-stone fire using firewood as fuel. According to the Uganda National Household Survey 2009/2010[14], 82.1% of the Western Ugandan population uses a traditional three-stone fire for cooking and 10.1% an open charcoal stove. Similarly, the survey shows that 84.2% of the Western Ugandan population uses firewood for cooking and boiling of water and 10.8% charcoal. During the combustion of these non-renewable biomasses (firewood and charcoal) greenhouse gases (GHG) are released. GHG, especially carbon dioxide (CO_2), Methane (CH_4), and Nitrous oxide (N_2O), are known to have increased due to human activity and cause climate change. Furthermore, the steady demand of firewood for cooking and the boiling of water makes it necessary to cut down trees and contributes a large part to deforestation in Uganda. Deforestation also has a negative impact on climate change (forests store CO_2) resulting in a loss of storage capacity of the forests and leading to erosion and destruction of eco-systems. In Uganda, the fraction of non-renewable biomass is 82%[15]. Finally, the combustion of firewood and charcoal and as a consequence thereof the permanent exposure to smoke poses a severe threat to peoples' health. As shown by the Global Burden of Disease

[11] WHO. "Water, Sanitation and Hygiene Links to Health - Facts and Figures 2004".
[12] UNICEF country statistics Uganda.
[13] https://www.usaid.gov/sites/default/files/documents/1860/Uganda_Demographic_and_Health_Survey_2011.pdf, (Chapter 2: Housing Charateristics and Household Population, p.12)
[14] Uganda Bureau of Statistics. "Uganda National Household Survey 2009/2010", Chapter 9.5.3.
[15] UNFCCC-Default values of fraction of non-renewable biomass http://cdm.unfccc.int/DNA/fNRB/index.html

Study 2010[16], the exposure to smoke is the fourth worse risk factor for diseases in developing countries. According to a study recently released by the WHO, 4.3 million people worldwide died in 2012 resulting from household air pollution. Thereof, almost 600,000 deaths occurred in Africa alone[17].

Apart from the threatening effect that boiling on open fires and charcoal stoves has on the environment and people's health, it also directly impacts people's social and economic everyday life. Especially girls and women are engaged in collecting firewood and spend a lot of time for these time-consuming activities. Women in Western Uganda spend on average 35.6 hours per week on care labor activities (including cooking, fetching water, fetching firewood and taking care of children)[18]. This keeps many women from being productive in income-generating activities and thus negatively affects the economic situation of families in a region where 22.3% of the rural population lives in poverty[19]. Furthermore, not having access to SDW forces some families to spend a large proportion of their income on firewood and charcoal if they want to avoid getting sick from drinking contaminated water.

The positive effects caused by the activity of this project will help to achieve targets of several Millennium Goal's (MG) concerned with environmental sustainability (MG7, especially Target 7C "Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation"[20]) and child mortality (MG 4). By supplying SDW the project will also improve people's health in general and thus also support MG5 (improve maternal health). Finally, gender equality and empowerment of women (MG3) is supported, since girls and women have to spend less time on care labor activities and are thus free to pursue economic activities or education.

Project objectives

The project activity will

- install 3,000 BSFs,
- distribute 3,000 safe water storage container,
- provide safe water to approximately 15,000 people and safe 3,853 tCO_2e per year,
- ensure proper usage of the BSFs, and
- educate 3,000 households in proper hygiene and sanitation practices.

Contribution to Sustainable Development

In summary, the project contributes to sustainable environmental, social, and economic development in the Isingiro District in the following ways:

[16] WHO. "Global Burden of Disease Study 2010"
[17] WHO. "Burden of disease from Household Air Pollution for 2012"
[18] Uganda Bureau of Statistics. "Uganda National Household Survey 2005/2006", Table 4.10
[19] Uganda Bureau of Statistics. "Uganda National Household Survey 2009/2010", Table 6.8
[20] http://www.un.org/millenniumgoals/environ.shtml

Environmental benefits

- Reduction of the consumption of non-renewable biomass, especially firewood, by making it unnecessary to boil water before consumption.
- Reduction of greenhouse gas emissions.
- Protection of forest through prevention of deforestation and thus erosion. Less trees will be cut down, because of lower firewood demand.

Social benefits

- Time benefits especially for girls and women: less time spent collecting firewood as well as carrying and purifying the water. Increases possibility for girls to attend school and for women to pursue economic activities.
- Less money spent on firewood/charcoal.

Benefits to health:

- Less infections and diarrhea caused by contaminated water.
- Less respiratory disease and lower health risk, because of reduction of smoke resulting in better indoor air quality.

Economic benefits

- Employment for local population in building, distributing, and maintaining the BSFs.
- Potentially improving economic situation for women, because more time can be spent in economic activities.

A.3.3 Estimated amount of emission reductions over the chosen crediting period:

The estimated amount of emission reductions over the crediting period of the project are the following:

Year	Estimated emission reduction in tCO_2e
1	3,853
2	3,853
3	3,853
4	3,853
5	3,853
6	3,853
7	3,853

8	3,853
9	3,853
10	3,853
Total estimated ER	38,530
Average ER / year	3,853

A.3.4. Public funding of the micro-scale project activity:

The micro-scale project activity does not receive any public funding. Should public funding be received by the PDD, it will be confirmed that this does not result in division of official development assistance (ODA). For the ODA declaration see Annex 2.

SECTION B. Application of an existing baseline and monitoring methodology or of a new methodology submitted as part of this project activity

B.1. Title and reference of the existing or new baseline and monitoring methodology applied to the micro-scale project activity:

The project applies the Gold Standard baseline and monitoring methodology *Technologies and Practices to Displace Decentralized Thermal Energy Consumption*, Version 1.0 (11/04/2011). Reference is the Gold Standard website. [21]

B.2 Justification of the choice of the methodology and applicability:

The choice of the methodology is justified as shown in the table below. All the requirements of this methodology are applicable to the installation of BSFs.

Requirement of applied methodology	Justification
This methodology is applicable to programs or activities introducing technologies and/or practices that reduce or displace greenhouse gas (GHG) emissions from the thermal energy consumption of households and non-domestic premises.	The project activity will install point-of-use water purification systems which provide safe drinking water (SDW). The installed technology will displace the combustion of fire wood used to purify water in the absence of the project activity.
The project boundary can be clearly identified, and the technologies counted in the project are not included in another voluntary market or CDM	The project boundary includes domestic households in the Masha sub-county. Each BSF has a unique identification number which will be

[21] http://www.cdmgoldstandard.org/wp-content/uploads/2011/10/GS_110411_TPDDTEC_Methodology.pdf

project activity (i.e. no double counting takes place). Project proponents must have a survey mechanism in place together with appropriate mitigation measures so as to prevent double-counting in case of another similar activity with some of the target area in common.	registered in order to prevent double counting. At the time of installation of the BSFs it is ensured that only households that currently boil water for purification or us unsafe water receive a filter.
The technologies each have continuous useful energy outputs of less than 150kW per unit (defined as total energy delivered usefully from start to end of operation of a unit divided by time of operation). For technologies or practices that do not deliver thermal energy in the project scenario but only displace thermal energy supplied in the baseline scenario, the 150kW threshold applies to the displaced baseline technology.	The BSFs do not deliver any thermal energy. In the baseline, thermal energy is provided by means of woody biomass to boil water. The thermal energy displaced by the baseline technology is below 150kW. Power delivered by a three stone open fire: 1.16 kW (Uganda´s Ministry of Energy and Mineral Development)[22]
The use of the baseline technology as a backup or auxiliary technology in parallel with the improved technology introduced by the project activity is permitted as long as a mechanism is put into place to encourage the removal of the old technology (e.g. discounted price for the improved technology) and the definitive discontinuity of its use. The project documentation must provide a clear description of the approach chosen and the monitoring plan must allow for a good understanding of the extent to which the baseline technology is still in use after the introduction of the improved technology, whether the existing baseline technology is not surrendered at the time of the introduction of the improved technology, or whether a new baseline technology is acquired and put to use by targeted end users during the project crediting period – see section III. The success of the mechanism put into place must therefore be monitored, and the approach must be adjusted if proven unsuccessful. If an old technology remains in use in parallel with the improved technology, corresponding emissions must of course be accounted for as part of the project emissions – see section II.5.	The project technology will displace traditional three-stone-fires used for boiling water only (not for cooking). Households can therefore not be encouraged to abandon the combustion of firewood completely, but will be encouraged to not boil water anymore. The ex-ante assumption is that 87.5% of households will abandon the combustion of firewood for boiling water in the project scenario. This will be monitored.
The project proponent must clearly communicate	The project proponent will clearly communicate

[22] Uganda´s Ministry of Energy and Mineral Development, A Comparison of Wood-Burning Cookstoves for Uganda: Testing and Development, p.21

to all project participants the entity that is claiming ownership rights of and selling the emission reductions resulting from the project activity. This must be communicated to the technology producers and the retailers of the improved technology or the renewable fuel in use in the project situation by contract or clear written assertions in the transaction paperwork, If the claimants are not the project technology end users, the end users should be notified that they cannot claim for emission reductions from the project.	to all project participants the entity that is claiming ownership rights of and selling the emission reductions resulting from the project activity. The beneficiaries will be informed at the point of installing the BSF. Each household receiving a BSF will confirm in writing that it was informed and that it will not claim for the emission reductions of the project technology.
Project activities making use of a new biomass feedstock in the project situation (e.g. shift from non-renewable to green charcoal, plant oil or renewable biomass briquettes) must comply with relevant Gold Standard specific requirements for biomass related project activities, as defined in the latest version of the Gold Standard rules.	Not applicable.
Only end users that boil water or are currently using unsafe water are eligible for crediting.	BSF will only be installed at households that currently boil water or that currently consume unsafe water.
The baseline scenario is the existing practice of treating water for consumption by boiling using high emission fuels including non-renewable biomass and fossil fuels.	In the baseline scenario water is treated by boiling it using non-renewable biomass.

B.3. Description of the project boundary:

The project is located in the Masha sub-county of the Isingiro district. The project boundary are the villages listed in the table in section A.3.1.3., in which the BSF will be installed.

Geo-coordinates are recorded for each village where BSF are installed by the project activity.

B.4. Description of the baseline and its development as per the chosen methodology:

The baseline scenario is the current practice of boiling of water in order to purify it before consumption. The baseline technology is an open three-stone fire using the non-renewable biomass firewood. It is assumed that the quantity of water consumed per person and day in the baseline scenario is subject to suppressed demand. Suppressed demand refers to the situation in which the level of energy service is not sufficient to meet human development needs due to the lack of financial means and/or access to modern energy infrastructure or recourses. This means that the project population has to overcome many barriers in order to obtain SDW. These are above all obtaining firewood and water for purification. Problems are the shortage of available firewood, and the lack of time and/or money to obtain it. Therefore, as for the methodology used here, the quantity of water in the baseline is measured using the project scenario circumstances, i.e. after the introduction of the water purification technology. This quantity of water is assumed to be the amount of water per person and day that would be consumed in absence of suppressed demand. This quantity will be measured and monitored (see section B.7.)

The project activity introduces a new water purification technology (BSFs) which replaces the baseline technology as means of water purification. Since the BSFs do not consume any fuel there is no longer suppressed demand regarding firewood.

B.5. 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:

The following GHGs of the baseline scenario are included and reduced by the project activity:

	Source	Gas	Included?	Justification/Explanation
Baseline	Combustion of fossil fuels to purify water by boiling	CO_2	Yes	Important source of emission
		CH_4	Yes	Important source of emission
		N_2O	Yes	Important source of emission

	Source	Gas	Included?	Justification/Explanation
Project	Combustion of fossil fuels to boil water already treaded with the BSF	CO_2	Yes	Important source of emission
		CH_4	Yes	Important source of emission
		N_2O	Yes	Important source of emission

GHG emissions arising from production, transport, installation and delivery will not reach 5% or more of the overall emissions. Therefore, the project will include these GHG emissions in the project scenario.

Most of the production material is sourced locally. Therefore the transportation of these materials is no major source of GHG emissions. The construction of the concrete filter container (~100kg) leads to

GHG emissions of less than 20 kg CO_2e. (Online database ProBas (concrete): 107 kgCO2e/t)[23] The majority of the beneficiaries live close to a production site and can use trolleys provided by the project to transport the filters to their homes. Only a few filters are delivered by a truck.

The water purification technology introduced by the project activity replaces the boiling of water on three-stone fires as water purification technology. The BSFs installed by the project technology do not consume any fuel and therefore do not emit any GHG. The project activity will generate emission reductions of 3,853 t CO_2e per year. Thus, the GHG emissions will be reduced below those that would have occurred in the absence of this project.

B.6 Emission reductions:

B.6.1. Explanation of methodological options or description of new proposed approach:

The Gold Standard methodology "Technologies and Practices to Displace Decentralized Thermal Energy Consumption – 11/04/2011" was applied to estimate emission reductions. Annex 3 of the methodology especially describes the application of the methodology to safe water supply project scenarios. Detailed justification that this methodology is applicable to this project can be found in section B.2.

1. Project Boundary

   a.) Project Boundary

   The project boundary is defined by the households of the project population using the BSF.

   b.) Target Area

   see A 3.1.3.

   c.) Fuel Collection Area

   The fuel collection area is the area around the villages listed under A.3.1.3

2. Baseline Scenario

   The baseline scenario is the current practice of boiling of water in order to purify it before consumption. A fixed baseline is applied since all units are installed at the start. It therefore does not require continuous monitoring. (see methodology, p.6)

3. Emission sources included in the project boundary

   The main source of emissions in the baseline scenario is the consumption of NRB. Values required to calculate these baseline emissions are based on publicly available and verifiable data.

[23] http://www.probas.umweltbundesamt.de/php/prozessdetails.php?id={707E23CA-304F-485C-83A6-90C0A0F1BAA6}

4. Project Scenario

   The project scenario is the installation of BSFs in households.

5. Suppressed Demand

   The concept of suppressed demand is applied.

6. Additionality

   Only 21 percent of Masha population has access to safe water (see ANNEX 10).[24] Whereas, safe water is defined as water that does not contain biological or chemical agents directly detrimental to health. It includes treated surface water and untreated but uncontaminated water from protected springs, bore-holes, sanitary well, etc.[25] Uganda´s government additionally considers rain water as safe water.[26]

   Masha´s population that has access to safe water gets this water in most cases from point water sources like shallow wells , deep boreholes and rainwater harvesting tanks .[27] The project technology (BioSand Filters for point-of-use water treatment) has by far not been adopted by ≥ 20% of the population (only 21 % of the population has access to safe water in total). Therefore, the technology can be qualified as "first of its kind" and additional according to the applied methodology.

7. Baseline Studies

   A baseline non-renewable biomass (NRB) assessment was not contacted, since UNFCCC-Default values are available.

   "Uganda´s National Household Survey" and "Uganda´s water supply atlas" have been used as main sources to evaluate target population characteristics, baseline technology use, fuel consumption, leakage and sustainable development indicators.

   In line with Annex 4 / footnote 53 a baseline performance field test was not contacted. Default efficiency is applied to the baseline cooking technology.

8. Project Studies

   The project survey of target population characteristics and the water consumption field test will be submitted post registration, on time for the verification and prior to the request for issuance. The Project Estimation of expected project emissions is supported by appropriate and credible sources of information.

The emission reductions are calculated identifying the baseline (b) and project (p) fuel consumption and on the basis of this the baseline and project emissions.

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[24] Uganda *Water Supply Atlas* online database (accessed April 27, 2016) (http://www.wateruganda.com/)
[25] UNICEF/WHO, Charting the Progress of Populations, Chapter X, p.71
[26] Uganda Bureau of Statistics. "Uganda National Household Survey 2009/2010", p.121
[27] Ministry of Water and Environment. "Uganda water supply atlas, Isingiro District Information 2010"

(1) Baseline Scenario Fuel Consumption Calculation:

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

(2) Baseline emissions:

$$BE_{b,y} = B_{b,y} * ((f_{NRB,b,y} * EF_{b,fuel,CO2}) + EF_{b,fuel,nonCO2}) * NCV_{b,fuel}$$

(3) Project Scenario Fuel Consumption Calculation:

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

(4) Project emissions:

$$PE_{p,y} = B_{p,y} * ((f_{NRB,p,y} * EF_{p,fuel,CO2}) + EF_{p,fuel,nonCO2}) * NCV_{p,fuel}$$

(5) Emission Reductions:

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

B.6.2. Data and parameters that are available at validation:

Data / Parameter:	***C_j***
Data unit:	%
Description:	Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it
Source of data used:	Uganda Water Supply Atlas online database (accessed April 27, 2016) (see ANNEX 10) (http://www.wateruganda.com/)
Value applied:	21.0%
Justification of the choice of data or description of measurement methods and procedures actually applied:	
Any comment:	

Data / Parameter:	***Wb,y***
Data unit:	t/l
Description:	Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b during project year y, as per Baseline Water Boiling Test.

Source of data used:	
Value applied:	0.0002383
Justification of the choice of data or description of measurement methods and procedures actually applied:	This value can be calculated as follows: $SEC / NCV_{b,fuel}$ As per AMS-III.AV, the specific energy consumption required to boil one litre of water is to be calculated as follows: $SEC = [WH \times (T_f - T_i) + 0.01 \times WHE] / n_{wb}$
Any comment:	For the calculation of *SEC* see Annex 3

Data / Parameter:	$f_{NRB,y}$
Data unit:	
Description:	Factor of non-renewable biomass
Source of data used:	UNFCCC-Default values of fraction of non-renewable biomass http://cdm.unfccc.int/DNA/fNRB/index.html
Value applied:	0.82
Justification of the choice of data or description of measurement methods and procedures actually applied:	Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable as per the relevant provisions of AMS-I.E "Switch from Non-Renewable Biomass for Thermal Applications by the User" Version 05.0.
Any comment:	

Data / Parameter:	$EF_{b,fuel,CO2}$
Data unit:	tCO_2/TJ
Description:	CO_2 emission factor of wood fuel

Source of data used:	IPCC default value[29]
Value applied:	112
Justification of the choice of data or description of measurement methods and procedures actually applied:	IPCC default values provide an approved estimate of emission reductions; deemed valid as per methodology.
Any comment:	

Data / Parameter:	$EF_{b,fuel,CH4}$
Data unit:	tCO_2e
Description:	CH_4 emission factor of wood fuel
Source of data used:	IPCC default value[30]
Value applied:	7.5 (0.300*25)
Justification of the choice of data or description of measurement methods and procedures actually applied:	IPCC default values provide an approved estimate of emission reductions; deemed valid as per methodology.
Any comment:	

Data / Parameter:	$EF_{b,fuel,N2O}$
Data unit:	tCO_2e
Description:	N_2O emission factor of wood fuel
Source of data used:	IPCC default value[31]

[29] IPCC Guidelines for National Greenhouse Gas Inventories, 2006, Volume 2: Stationary Combustion, Table 2.5

[30] IPCC Guidelines for National Greenhouse Gas Inventories, 2006, Volume 2: Stationary Combustion, Table 2.5

Value applied:	1.192 (0.004*298)
Justification of the choice of data or description of measurement methods and procedures actually applied:	IPCC default values provide an approved estimate of emission reductions; deemed valid as per methodology.
Any comment:	

Data / Parameter:	$NCV_{b,fuel}$
Data unit:	TJ/ton
Description:	Net calorific value of wood fuel
Source of data used:	Applied methodology p.15 / IPCC default value
Value applied:	0.015
Justification of the choice of data or description of measurement methods and procedures actually applied:	IPCC default values provide an approved estimate of emission reductions; deemed valid as per methodology.
Any comment:	

B.6.3 Ex-ante calculation of emission reductions:

Using the methodology *Technologies and Practices to Displace Decentralized Thermal Energy Consumption* the emission reductions are calculated identifying the baseline (*b*) and project (*p*) fuel consumption and on the basis of this the baseline and project emissions. The following calculations are done in the following:

(1) Baseline Scenario Fuel Consumption Calculation:

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

[31] IPCC Guidelines for National Greenhouse Gas Inventories, 2006, Volume 2: Stationary Combustion, Table 2.5

(2) Baseline emissions:

$$BE_{b,y} = B_{b,y} * ((f_{NRB,b,y} * EF_{b,fuel,CO2}) + EF_{b,fuel,nonCO2}) * NCV_{b,fuel}$$

(3) Project Scenario Fuel Consumption Calculation:

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

(4) Project emissions:

$$PE_{p,y} = B_{p,y} * ((f_{NRB,p,y} * EF_{p,fuel,CO2}) + EF_{p,fuel,nonCO2}) * NCV_{p,fuel}$$

(5) Emission Reductions:

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

Baseline Scenario Fuel Consumption Calculation

$B_{p,y}$ = Number of person-days x Baseline Fuel used to Treat Water (T/L) x Total Safe Water consumed in project scenario (L/p/d)

The quantity of fuel consumed in the baseline scenario b during the year y ($B_{b,y}$) shall be calculated as follows:

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

Where:

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

C_j Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it

At the point of installation of the BSF it will be ensured that only households are included in the project activity that previously did not have access to SDW without boiling it before consumption.

In line with the WHO "Guidelines for drinking – water quality" (section 5.3)[32] intermediate or optimal access (see following table) to a safe source of water is required. In addition, the flow at the source should not be characterised by daily or weekly interruptions.

Table 5.1 Service level and quantity of water collected

Service level	Distance/time	Likely volumes of water collected	Public health risk from poor hygiene	Intervention priority and actions
No access	More than 1 km / more than 30 min round-trip	Very low: 5 litres per capita per day	**Very high** Hygiene practice compromised Basic consumption may be compromised	**Very high** Provision of basic level of service Hygiene education Household water treatment and safe storage as interim measure
Basic access	Within 1 km / within 30 min round-trip	Approximately 20 litres per capita per day on average	**High** Hygiene may be compromised Laundry may occur off-plot	**High** Provision of improved level of service Hygiene education Household water treatment and safe storage as interim measure
Intermediate access	Water provided on-plot through at least one tap (yard level)	Approximately 50 litres per capita per day on average	**Low** Hygiene should not be compromised Laundry likely to occur on-plot	**Low** Hygiene promotion still yields health gains Encourage optimal access
Optimal access	Supply of water through multiple taps within the house	100–200 litres per capita per day on average	**Very low** Hygiene should not be compromised Laundry will occur on-plot	**Very low** Hygiene promotion still yields health gains

Table 1: Service level of SDW + intervention priority/actions (source: WHO[33])

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

According to a study[34] of the *Uganda Bureau of Statistics* the average household size in Western Uganda is 5.1. The project activity will install 3,000 BSFs. Through one year $N_{j,y}$ thus is 5,584,500 person.days. This value will be obtained prior to the first verification by means of project survey.

$W_{b,y}$ *Quantity of fuel in tons required to treat 1 litre of water using technologies representative of baseline scenario b during project year y*

The *specific energy consumption required to boil one litre of water* (SEC) is commonly calculated as $SEC = \left[WH \times \left(T_f - T_i\right) + 0.01 \times WHE\right] / n_{wb}$ as per AMS-III.AV using default values (for the calculation of *SEC* refer to Annex 3). Divided by the *net calorific value* of wood fuel that is substituted

[32] http://apps.who.int/iris/bitstream/10665/44584/1/9789241548151_eng.pdf
[33] http://apps.who.int/iris/bitstream/10665/44584/1/9789241548151_eng.pdf
[34] Uganda Bureau of Statistics, Uganda National Household Survey 2009/2010, Table 2.6

or reduced ($NCV_{b,fuel}$), for which an IPCC default value of 0.015 TJ/ton can be used, it gives the quantity of wood fuel required to boil 1 litre of water with baseline technology.

As per the methodology, the total safe water consumed in the project scenario is the amount of safe water supplied by the project technology and consumed in the project scenario, plus the amount of raw water boiled after introducing the project technology (respectively represented below as $Q_{p,y}$ + $Q_{p,rawboil,y}$). This total is assumed to be equivalent to water boiled in the baseline.

$Q_{p,y}$ *Quantity of safe water in litres consumed in the project scenario p and supplied by project technology per person per day*

Based on the experiences of the project owner gained through the implementation of comparable projects, the average quantity of water needed per person per day is 3.0 L. This value will be assessed prior to the first verification by means of the Water Consumption Field Test (WCFT).

The quantity of treated water is assumed to underlie suppressed demand, meaning that the quantity of water consumed per person per day would be higher if barriers, such as gathering firewood or fetching water, would be removed.

$Q_{j,rawboil,y}$ *Quantity of raw water boiled in the project scenario p per person per day*

It is assumed that after the installation of the BSFs none of the households adapting the technology will boiled water for purification. However, studies on BSFs indicate that the rate of acceptability of the BSFs by the beneficiaries is 87.5%.[35] This value will be monitored. The drop off rate of 12.5% will be accounted for in the parameter $U_{p,y}$ in the overall calculation of emission reductions.

The parameter applied in the project activity are the following:

Parameter	Application within project	Value	Data source
C_j	BSF are only installed at households that do not have access to SDW without boiling	21 %	Uganda Water Supply Atlas online database (accessed April 27, 2016)
$N_{j,y}$	Total number of people supplied by BSF (= number of people per household multiplied by the number of filters) multiplied by the number of days/year the	5,584,500	No. of persons/household: 5.1 (official data[36])

[35] Liang et al. "Improving Household Drinking Water Quality. Water and Sanitation Program". 2010., p.14

[36] Uganda Bureau of Statistics, Uganda National Household Survey 2009/2010, Table 2.6

	BSF are in use		365 days/year
$W_{b,y}$	Amount of wood used to boil 1 litre of water	0.0002383 t	Calculated: SEC / $NCV_{b,fuel}$
SEC	Specific energy consumption required to boil one litre of water	3,574.8 kJ/L	Calculated as per AMS-III.AV
$Q_{p,y}$	Quantity of water per person per day used in the project scenario	3.0 L	Estimated value based on experience gained through comparable projects in the region
$Q_{p,rawboil,y}$	Quantity of water still boiled after the introduction of the project technology	0 L	Technology training

Baseline emissions

Baseline emissions are calculated as follows:

$$BE_{b,y} = B_{b,y} * ((f_{NRB,b,y} * EF_{b,fuel,CO2}) + EF_{b,fuel,nonCO2}) * NCV_{b,fuel}$$

Where:

$B_{b,y}$	=	Quantity of fuel consumed in baseline scenario b during year y, in tons, as per by-default factors
$f_{NRB,b,y}$	=	Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass
$EF_{b,fuel,CO2}$	=	CO_2 emission factor of the fuel that is substituted or reduced. 112 tCO2/TJ for Wood/Wood Waste, or the IPCC default value of other relevant fuel
$EF_{b,fuel,nonCO2}$	=	Non-CO_2 emission factor of the fuel that is substituted or reduced
$NCV_{b,fuel}$	=	Net calorific value of the fuel that is substituted or reduced (IPCC default for wood fuel, 0.015 TJ/ton)

Parameter	Application within project	Value	Data source
$B_{b,y}$	Quantity of wood fuel consumed in baseline scenario b during year y, in tons		Calculated (see above)
$f_{NRB,b,y}$	Fraction of non-renewable biomass used in year y	0.82	UNFCCC-Default value[37]
$EF_{b,fuel,CO2}$	CO_2 emission factor of the wood fuel	112 tCO_2/TJ	IPCC default value

[37] http://cdm.unfccc.int/DNA/fNRB/index.html

$EF_{b,fuel,CH4}$	CH_4 emission factor of wood fuel	7.5 tCO_2e/TJ	IPCC default value
$EF_{b,fuel,N2O}$	N_2O emission factor of wood fuel	1.192 tCO_2e/TJ	IPCC default value
$EF_{b,fuel,nonCO2}$	Non-CO_2 emission factor of the wood fuel ($EF_{b,fuel,CH4} + EF_{b,fuel,N2O}$)	8.695 tCO_2e/TJ	IPCC default value
$NCV_{b,fuel}$	Net calorific value of wood fuel	0.015 TJ/t	IPCC default value

Project Scenario Fuel Consumption Calculation

Bp,y = Number of person.days x Project Fuel used to boil water (T/L) x Total volume of water boiled in project scenario (L/p/d)

The quantity of fuel consumed in the project scenario p during the year y ($B_{p,y}$) shall be calculated as follows:

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

Where:

C_j	=	Expressed as a percentage, this is the portion of users of the project technology or j 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 p through year y
$W_{p,y}$	=	Quantity of fuel in tons required to treat 1 litre of water using technologies representative of the project scenario p during project year y
$Q_{j,rawboil,y}$	=	Quantity of raw water boiled in the project scenario p per person per day
$Q_{p,cleanboil,y}$	=	Quantity of safe water boiled in the project scenario p per person per day

C_j Expressed as a percentage, this is the portion of users of the project technology j who in the baseline were already consuming safe water without boiling it

At the point of installation of the BSF it will be ensured that only households are included in the project activity that previously did not have access to SDW without boiling it before consumption.

In line with the WHO "Guidelines for drinking – water quality" (section 5.3)[38] intermediate or optimal access (see following table) to a safe source of water is required. In addition, the flow at the source should not be characterised by daily or weekly interruptions.

Table 5.1 Service level and quantity of water collected

Service level	Distance/time	Likely volumes of water collected	Public health risk from poor hygiene	Intervention priority and actions
No access	More than 1 km / more than 30 min round-trip	Very low: 5 litres per capita per day	**Very high** Hygiene practice compromised Basic consumption may be compromised	**Very high** Provision of basic level of service Hygiene education Household water treatment and safe storage as interim measure
Basic access	Within 1 km / within 30 min round-trip	Approximately 20 litres per capita per day on average	**High** Hygiene may be compromised Laundry may occur off-plot	**High** Provision of improved level of service Hygiene education Household water treatment and safe storage as interim measure
Intermediate access	Water provided on-plot through at least one tap (yard level)	Approximately 50 litres per capita per day on average	**Low** Hygiene should not be compromised Laundry likely to occur on-plot	**Low** Hygiene promotion still yields health gains Encourage optimal access
Optimal access	Supply of water through multiple taps within the house	100–200 litres per capita per day on average	**Very low** Hygiene should not be compromised Laundry will occur on-plot	**Very low** Hygiene promotion still yields health gains

Table 2: Service level of SDW + intervention priority/actions (source: WHO[39])

$Q_{p,rawboil,y}$ *Quantity of raw water boiled in the project scenario p per person per day*

It is assumed that after the installation of the BSFs none of the households adapting the technology will boiled water for purification. This parameter will be included in the monitoring.

$Q_{p,cleanboil,y}$ *Quantity of safe water boiled in the project scenario p per person per day*

It is assumed that no household using the BSF as means of water purification will additionally boil the purified water for purification. This will be part of the technology training and will be monitored.

Project Emissions

$PE_{p,y} = B_{p,y} * ((f_{NRB,p,y} * EF_{p,fuel,CO2}) + EF_{p,fuel,nonCO2}) * NCV_{p,fuel}$

[38] http://apps.who.int/iris/bitstream/10665/44584/1/9789241548151_eng.pdf, p.83ff
[39] http://apps.who.int/iris/bitstream/10665/44584/1/9789241548151_eng.pdf, p.83ff

Where:

$B_{p,y}$	=	Quantity of fuel consumed in project scenario p during year y, in tons, as per by-default factors

Remaining parameters are defined as in the calculation of the baseline emissions above.

Leakage

The core methodology requires to investigate the following potential sources of leakage. However, not all potential sources are applicable for the installation of BSF.

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

Wood fuel is the main source of energy for cooking and boiling water everywhere in rural Uganda. The project activity only replaces the boiling of water for purification before consumption. The baseline technology, the three-stone fire, is still used for cooking and is therefore not displaced completely.

It is highly unlikely that the installation of the project technology will influence the consumption behaviour of any household outside the project boundary.

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

Firewood is used for cooking and boiling water by almost all households within the project boundary. Since the project technology only replaces the wood fuel used for boiling water the beneficiaries' households will still use firewood for cooking. It is therefore highly unlikely that the NRB saved due to the project activity will influence any households' cooking behaviour or cause any change in fuel.

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

Due to the small size of the project activity (installation of 3,000 BSFs), it is highly unlikely that the project significantly influences the NRB fraction of the area.

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

Not applicable, since the replaced technology (three-stone fire) does not serve as a space heating.

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

The project activity includes via selection only households that use a three-stone fire for boiling water as purification treatment. The substitution of a technology with relatively lower emissions by the project activity is therefore excluded.

Emission Reductions

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

Where:

$U_{p,y}$	=	Cumulative usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate.

The parameter $U_{p,y}$ describes the usage rate of the BSF. A study on BSFs[40] has shown that 87.5% of the BSFs are accepted and continuously used by the beneficiaries.

B.6.4 Summary of the ex-ante estimation of emission reductions:

The baseline emissions and the estimated emission reductions are the following:

[40] Liang et al. 2010. Improving Household Drinking Water Quality. Water and Sanitation Program, p.14

Year	Estimation of project activity emission (tCO_2)	Estimation of baseline emissions (tCO_2)	Estimation of leakage (tCO_2)	Estimation of overall emission reductions (tCO_2)
1	0	3,853	0	3,853
2	0	3,853	0	3,853
3	0	3,853	0	3,853
4	0	3,853	0	3,853
5	0	3,853	0	3,853
6	0	3,853	0	3,853
7	0	3,853	0	3,853
8	0	3,853	0	3,853
9	0	3,853	0	3,853
10	0	3,853	0	3,853
Total (tCO_2)	0	38,530	0	38,530

B.7 Application of a monitoring methodology and description of the monitoring plan as per the existing or new methodology applied to the micro-scale project activity:

B.7.1 Data and parameters monitored:

Data / Parameter:	$Q_{p,y}$
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
Source of data to be used:	Water consumption field test (WCFT)
Monitoring	As per WCFT/WCFT updates

frequency:	
QA/QC procedures to be applied:	Random sampling test as outlined in the *General Guidelines for Sampling and Surveys for Small-scale CDM Project Activities*, V 01[42]
Any comment:	

Data / Parameter:	$Q_{p,rawboil,y}$
Data unit:	Litres per person per day
Description:	The raw or unsafe water that is still boiled after installation of the water treatment technology
Source of data to be used:	Water consumption field test (WCFT)
Monitoring frequency:	As per WCFT/WCFT updates
QA/QC procedures to be applied:	Random sampling test as outlined in the *General Guidelines for Sampling and Surveys for Small-scale CDM Project Activities*, V 01.
Any comment:	

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)
Monitoring frequency:	As per WCFT/WCFT updates
QA/QC procedures to be applied:	Random sampling test as outlined in the *General Guidelines for Sampling and Surveys for Small-scale CDM Project Activities*, V 01.
Any comment:	

[42] http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid20.pdf

Data / Parameter:	***Quality of the treated water***
Data unit:	%
Description:	Performance of the BSF shall be tested in accordance with national standards or the WHO's Health Based Targets and Microbiological Specifications document'. Only samples that meet Uganda´s standard on treated water quality or the "highly protective level" performance requirements as outlined in Table 1, page 7 of the WHO´s Health Based Targets and Microbiological Specifications document will pass the water quality test. [If available, testing in a laboratory might be used instead of the field test. A credible 3rd party endorsement will be submitted with the monitoring report.]
Source of data to be used:	
Monitoring frequency:	As per WCFT/WCFT updates
QA/QC procedures to be applied:	
Any comment:	(Please refer to section B.7.2)

Data / Parameter:	$U_{p,y}$
Data unit:	Percentage
Description:	Usage rate in project scenario p during year y. As part of the usage survey BSF users will be asked to demonstrate the use of the filter. Only users that are able to successfully demonstrate this are regarded as regular users.
Source of data to be used:	Usage survey
Monitoring frequency:	The usage survey is conducted annually.
QA/QC procedures to be applied:	Sampling test. Transparent data analysis and reporting. Since all BSF are installed within 2 years (25.2.2016 – 01.12.2015) and the lifetime of the BSF is >10 years samples of different age groups are not required.
Any comment:	

Data / Parameter:	$N_{p,y}$
Data unit:	Person.days
Description:	Number of persons consuming water supplied by project scenario p through year y
Source of data to be used:	Project / monitoring survey
Monitoring frequency:	The survey is conducted annually.
QA/QC procedures to be applied:	Sampling test. Transparent data analysis and reporting.
Any comment:	

Data / Parameter:	***LEp,y***
Data unit:	tCO2e per year
Description:	Leakage in project scenario p during year y
Source of data to be used:	
Monitoring frequency:	N/A (see section B.7.2)
QA/QC procedures to be applied:	
Any comment:	

B.7.2 Description of the monitoring plan:

The monitoring will follow the rules stated in “A3.3 Application of the Monitoring Methodology for Water Treatment Scenarios” (p.38 39) of the applied Gold Standard methodology “Technologies and Practices to Displace Decentralized Thermal Energy Consumption – 11/04/2011”.

Project preparation and monitoring schedule	Prior to validation	Prior to first verification	Annual: after first verification	Every two years: after first verification
A. Project studies				
A.1 NRB assessment		x		
A.2 Project & usage survey		x		
A.3 Water consumption field test (WCFT)		X		
B. Ongoing monitoring tasks				
B.1 Maintenance of total installation record & project database	continuous			
B.2 Monitoring & usage survey			x	
B.3 WCFT updates				x
B.4 Leakage assessment				x
B.5 Updating NRB assessments		N/A	N/A	N/A
C. Quality assurance & control	continuous			

Table 3: Project and monitoring schedule

A. Project studies – (completed prior to first verification)
Project studies are conducted prior to first verification of achieved emission reductions. This approach uses ex-post project studies from which fuel consumption in the baseline scenario is back-calculated.

1. Project non-renewable biomass (NRB) assessment – (completed prior to first verification)

The NRB assessment is based on the most recent default values published by the UNFCCC at:

http://cdm.unfccc.int/DNA/fNRB/index.html

2. Project & usage survey – (completed prior to first verification)

The project survey provides information on user characteristics, baseline technology use and sustainable development indicators. The usage survey provides a single usage parameter based on drop off rates.

Survey representativeness

The survey requires in person interviews with a robust sample of representative end users currently using the BSF.

Data collected for the project survey

1) User follow up
   a) Unique filter identification number
   b) Name and (if available) telephone number of beneficiary
   c) Geographic location of installation (name of village)
2) End user characteristics
   a) Number of people served by the BSF
3) Usage patterns before BSF was installed (baseline scenario)
   a) Water source (quality, quantity, accessibility and continuity)
   b) Baseline water treatment practices + type and source of fuel (if applicable)
4) Usage patterns with BSF (project scenario)
   a) Water source (quality, quantity, accessibility and continuity)
   b) Water treatment practices

3. Water consumption field test (WCFT) – (completed prior to first verification)

The WCFT is conducted with representative end users currently using the BSF. Three different volumetric variables are measured:

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

In addition the quality of the treated water is tested.

The WCFT must yield the water consumption pattern representative of a whole year. Therefore, weekends as well as public holidays are avoided and households are asked to treat as well as consume water as they normally do.

Project studies – field test protocol

DAY 1 Introduction & project / usage survey

The project survey and the usage survey is performed with the selected households. Based on the interview for the usage the enumerator classifies the household as user/non-user.

Only with households classified as users based on the results of the usage survey the Survey-Team will proceed to perform the WCFT.

Households are informed about the WCFT exercise as well as the water quality testing. Households are asked at what times they usually treat water during the day.

DAY 2-4 WCFT

The Survey-Team will visit the households based on their respective water treatment schedule. Every morning the volume of raw water is measured by the enumerator using a measuring cup before it is added to the filter. Households that do not have their daily volume of water available in the morning will be visited another time during the day and the volume of raw water is measured before it is added to the filter.

The quantity of filtered water per day is document over this three day period by the Survey-Team.

The households will also be asked whether they boil any of the filtered water ($Q_{p,cleanboil,y)}$ or whether they boil any raw or unsafe water ($Q_{p,cleanboil,y}$).

If a household boils filtered or raw/unsafe water, the following will be executed:

The filtered water boiled ($Q_{p,rawboil,y}$) is measured by the Survey-Team using a measuring cup before it is added to the boiling pot.

The quantity of filtered water boiled per day is document over this three day period by the Survey-Team.

The raw water boiled ($Q_{p,rawboil,y}$) is measured by the Survey-Team using a measuring cup before it is added to the boiling pot.

The quantity of raw water boiled per day is document over this three day period by the Survey-Team.

The Survey-Team will also record on a day to day basis the number of people served by the sampled BSF (number of people living in the household).

WCFT- water quality tests

The Survey-Team collects samples for water quality testing from each household selected for the WCFT.

The BSF is an established water treatment system which is supported and endorsed by well-known NGOs, for example WHO[43] and CAWST. Consequently, a number of studies has been conducted testing the water quality of the BSFs. These include two types of studies: laboratory and field studies. A *Biosand Filter Literature Summary*[44] compiled by the organization CAWST provides an overview of the enormous amount of studies. All studies on BSFs confirm that BSFs effectively remove E.coli bacteria, viruses, turbidity and odor from the raw water. The table below provides some examples of the removal rate of E.coli bacteria.

Author	Type of study	E.coli removal
Stauber et al. 2011[45]	field	93.3%
Jenkins et al. 2011[46]	laboratory	96%
Vanderzwaag at al. 2009[47]	field	97%
Baker et al. 2006[48]	field	98.5%

It is therefore assumed that the water quality provided by the BSFs if used correctly is high.

Only samples that meet Uganda´s standard on treated water quality or the "highly protective level" performance requirements as outlined in Table 1, page 7 of the WHO´s Health Based Targets and Microbiological Specifications document will pass the water quality test.

3rd party endorsement for testing methodology / equipment: 3M Petrifilm E.Coli/ Coliform Count Plate Test

United Nations Human Settlements Programme (UN-HABITAT)

In its guide "A Practical Method for Assessment of the Baterial Quality of Water" the United Nations Human Settlements Programme (UN-HABITAT)[49] the 3M Petrifilm E.Coli/ Coliform Count Plate Test is one of the two tested and endorsed testing procedures. "*The Colilert and Petrifilm tests correlate with the relative risk of disease from drinking-water (WHO Guidelines for Drinking Water, 2nd Edition).*"

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[43] WHO, Huisman & Wood. "Slow Sand Filtration". 1974.; http://www.who.int/water_sanitation_health/dwq/wsh0207/en/index5.html; Clasen. 2009. Scaling up household water treatment among low-income populations.
[44] CAWST. "Biosand Filter Literature Summary". 2012.
[45] Stauber et al. 2011. "Cluster Randomized Controlled Trial of the Plastic BioSand Water Filter in Cambodia". Environ. Sci. Technol.*, 2012,* 46 *(2), pp 722–728.*
[46] Jenkins et al. 2011. "Bacterial, viral and turbidity removal by intermittent slow sand filtration for household use in developing countries: Experimental investigation and modelling". *Water Research 45 (2011) 6227-6239.*
[47] Vanderzwaag at al. 2009. "Field Evaluation of Long-Term Performance and Use of Biosand Filters in Posoltega, Nicaragua". *Water Quality Research Journal of Canada, Vol. 44 (2): 111 – 121.*
[48] Baker et al. 2006. "Performance of BSF in Haiti: A Field Study of 107 Households". *Rural and Remote Health. 6: 570.*
[49] http://mirror.unhabitat.org/pmss/listItemDetails.aspx?publicationID=3056

CAWST - Centre for Affordable Water and Sanitation Technology

CAWST endorses the 3M Petrifilm E.Coli/ Coliform Count Plate Test as an alternative for rapid e. coli testing. [50]

Engineers Without Borders -USA

EWB-USA evaluated the 3M Petrifilm E.Coli/ Coliform Count Plate Test in its technical paper: "Fecal Coliform Contamination of Drinking Water – An Evaluation of World Field Assessment Techniques". [51] The accuracy of test results was rated as good.

Selection of sampled households for the project studies (project/usage survey + WCFT)

1) Sample size determination

For the calculation of the provisional minimum sample size the 90/10 rule with coefficient of variation (COV) of 0.6 shall be applied.

COV	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
90/10 precision	12	26	45	70	101	137	179	226	279

Picture 6: Sample size (source: applied methodology p.44)

The sample size according to Picture 6: Sample size (source: applied methodology p.44) shall be increased by a sufficient amount (20 – 30 samples) to allow for "sample size attrition" (e.g. households classed as non-users in the usage survey, outliers in the WCFT). This gives a sample size of 120-130 households.

The COV and the sample size may be adjusted if the gathered data indicate that the applied COV is higher/lower than the real COV. However, the minimum sample size shall not be lower than 110 households.

2) Selection of the sampled households

The sampled households are selected with a random selection method. The following approach is applied:

1. Village groups with a total of at least 400 installed BSF each are defined based on geographical characteristics.

   The BSF in these village groups receive an ongoing number in the order of their unique filter identification number.

2. One village group is selected by casting lots.

[50] http://www.biosandfilters.info/faq/what-are-cawst%E2%80%99s-preferences-water-testing-kits

[51] http://www.ewb-usa.org/files/EWB-USA-TP-104-Fecal-Coliform-Contamination-of-Drinking-Water-an-Evaluation-of-World-Field-Techniques-revc.pdf

This geographical cluster sampling is necessary because it helps to reduce travel time that has an impact on monitoring costs and on the handling of samples for the water quality testing.

3. The sample interval (SI) is calculated by dividing the total number of filters installed in the selected village group by the sample size. (Note: Values are rounded down to the full value.)

4. The Random Start (RS) is determined by randomly selecting a number between 1 and the sample interval (SI).

5. Sample units SU1=RS; SU2=RS+S1; SUn=RS+(n-1)SI;… are selected from the list of households in the selected village group based on the ongoing number that each filter received in addition to their unique filter identification number.

The sampling of different age groups is not applied since all BSF were manufactured and installed within one year.

Households that:

- are unreachable or
- do no longer reside within the project boundary (Masha sub-county)

are classed as non-users. These households are not replaced in the sample frame.

B. Ongoing monitoring tasks

1. Maintenance of total installation record & project data base – (continuous)

An accurate and complete installation record will be maintained. This record contains the following data:

1. Unique filter identification number
2. Date of installation
3. Geographic location of installation (name of village)
4. Name and (if available) telephone number of beneficiary
5. Signed receipt and carbon waiver

The project data base is derived from the total installation record. The project data base is updated based on the findings of the project, usage, monitoring surveys and the WCFT(updates).

2. Usage & monitoring survey – (annual after first verification)

The monitoring & usage survey is completed annually and in all cases on time for any request of issuance.

The part "usage survey" provides a single usage parameter based on drop off rates. The part "monitoring survey" investigates changes over time in the project scenario, and in the baseline scenario, by surveying users of the BSF on an annual basis.

3. WCFT updates – (every two years after first verification)

WCFT updates are conducted with representative end users using the BSF. For scope and procedure see WCFT.

Usage & monitoring survey + WCFT updates – field test protocol

See WCFT protocol

Selection of sampled households for the Usage & monitoring survey + WCFT updates

- see selection process for project studies –

If no WCFT update is scheduled, the minimum sample size for the UMS is 110.

4. Leakage assessment– (N/A)

As demonstrated in section B.6.3 no leakage is likely to occur during the entire project lifetime given that the project is too small to impact the population outside the project boundary and that it does not replace the entire baseline technology, but only a specific usage of it (i.e. as means of water purification). No Leakage assessment update will have to be conducted.

5. Updating NRB assessment – (N/A)

No non-renewable biomass assessment update will have to be conducted, since the baseline is fixed and the crediting period will not be renewed.

C. Quality assurance and quality control

Field test and surveys are conducted by trained staff. A documents and records for the project are stored electronically and can be made accessible for spot checking and cross referencing by a third party.

B.8 Date of completion of the application of the existing or new baseline and monitoring methodology and name of the responsible person(s)/entity(ies)

Date of completion of the baseline study and monitoring plan:

25th January 2016

Responsible entities:

Klima ohne Grenzen gemeinnützige GmbH, Samaritan´s Purse Uganda

SECTION C. Duration of the project activity / crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:

1st October 2013

During October 2013 SP Uganda discussed the project with local authorities and started to set up the infrastructure for the project. In January 2014 the Local Stakeholder Meeting was organized and at the end of February 2014 the first BSF were manufactured. In May 2014 the first draft of the PDD was uploaded into the GS registry.

C.1.2. Expected operational lifetime of the project activity:

>10 years [52],

C.2 Choice of the crediting period and related information:

Fixed crediting period

C.2.1. Renewable crediting period

N.A.

C.2.1.1. Starting date of the first crediting period:

[52] CAWST: Estimated Lifespan BSF 30+ years (http://biosandfilters.info/technical/fact-sheet-biosand-filter) Liang et al. "Improving Household Drinking Water Quality. Water and Sanitation Program". 2010. (p.14, Fig. 4)

C.2.1.2.	Length of the first crediting period:

C.2.2.	Fixed crediting period:

C.2.2.1.	Starting date:

1st July 2014

C.2.2.2.	Length:

10 years

SECTION D. Stakeholders' comments

>> Please note that the blind scoring exercise during stakeholder consultation need not be carried out.

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

>> Please describe the agenda of physical meeting, Non-technical summary, Invitation tracking table, Text of invitations sent, any other consultation method used

The physical local stakeholder meeting took place on the 22nd of January 2014 at the Masha sub-county headquarters.

1. Way of invitation

Invitation letters were sent via email to members of the government and officials. These were written in English. To the local population invitation letters written in Nyankore (also called Runyankole) were handed over personally. The local population was additionally informed via radio announcements as well as phone calls five days before the meeting.

English text of invitation letter:

Samaritan's Purse
INTERNATIONAL RELIEF

16/Dec/2013

.....

.....

.....

RE: *Invitation to Stakeholders Meeting At Masha Sub County*

Samaritans Purse International Relief will be implementing a house hold water project that will be utilizing Bio-Sand water filter (BSF) technology to increase access to safe water as well as promotion of hygiene and sanitation in the communities of Masha sub county, Isingiro district.

The main objective of the meeting is to inform stakeholders about the project and give an opportunity to discuss about the impact of the project. The meeting will take place at **Masha sub county headquarters on the 22nd of January 2014 at 10:00am.**

Your presence will contribute to the success of the project as we increase access to safe water and promotion of hygiene and sanitation in Masha Sub County, Isingiro district. If you're not in position to make it to the meeting please get back to us through the contacts below

(Attached is the non-technical summary of the project)

Yours faithfully

Mabano Robert

South Western Household Water Project Manager

rmabano@samaritan.org

Tel: +256 772 713 215

Nyankore text of invitation letter:

Samaritan's Purse
INTERNATIONAL RELIEF

16/Dec/2013

.....

.....

.....

RE: OKWETWA OMURUKIIKO RWABOKUKWATWAHO PUROJEKITI AHAGOMBORORA YA MASHA

Ekitongore kya Samaritans Purse International Relief nikiza kuba nikiteka omunkora purojekiti y'okuhitsya amaizi omumaka erabe nekozesa tekinologia y'okugyegyena amaizi erikwejunisa omushenyi, okwenda kwongyera ahabyokwhitsya amaizi marungi oteireho n'okukwinegyeza ebyobuyonjo n'obwecumi omubyanga by'Isingiro disiturikiti.

Ekigyendererwa ekikuru ky'orukiiko nokwenda kumanyisa abarikukwatwaho ahabikwatiraine na purojekiti kandi bakaheebwa omugisha gw'okuhazana aha birungi n'ebibi ebirikuruga omu purojekiti. ***Orukiiko niruza kukorerwa ahambuga zegomborora ya Masha ebiro 22/1/2014 shaaha ina zakasheshe (10:00am).***

Okwiza n'okubaho kwawe nikuza kwongyera ahakwihikiriza ebigyendererwa bya purojekiti obwe turikwongyera ahabyokutunga amaizi marungi kandi agacumire kandi tukaretaho obuyonjo n'obwecumi omugomborora ya Masha na disiturikiti y'Isingiro okutwariza hamwe.

Ninye Omuhikanisa

.....

Manager wa purojekiti yokuhitsya amaizi omumaka ahabwa burengyerw'izooba bwa Uganda

Esiimu 0772 713215

2. Non-technical summary

Samaritan's Purse
INTERNATIONAL RELIEF

South Western Household Water Project (SWHWP), Masha Sub-county / Uganda

The South Western Household Water Project (SWHWP) will utilize Bio-Sand Water Filter (BSF) technology to provide safe water to 3,000 households in Masha sub county of Isingiro district in Uganda. This will improve access to safe water since only 65% of Uganda's population currently is served which leaves 35% of the population particularly in rural areas un served and vulnerable.

The Isingiro district in which Masha sub county is located has poor access to safe water yet with a big population of 396,700 people of which only an average of 28% has access to safe water. As a result the district has suffered the brunt of water-borne and water-related diseases such as typhoid, dysentery and diarrhea which have taken a serious toll on the community. Adults often cannot go to work and children miss school as families are robbed of livelihoods and nutrients vital for their proper development. Scarce resources that could have been used to improve households' welfare have been diverted to access emergency medical services.

To combat water-borne illnesses the community engages in boiling water as a form of water treatment. However, this practice requires firewood or charcoal which is costly and time consuming, in addition to its obvious negative impact on the environment.

The project proposes to implement a Household Water Project (HWP) which utilizes Bio-Sand Water Filter (BSF) technology. The BSF is a recognized method by the World Health Organization under Household Water Treatment System and Safe Storage. Therefore, the BSF has been viewed as an appropriate intervention to raise access to safe water for rural households in communities currently using surface water bodies such as dams, swamps, streams, rivers and valley tanks.

The project will be participatory in nature where community members will be engaged to participate in attending consultative and sensitization meetings, construction, transportation and installation of filters.

Social and environmental impacts of the project to the target population

- Reduction on the water related diseases in the community
- Trained and functional community structures especially village healthy teams
- Reduction on carbon emission through reduced use of firewood
- Improved sanitation and hygiene among households through sensitizations, setting up and replication of demonstration homes

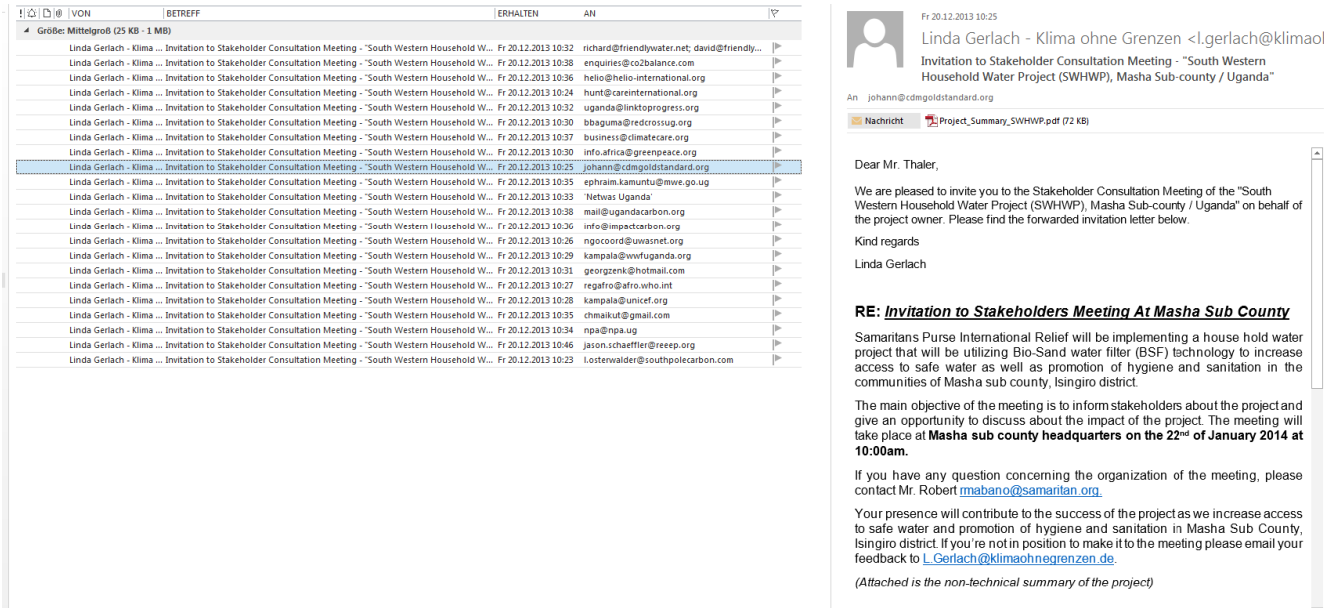
The project will be certified as a carbon mitigation project under The Gold Standard®. Project certification under this internationally recognized certification standard ensures that the projects results in GHG reductions and sustainable development benefits in the local community.

3. Invitation tracking table

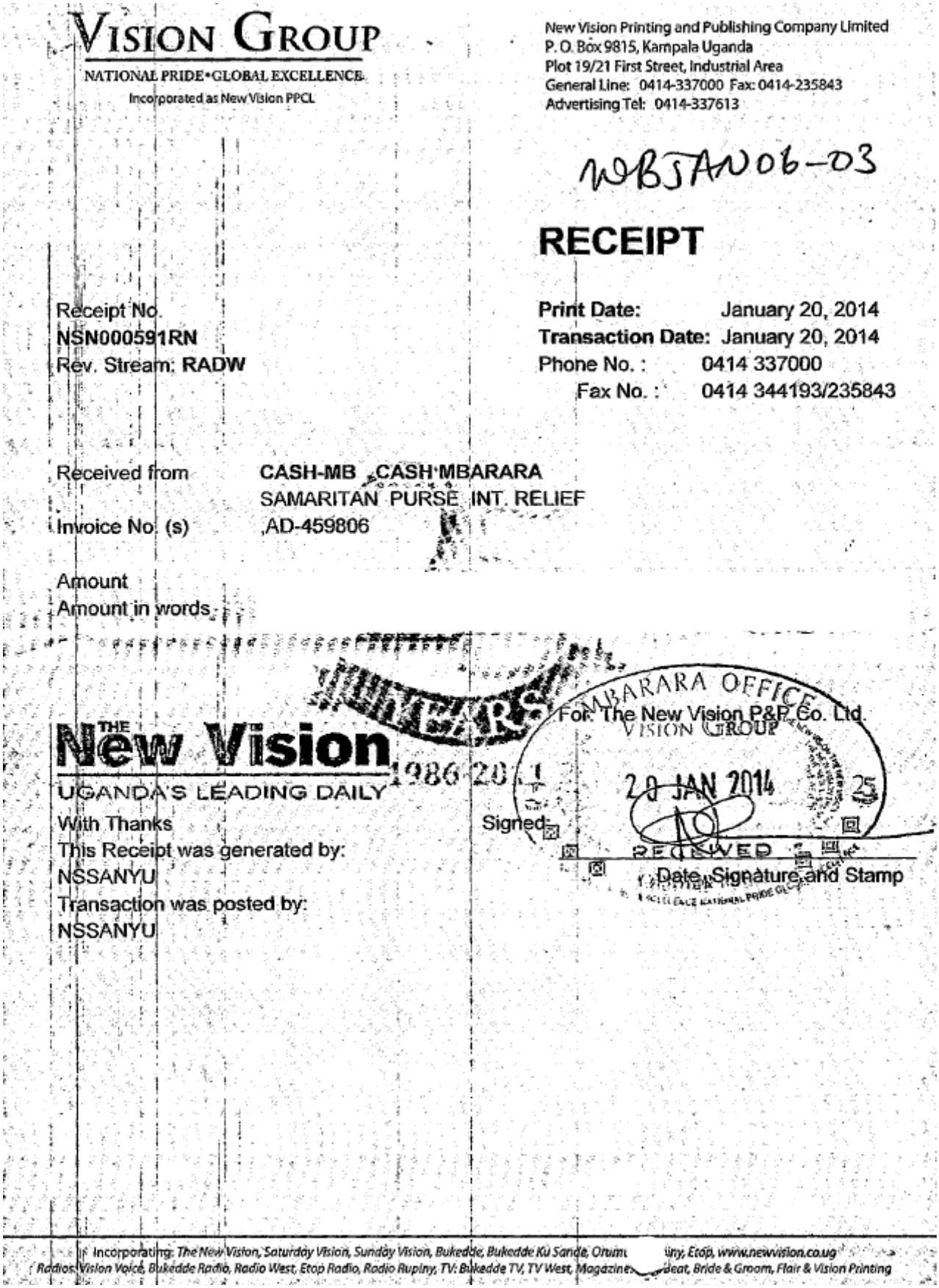
Category code	Organisation (if relevant)	Name of invitee	Method of invitation	Date of invitation	Confirmation received? Y/N
B	Ministry of Water and Environment, Climate Change Unit Grounds	Maikut, Chebet	email	20/12/2013	Y
B	National Planning Authority – Planning for development		email	20/12/2013	Y
B	District water officer	Rwehwezahura, Francis	by hand	16/12/2013	Y
B	District Engineer	Kanyamuhanga, Edison	by hand	16/12/2013	Y
B	District community development officer	Kobusingye, Barbara	by hand	16/12/2013	Y
B	District chairman local council V	Byaruhanga, Ignetious	by hand	16/12/2013	Y
B	Masha sub county chairman local council III	Tumwesigye, Milton	by hand	16/12/2013	Y
B	Sub county chief - Masha	Byaruhanga, Arthur	by hand	16/12/2013	Y
B	Community development officer - Masha	Kamugisha, Nobert	by hand	16/12/2013	Y
D	Councilor Nyarubungo parish	Kyomugisha, Penlop	by hand	17/12/2013	Y
D	Councilor Nyarubungo parish	Namuleme, Janet	by hand	17/12/2013	Y
D	Councilor Kabaare parish	Abin, Lubega	by hand	17/12/2013	Y
D	Councilor Kabaare parish	Aisha, Karungi	by hand	17/12/2013	Y
D	Councilor Nyamitsindo parish	Buruhan, Turyakira	by hand	17/12/2013	
D	Councilor Nyamitsindo parish	Kgizi, Janat	by hand	17/12/2013	Y
D	Councilor Nyakakoni parish	Kiiza, Justus	by hand	17/12/2013	Y
D	Councilor Nyakakoni parish	Muhumuza, Irene	by hand	17/12/2013	Y
D	Councilor Rukuuba Parish	Tumwesigye, Edmond	by hand	17/12/2013	Y
D	Councilor Rukuuba Parish	Tushabomwe, Peace	by hand	17/12/2013	Y
D	Councilor Rukuuba Parish	Haddija, Birungi	by hand	17/12/2013	Y
D	Councilor Rwentago parish	Ntunga, Emmanuel	by hand	17/12/2013	Y
D	Councilor Rwentago parish	El Bashil, Mubiru	by hand	17/12/2013	Y
B	Area member of parliament	Bright, Rwemirama	by hand	17/12/2013	Y

B	Masha sub county	All Chairpersons of local council I's	Hand invitation delivered by the community development officer – Masha sub county and radio announcement	18 – 20/12/2013	Y
B	Masha sub county	All Chairpersons of local council II's	Hand invitation delivered by the community development officer – Masha sub county and radio announcement	18- 20/12/2013	Y
C	Ministry of Water and Environment	Prof. Ephraim Kamuntu (MP)	email	20/12/2013	N
D	Network for Water and Sanitation (NETWAS) Uganda		email	20/12/2013	N
D	Friendly Water for the World	David H. Albert / Richard Kyambadde	email	20/12/2013	Y
D	Link to Progress (LTP)		email	20/12/2013	N
D	GIZ Office Uganda	Georg Zenk	email	20/12/2013	N
D	Greenpeace Africa		email	20/12/2013	Y
D	Uganda Red Cross Society	Dr. Bildard Baguma	email	20/12/2013	N
D	WWF Uganda Country Office		email	20/12/2013	N
D	UNICEF Uganda		email	20/12/2013	N
D	WHO Uganda Country Office		email	20/12/2013	N
D	Uganda Water and Sanitation NGO Network (UWASNET)		email	20/12/2013	N
E	The Gold Standard Foundation	Johann Franz Thaler	email	20/12/2013	Y
F	REEEP Regional Secretariat Southern Africa	Jason Schäffler	email	20/12/2013	N
F	CARE International	Kathleen Hunt	email	20/12/2013	N

F	Helio International	Andrew Marquard	email	20/12/2013	N
F	Impact Carbon USA/Uganda		email	20/12/2013	N
(D) CME of GS PoA	Uganda Carbon Bureau		email	20/12/2013	N
(D) CME of GS PoA	co2balance UK Ltd.		email	20/12/2013	N
(D) CME of GS PoA	ClimateCare		email	20/12/2013	N
(D) CME of GS PoA	South Pole Carbon Asset Management Ltd.	Lars Osterwalder	email	20/12/2013	N



Picture 7: Invitation via email



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WBSTAN06-03

RECEIPT

Receipt No.
NSN000591RN
Rev. Stream: RADW

Print Date: January 20, 2014
Transaction Date: January 20, 2014
Phone No. : 0414 337000
Fax No. : 0414 344193/235843

Received from CASH-MB CASH MBARARA
SAMARITAN PURSE INT. RELIEF
Invoice No. (s) AD-459806

Amount
Amount in words

THE New Vision
UGANDA'S LEADING DAILY
1986 20 1

MBARARA OFFICE
For: The New Vision P&P Co. Ltd.
VISION GROUP
20 JAN 2014
RECEIVED
Date, Signature and Stamp

With Thanks
This Receipt was generated by:
NSSANYU
Transaction was posted by:
NSSANYU

Signed

Incorporating: The New Vision, Saturday Vision, Sunday Vision, Bukedde, Bukedde Ku Sande, Orumu ...iny, Etop, www.newvision.co.ug
Radios: Vision Voice, Bukedde Radio, Radio West, Etop Radio, Radio Rupiny, TV: Bukedde TV, TV West, Magazines: ...deat, Bride & Groom, Flair & Vision Printing

Picture 8: Receipt - 7 radio announcements (4 in Runyankole, 3 in English)

4. Agenda of physical meeting

1. Prayer.

2. Introductions.

3. Opening Remarks by Chairman Local Council III.

4. Communication from Country Director – Samaritan's Purse.

5. Explanation of the Project Design.

6. Reactions/Questions from the Participants.

7. Closure of the meeting.

5. Minutes of physical meeting

South Western Household Water Project (SWHWP) Stakeholder Consultation Meeting Held At Masha Sub County On 22nd January 2014.

AGENDA:

1. Prayer.
2. Introductions.
3. Opening Remarks by Chairman Local Council III.
4. Communication from Country Director – Samaritan's Purse.
5. Explanation of the Project Design.
6. Reactions/Questions from the Participants.
7. Closure of the meeting.

MIN. 01/2014: PRAYER

The meeting was opened with a word of prayer from Mr. Bitwiromunda David, chairman local council II, Kabaare parish, Masha sub county. He requested for God's guidance throughout the meeting and also requested for the Holy Spirit's revelation to help them understand the content of the meeting.

MIN. 02/2014: INTRODUCTIONS

Every member introduced themselves in the order of name, title and location. The meeting involved Samaritan's Purse staff including the country director, Masha sub county technical staff, Masha sub county political leaders (Chairman local council III and the councilors), chairperson persons local council I and II, church leaders, district water department, office of the area member of parliament and partner organizations like Innovation for Poverty Action and Friendly Water for the World.

MIN. 03/2014: Opening Remarks from Chairman Local Council III

The chairman welcomed all participants in their respective capacities and thanked them for the good turn up. He further thanked Samaritan's Purse for choosing Isingiro district and Masha sub county in particular for the services that are yet to commence.

He requested the participants especially fellow leaders to appreciate the message as they are the eyes and voice of the many not present. He assured Samaritan's Purse that they are very hard working people and that they will not let the project down because it is touching their lives and those they lead. He further requested the partner organizations that were present to also bring their services to the area.

He concluded by wishing all the participants good deliberations throughout the meeting.

MIN. 04/2014: Communication from Country Director – Samaritan's Purse Uganda

The country director Mr. Daniel Enarson thanked the Chairperson local council III Masha sub county and Isingiro district at large for hosting and welcoming the organization services to the area. He appreciated the beautiful scenery of the area.

He said Samaritan's Purse International Relief works in 16 countries around the world and many more through local connection with faith based organizations to provide physical and spiritual help to communities. Samaritan's Purse has been in Uganda since 1998, it began with helping returnees for Tanzania by providing clean water, livestock and helping them settle in. Since then Samaritan's Purse has grown and now operates in the regions of Northern Uganda, Karamoja, central and western in the areas of agricultural livelihoods, food security, health, ministry, and WASH (water, sanitation and hygiene). He further elaborated that Samaritan's Purse has been in Isingiro district for the last 2 years providing food to the refugees in the refugee settlements.

Water is life. Health workers say food can be foregone for 40 days but water not for 3 days. 75% of our bodies function with the help of water. Samaritans Pure takes it vital to improve livelihoods of the people through such services of safe water provisions. He further said that Samaritan's Purse has expertise in bio sand filter technology for it has been operating similar projects in Kamwenge, Ibanda, Kiruhura and Oyam districts.

He concluded saying that Samaritan's Purse dose all this to share the love of God through His son Jesus Christ and wished every one good deliberations.

MIN. 05/2014: Explanation of the Project Design

(a) Project Manager

The project manager Mr. Mabano Robert thanked the participants for the attendance and went ahead to mention the project name and its two main objectives of increasing the access to safe water and increase in good hygiene and sanitation practices. He further said that the project is funded by a German organization called *Geschenke der Hoffnung* alongside *Klima ohne Grenzen*.

He briefly introduced and outlined the structure of the project. He further said as participants had read through the project summary that was issued with the invitation letters; it's a household water project that will utilize bio sand filter technology that participants are going to learn more about today. The project is split into two

components that is public health education and bio sand filter construction and usage as they will be explained.

The project manager further said that the project will be having three work sites/work stations that these activities will be carried out. He then called on Munyantwari Daniel to take the participants through public health education.

(b) Public Health Education

Mr. Munyantwari Daniel took the participants through public health education and told them that this is the foundation to using a filter that you will be explained about in detail later. He said that public health education begins with mobilization and this is done with the local leaders who usually allocate the venue of the meeting. After the mobilization has been done the community members are sanitized about hygiene and sanitation using visual tools for community members to comprehend.

It is in the sensitization meetings that community members are trained in detail about the bio sand filter and registration of those that sign up to acquire a filter, as well as choosing a home that will act a demonstration so that other community members can come and replicate. After sensitization the n what follows is Village Health Team (VHTs) training and here the project will work with the existing teams in villages. This training takes 2 – 3 days where the members are trained extensively on better hygiene and sanitation practices so that they may go back to the community and train other beneficiaries.

When the home that was selected to act as a demonstration is ready with all the materials needed the community is again mobilized and people gather at this home where sanitation structures are set up like the dish rack, bathing shelter, compost pit, tippy tap and latrine.

He also explained that the project will work in schools as well and this will be done in primary schools so that they also learn about hygiene and sanitation. He concluded by thanking the participants and welcomed Mutahigwa Boaz to take the participants through bio sand usage.

(c) Bio sand filter construction and usage

Mr. Boaz thanked the participants for their continued attentiveness and emphasized that it's important to attend sensitization meetings because they are a basis for better understanding of the filter. He said after community members have registered themselves then a schedule is made on when a community member will come and participant in the construction of the filter. A construction site has got all the construction materials needed to construct a bio sand filter and these include molds, aggregates, sand, cement and the construction materials so all that is needed is for community members to come on the worksites and participate in the construction of the filter. He said that community members will find project staff at the site to guide them on how the construction process is done.

After construction has been done then community members wait for the filter to set and this takes 7 – 10 days. As they wait for the filter to set community members participate in media preparation which is usually sand washing then the community members transport the washed dry sand to their households awaiting transportation. Once the filter is ready then the beneficiary transports it to their home and waits for its installation. Project staff will make a schedule on when installation will be made so that the household is ready with all the necessary requirements which include water, sand, gravel and coarse sand. The filter is installed in the presence of the household as every step is being explained as well as the operation and maintenance training. Mr Boaz said that the beneficiaries are given filter usage manuals to refer to.

Mr. Boaz then demonstrated how a filter works using a dummy to further explain the technology and participants saw how water is poured into the filter, passes through the different layers and comes out through the outlet. After the demonstration he thanked the participants for their attentiveness.

The project manager Mr. Mabano Robert thanked both Daniel and Boaz then took the participants through the sustainability plan saying that the project will form a community based organization that will take up the monitoring role of the project after the second phase. He also said that the project is going to hire follow up technicians whose role is to monitor and train community members about the filter usage as well as hygiene and sanitation. The beneficiaries will be visited 4 times that is after 1 month, after 3 months, after 6 months and after 1 year. He further said to avoid recontamination the project will provide jerry cans to collect filtered water.

MIN. 06/2014: Reactions/ Questions from the Participants

Participants asked the following questions

1. Does this filter have a tap so that I can control the flow? *The filter has got no tap but rather an open out let whereby the water that is poured in is the exact amount of water that is collected. Usually a 20 liter container is put under the filter outlet to collect filtered water because the capacity of the filter is 20 litres. The absence of the tap allows for the free flow of water into the storage container.*
2. What is the capacity of the filter?
   The capacity of the filter is 20 liters.

3. Do we put boiled water or unboiled?
   We put unboiled water because it's the water that is contaminated. There is no need to boil filtered water because it is already free of disease causing bacteria and safe for drinking.

4. Where is the filter put, is it put outside or inside the house? *The filter is put inside the house either in the kitchen or somewhere in the main house because it is safe and avoids tendencies of vandalism. The filter should be kept clean because it's a unit for getting safe water for home consumption.*

5. How and where shall we get the sand to top up as we clean the filter? *The project will use the selected local sand quarries that are within the area so that when community members are doing sand preparation they can always have enough for the filter and some spare sand that they can use whenever sand reduces during cleaning the filter. Besides the project will also work with local people who will remain in the community to give assistance to filter beneficiaries in case they have been approached by beneficiaries with filter problems.*

6. How does the filter kill the germs in the water because I have seen that no chemical is added? *The filter majorly uses four ways to kill the bacteria in water namely; Mechanical Trapping, adsorption, biological predation and natural death. All these terms were expounded in the local language with illustrations to make sure the idea is was well understood.*

7. Does the filter change the colour of water because there places with brownish water. *If the colour of the water is due to contamination then the filter will change the colour but if the colour is due to chemical substances like iron then the filter*

will not change the colour. It's advisable to first settle the water before its put in the filter.

8. Is there a way the capacity of the filter can be improved?
   This will be answered in the feedback meeting where more light will be shade on this question

9. Some places don't have water at all how is the project going to help in that case?
   The project is looking forward to serving people with an appropriate technology. Therefore, the project will work with communities that have surface water and those communities that totally don't have surface water; different technologies will be used by government or other agencies. However, the project will advocate for those communities in water stressed area with the relevant agencies and government whenever there is an opportunity.

10. Is the project going to recruit people from around this place? *Yes we will recruit people from the project area.*

11. When the sand level lowers too much doesn't this affect the quality of water? *Yes this affects the quality of water and that is why we advice that sand level should be maintained at 2 – 3 inches below the standing water level.*

12. Does the filter improve on the PH of water because some places in this area have water with high PH.? *The filter doesn't improve the PH of water but tests will be carried out to ascertain the PH of water especially in those areas where PH seems to be high and the project will advice accordingly.*

MIN. 07/2014: Closure of the Meeting

The project manager thanked the participants for their continued activeness in the meeting and informed them about the feedback meeting that will be held later and that they will be informed on when it would take place. He said, the project will continue to receive issues from stakeholders and assured them that their offices will be open to receive them. Subsequent meetings will be held to convey feedback whenever issues are raise.

He then called upon the representative of the area member of parliament who also holds the office of minister for agriculture and animal husbandry to give his closing remarks.

The representative Mr. Mpaka Sam inquired from participants whether they had appreciated the project and the participants overwhelmingly clapped for the project. He then said that the Minister sent appreciation to the Organization for choosing the area as they had already had about it before in some other areas. He requested participants to avoid politicizing the services. It is not from who but it is for every person. He also assured participants that the project had the full backing of the minister. He then closed the meeting after which participants had lunch.

Pictures of the Local Stakeholder Consultation

D.2.	Summary of the comments received:

>> Please describe the outcome of the meeting, assessment of stakeholders comment, list of participants.

Questions asked during the meeting and the answers given to these can be found in the minutes of the physical meeting (see item No. 5 in section D1 of this report).

In total 31 participants commented on the project using the feedback forms that were provided in the local stakeholder consultation.

Positive aspects

- Providing safe water to the people in the Masha sub-county
- Training local people in sanitation and hygiene
- Sensitization of sanitation and hygiene

Negative aspects

- Places without any water cannot benefit from the project
- Concerns about the capacity of the BSF
- No installation of an improved source of water

Copies of the original feedback forms and typed translations of the feedback forms received in Nyankore can be found in Annex 6 and Annex 7 respectively.

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

>> Please discuss how the stakeholder's comments have been addressed and include the changes to the design of the programme based on their feedback.

Stakeholder comment	Comment taken into account (Yes / No)	Explanation (Why / How)
Stakeholders were criticizing the capacity and small size of the BSF (used for demonstration)	No	The BSF used for demonstration at the stakeholder meeting was less than half of the size of the actual filters that will be installed. It will be communicated that the BSF are bigger than the filter used for demonstration and that capacity is therefore big enough for a household.
The project could involve the installation of water tanks in households or valley tanks in the parish.	No	The project mainly focuses on bringing safe water to households. Nevertheless, public institutions can also benefit from the project.
The project does not help in places without any access to water	No	The project is aware of the fact that its technology requires the availability of a water source. For a detailed reply see answer to question 9 in the minutes of the LSC.
The project does not install an improved water source	No	See previous explanation.

D.4. Report on the Continuous input / grievance mechanism:

>>

Discuss the Continuous input / grievance mechanism expression method and details, as discussed with local stakeholders.

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	Justification
Continuous Input / Grievance Expression	The project can be contacted via the project manager:	The project manager is permanently associated with the project and supervises the installation and

	Mr. Robert MabanoP.O. Box 21810 Kampala	monitoring processes of the project. He is easily reachable and open to any feedback and question concerning the project.
Telephone access	+256772713215	
Internet/email access	rmabano@samaritan.org	
Process Book	The process books is available at Masha sub county headquarters	The process book is available at the sub county headquarters because this is easily accessible for beneficiaries to register any complaints.
Nominated Independent Mediator (optional)	Gold Standard Foundation Johann Thaler Regional Manager Africa johann.thaler@goldstandard.org info@goldstandard.org	

All issues identified during the crediting period through any of the Methods shall have a mitigation measure in place that should be added to the monitoring plan.

D.5. Report on stakeholder consultation feedback round:

Once the project is listed in the Gold Standard registry the stakeholder feedback round (SFR) will start.

Al stakeholders invited for participation in the Local Stakeholder Consultation will have the opportunity to take part in the SFR.

Stakeholders that were invited via email will receive the Local Stakeholder Consultation report via email. All relevant international NGOs supporting The Gold Standard, with a representation in the region an all GS Supporter NGOs located in Uganda will be invited to make comments on the Local Stakeholder Consultation report via email.

The local community will be included via Masha´s community development officer and the councilors of the various parishes in the project area. The community development officer and the councilors will receive a hard copy of the Local Stakeholder Consultation report. The report will also be available on the website: www.klimaohnegrenzen.de/swhwp-masha and in the Gold Standard registry.

The stakeholder consultation feedback round will not include a physical meeting. The SFR will be open for comments for a period of at least two months.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Klima ohne Grenzen gemeinnützige GmbH
Street/P.O.Box:	Grassistr. 12
Building:	
City:	Leipzig
State/Region:	
Postfix/ZIP:	04107
Country:	Germany
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FAX:	+49 341 253564-16
E-Mail:	info@klimaohnegrenzen.de
URL:	www.climate-borders.org
Represented by:	Christian Bachmann
Title:	Managing Director
Salutation:	
Last Name:	Bachmann
Middle Name:	
First Name:	Christian
Department:	
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	

Organization:	Samaritan's Purse
Street/P.O.Box:	P.O. Box 21810
Building:	
City:	Kampala
State/Region:	Kampala
Postfix/ZIP:	
Country:	Uganda
Telephone:	+256-414-220 256
FAX:	
E-Mail:	
URL:	www.samaritanspurse.org
Represented by:	Daniel Enarson
Title:	Country Director
Salutation:	Mr.
Last Name:	Enarson
Middle Name:	
First Name:	Daniel
Department:	International Projects
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	denarson@samaritan.org

Annex 2

Information regarding public funding

The Gold Standard

ANNEX D - OFFICIAL DEVELOPMENT ASSISTANCE DECLARATION

Date: 3rd October 2014

The Gold Standard Foundation

79 Avenue Louis Casai

Geneva Cointrin, CH-1216

Switzerland

RE: Declaration of Non-Use of Official Development Assistance (ODA) by Project Owner of GS3127 "South Western Household Water Project (SWHWP) - Masha"

Samaritan's Purse Uganda, PO Box 21810 Kampala, Uganda

As Project Owner of the above-referenced Project, and acting on behalf of all Project Participants, I now make the following representations:

Samaritan's Purse Uganda

I hereby declare that I am duly and fully authorized by the Project Owner of the above-referenced project to act on behalf of all Project Participants and make the following representations:

I. The Gold Standard Documentation

I am familiar with the provisions of The Gold Standard Documentation relevant to ODA. I understand that the above-referenced Project is not eligible for Gold Standard registration if the Project receives or benefits from ODA with the condition that some, or all, of the carbon credits (CERs, ERUs, or VERs) coming out of the Project are transferred to the ODA donor country. I hereby expressly declare that no financing provided in connection with the above-referenced Project has come from or will come from ODA that has been or will be provided under the condition, whether express of implied, that any or all of the carbon credits issued as a result of the Project's operation will be transferred directly or indirectly to the country of origin of the ODA.

In the event the Project is a Programmes of Activities where the CME is also implementing one or more Component Project Activities (CPAs) or Voluntary Project Activities (VPAs), I further acknowledge and understand that this Declaration is applicable to all of the CPAs/VPAs where the CME and the CPA/VPA implementing entity is the same.

II. Duty to Notify Upon Discovery

If I learn or if I am given any reason to believe at any stage of project design or implementation that ODA has been used to support the development or implementation of the Project covered by this Declaration, or that an entity providing ODA to the host country may at some point in the future benefit directly or indirectly from the carbon credits generated from the Project as a condition of

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investment, I will notify The Gold Standard immediately using the Amended ODA Declaration Form provided below.

III. Investigation

The Gold Standard reserves the right to conduct an investigation into any project it reasonably believes may be receiving ODA with the condition that some or all of the carbon credits from the Project will be transferred to the ODA donor country.

IV. Sanctions

I am fully aware that the sanctions identified in The Gold Standard Terms and Conditions may be applied to me or the above-referenced Project in the event that any of the information provided above is false or I fail to notify The Gold Standard of any changes to ODA in a timely manner.

I swear that all of the statements contained herein are true to the best of my knowledge.

Signed: _____

Name: Daniel Enarson

Title: Country Director

On behalf of: Samaritan's Purse Uganda

Place: PO Box 21810 Kampala, Uganda

Annex 3

Calculation of SEC

Specific energy consumption (SEC)

Specific energy consumption required to boil one litre of water is to be calculated as follows:

$$SEC = \left[WH \times \left(T_f - T_i\right) + 0.01 \times WHE\right] / n_{wb}$$

Where:

WH	=	Specific heat of water (kJ/L ^{o}C). Use a default value of 4.186 kJ/L C
T_f	=	Final temperature (^{o}C). Use a default value of 100 °C[53]
T_i	=	Initial temperature of water (°C). Use annual average ambient temperature;[54] or use a default value of 20 °C
WHE	=	Latent heat of water evaporation (kJ/L). Use a default value of 2260 kJ/L. The latent heat required to boil one litre of water for five minutes is assumed to be equivalent to latent heat for the evaporation of 1% of the water volume (WHO recommends a minimum duration of five minutes of water boiling)[55]

[53] Boiling point of water at standard conditions.

[54] Ambient temperature data must be from globally accepted data sources, for example data published by the National Aeronautics and Space Administration (NASA) or the National Renewable Energy Laboratory (NREL). Data can be used only if they are for a location that can be demonstrated to be representative of the project location.

[55] WHO guidelines for emergency treatment of drinking water at point of the use <http://www.searo.who.int/LinkFiles/List_of_Guidelines_for_Health_Emergency_Emergency_treatment_of_drinking_water.pdf>.

η_{wb} = Efficiency of the water boiling systems being replaced. Use one of the options below:

(a) The efficiency of the water boiling system shall be established using representative sampling methods or based on referenced literature values (fraction), use weighted average values if more than one type of systems are encountered;

(b) 0.10 default value may be optionally used if the replaced system or the system that would have been used is a three stone fire or a conventional system for woody biomass lacking improved combustion air supply mechanism and flue gas ventilation system that is without a grate as well as a chimney; for the rest of the systems using woody biomass 0.2 default value may be optionally used;

(c) 0.5 default value may be used if the replaced system or the system that would have been used is a fossil fuel combusting system

For n_{wb} the default value of 0.10 is chosen, since the BSFs replace three stone fires or other conventional systems combusting woody biomass.

Therefore, *SEC* = 3,574.8 kJ/L.

Data / Parameter:	***WH***
Data unit:	kJ/L °C
Description:	Specific heat of water
Source of data used:	AMS-III.AV
Value applied:	4.186
Justification of the choice of data or description of measurement methods and procedures actually applied:	Default value
Any comment:	Used for the calculation of the specific energy consumption (*SEC*), equation 2 of AMS-III.AV.

Data / Parameter:	T_f
Data unit:	°C
Description:	Final temperature
Source of data used:	AMS-III.AV
Value applied:	100
Justification of the choice of data or description of measurement methods and procedures actually applied:	Default value (boiling point of water at standard conditions)
Any comment:	Used for the calculation of the specific energy consumption (*SEC*), equation 2 of AMS-III.AV.

Data / Parameter:	T_i
Data unit:	°C
Description:	Initial temperature of water
Source of data used:	AMS-III.AV
Value applied:	20
Justification of the choice of data or description of measurement methods and procedures actually applied:	Default value
Any comment:	Used for the calculation of the specific energy consumption (*SEC*), equation 2 of AMS-III.AV.

Data / Parameter:	***WHE***
Data unit:	kJ/L

Description:	Latent heat of water evaporation
Source of data used:	AMS-III.AV
Value applied:	2260
Justification of the choice of data or description of measurement methods and procedures actually applied:	Default value. The latent heat required to boil one litre of water for five minutes is assumed to be equivalent to latent heat for the evaporation of 1% of the water volume (WHO recommends a minimum duration of five minutes of water boiling, "WHO guidelines for emergency treatment of drinking water at point of the use").
Any comment:	Used for the calculation of the specific energy consumption (*SEC*), equation 2 of AMS-III.AV.

Data / Parameter:	n_{wb}
Data unit:	-
Description:	Efficiency of the water boiling system being replaced
Source of data used:	AMS-III.AV
Value applied:	0.10
Justification of the choice of data or description of measurement methods and procedures actually applied:	Default value. (b) 0.10 default value may be optionally used if the replaced system or the system that would have been used is a three stone fire or a conventional system for woody biomass lacking improved combustion air supply mechanism and flue gas ventilation system that is without a grate as well as a chimney.
Any comment:	This value can be applied since the replaced systems are three stone fires.

Annex 4

List of Participants of Local Stakeholder Consultation (typed copy)

Participants list of stakeholder meeting		
Date, Time: 22nd January 2014, 10 a.m.		
Location: Masha sub-county headquarters		
Name of participant	**Male / Female**	**Job / position in the community / organisation (if relevant)**
Muhumuza, Irene	F	Secretary for works
Aisha, Kalungi	F	Secretary for education
Nalongo Namuleme, Janat	F	L.C.III
Tushabomwe, Peace	F	Youth Councillor
Kigozi, Janat	F	Lady Councillor Rwetango/Nyamitsindo
Hadijja, Birungi	F	Lady Councillor Rukuuba Parish
Wakab, Saidi Lukabwe	M	Sec. Finance Masha s/c
Lubega, Abu	M	Councillor Kabaare Parish Masha s/c
Magembe, J.	M	L.C.1 Kabaare IV
Byaruhanga, Deo	M	Chairman L.C.1 Kabaare VII
Kagambirwe, Charles	M	Chairman L.C 1 Rwengando Cell
Barugahare, Damiano	M	
Bitwiromunda, David Emmy	M	
Namara, Nickson	M	
Nkuba	M	Chairman L.C 1 Kakyeka
Bangababo, Yonoham	M	L.C 1

Tinka, Abel	M	Chairman L.C 1
Muhumuza, Julius	M	Chairman L.C 1
Zavuga, John	M	Chairman L.C 1
Kato, Kayiga Charles	M	Friendly Water For The World
Segirinya, Brian Vincent	M	Friendly Water For The World
Ssentamu, Majidu	M	Chairman L.C 1
Mukalazi, Nanku	M	Information Sec
Caesur, Lubangakene	M	M&E Officer, Innovations for Poverty Action-Dispensers for Safe Water Project
Mugerwa, G	M	
Kamugasha, Bosco	M	H/I Masha s/c
Kamugisha, Nobert	M	CDO Masha Sub county
Bwereere, .K. Enock Rwetango	M	L.C II Chairperson
Hommy, M. Kaaki	M	C/man L.C Kabaare VI
Twesigye, Boaz	M	C/man L.C I Igyereka
Jacentah, Mujurizi	F	Sec L.C II for women Nyamistido
Bateho, David	M	C/man L.C I Kabaara V
Mateke, Edson	M	Chairman L.C I
Muhanguzi, Benon	M	Chairman L.C I
Kajungu, Robert	M	Chairman L.C. I
Mugumya, Alex	M	
Ndyahisyahe, Jackson	M	
Byaruhanga, Patrick	M	Chairman L.C I

Niwamanya, Boaz	M	Isingiro D.L.G Water Dep't
Taita, .F.	M	Parish Chief Nyarubungo/Rwetango
Nuwagaba, Christoper	M	Sec for security Katereera cell
Wandega Andrew, Field Associate Innovations for Poverty Action (I.P.A)	M	Innovations for Poverty Action (I.P.A) Dispensers for Safe Water Program
Kumanya, Christian	M	Agric. Officer, Masha s/c NAADS
Musanyufu, Joseph	M	
Mutahunga, Apolinari	M	
Kahangirwe, Elisa	M	
Rumanyika, Godfrey	M	Chairman L.C I
Mutungi, John	M	Chairman L.C I
Kaheeru, Nazario	M	
Turyakira, Enock	M	
Pastor Turyatemba, Nelson	M	
Baguma, Francis	M	
Muhanguzi, Dauid	M	
Byamukama, Julius	M	
Asiimwe, Amon	M	
Mugyema, Herbert	M	
Kibuyage, Naboth	M	
Brigent, Kahumi	M	
Kikafunda, Joseph	M	
Joseph, Wamara	M	
Kakuuto, Bernard	M	
Kagwa, Alex	M	

Mwesigya, Robert	M	
Tooto, Francis	M	
Byaruhanga, Arthur	M	Masha S/c L.G
Niwamanya, Boaz	M	Water Dep't Isingiro D.L.G
Mpaka, Sam	M	Office of area Member of Parliament
Mabano, Robert	M	Project Manager, Samaritan's Purse
Enarson, Daniel	M	County Director, Samaritan's Purse
Irumba, Asaba Stephen	M	National WASH Manager, Samaritan's Purse
Munyantwari, Daniel	M	Samaritan's Purse
Stephenson, Butaka Byarugaba	M	Samaritan's Purse
Tumwesigye, Milton	M	Chairman LC III, Masha sub county

Annex 5: List of Participants of Local Stakeholder Consultation (original)

Samaritan's Purse
INTERNATIONAL RELIEF

ATTENDENCE LIST

22/01/2014

Location: STAKEHOLDERS MEETING AT MASHA SUB COUNTY

Name of participant, job/ position in the community	Male/ Female	Signature	Organisation (if relevant)	Contact details (Phone / Address / Email)
Muhumuza Irene Secretary for works	F	Irene		077 3321088
Aisha Kalungi sec. for education	F	Aisha.K		0752 109494
L.C. III Councillor Nalongo Namuleme Jamat	F	Namuleme		07 08 07 08
Tushabomwe peace youth councillor	F	peace		0 12
Kyozi Janat Lady councillor Rwetango / Nyamitsindo	F	Kyozi		07
Hadyya Birungi Lady councillor Rukuuba parish	F	Hadyya		07
KIAKAB SAIDI LUKABWG Sec. finance masha S/C	M			07 0
Lubega. Aby councillor Kabaare Parish masha s/c	M	Lubega		07 5

Samaritan's Purse
INTERNATIONAL RELIEF

ATTENDENCE LIST

22/01/2014

Location: STAICE HOLDERS MEETING AT MASHA SUB COUNTY HEADQUARTERS

Name of participant, job/ position in the community	Male/ Female	Signature	Organisation (if relevant)	Contact details (Phone / Address / Email)
MAGEMBE J LCI Kabaare II	M		LCI / cp. Omukabare II	07
Byamukama Des. c/man LCI Kabaare II	M.		LC/I cp. Kabaare IV	07
Kagambirwe Charles c/man LCI	M		LCI/ cp: Rwegendo cell	07
Barugahare Damiano	M			07
BITWI ROMUNDA DAVID EMMY	MALE		LC II/cp. KABALE IV/II	077 07
KAMARA NICKSON	M		C/P LCI Omukabare I	07
NKuba c/man LCI Kabaare	M		LCI c/p. Kabaare cell	07
BANGABABO yowham LCI	M		Nil	07

Samaritan's Purse
INTERNATIONAL RELIEF

ATTENDENCE LIST

22/01/2014

Location: STAICE HOLDERS MEETING AT MASHA SUB COUNTY HEADQUARTERS

Name of participant, job/ position in the community	Male/ Female	Signature	Organisation (if relevant)	Contact details (Phone / Address / Email)
Tinka Abel c/man LC I	M		Rumuri Rwende	075
MUHUMUZA JULIUS C/MAN LCI	M		LCI c/p Rwemboja	0787 0702
Zaruga John c/man LCI	M		Kabaare I	07 07
KATO KAYIGA CHARLES	M		FRIENDLY WATER FOR THE WORLD	0757 Email:
SEGIRINYA BRIAN VINCENT	M		FRIENDLY WATER FOR THE WORLD	0751 WEB: W
Ssentamu Mathew C/man LCI	M		Omukabare	070
MUKASAZI NAKIRI INFORMATION SEC	M			070
Caesar Lubangakene M&E Officer	M		Innovations for Poverty Action - Dispensers for Safe Water Program	eluka poverty 0774 748658

Samaritan's Purse
INTERNATIONAL RELIEF

ATTENDENCE LIST

22/01/2014

Location: STAKEHOLDERS MEETING AT MASHA SUB COUNTY HEADQUARTERS

Name of participant, job/ position in the community	Male/ Female	Signature	Organisation (if relevant)	Contact details (Phone / Address / Email)
MUGERWA G	M			07
KAMUGASHA BOSCO	M		H/I MASHA S/C	0752
KAMUGISHA ROBERT C/M	m		MASHA SC	0755
BWERGERE K. ENOCK	M		Rwetangoha LCII Chairperson	077 075
Mommy M. KAAKI	m		C/man LC Kabaara V	077
TWESIGYE BOAZ	M		C/man LC I IGYERERA	0778
Jacentah Mugurizi	F		Sec. LC II for women Nyamistido	0750
BATEHO DAVID	M		C/man LC I Kabaara V	0775

Samaritan's Purse
INTERNATIONAL RELIEF

ATTENDENCE LIST

22/01/2014

Location: STAKEHOLDERS MEETING AT MASHA SUB COUNTY HEADQUARTERS

Name of participant, job/ position in the community	Male/ Female	Signature	Organisation (if relevant)	Contact details (Phone / Address / Email)
MATEKE KASON C/MAN L.C.I	MALE		Rukumba	07 07 07
MUHANGUZI BENON C/MAN LCI	MALE		Buyojwa	07
KATUSIIME ROBERT C/MA LCI	MALE		Nyakakoni B	0
MUGUMYA ALEX	MALE			0
NDYAHISHAKE JACKSON	MALE		LCI C/P Masha	07
BYARUHANGA PATRICK C/MAN LCI	MALE		Kakuuto	07 07
NIWAMANYA BOAZ WATER DEP'T ISINGIRO D.L.G	MALE		ISINGIRO D.L.G WATER DEP'T	07 0 bo
TAITA F PARISH CHIEF NYARUBUNGO/RWETANGO	MALE			078

nyge@yahoo.com

Samaritan's Purse
INTERNATIONAL RELIEF

ATTENDENCE LIST

22/01/2014

Location: STAKEHOLDERS MEETING AT MASHA SUBCOUNTY HEADQUARTERS

Name of participant, job/ position in the community	Male/ Female	Signature	Organisation (if relevant)	Contact details (Phone / Address / Email)
Nuwagaba christopher see for Security Watereea cell		Nuwagaba Christopher		07[illegible] 07[illegible]
HATEGEKA ANDREW, Field Associate Innovations for Poverty Action (IPA)	Male	[illegible]	Innovations for Poverty Action (IPA) - Dispensers for Safe Water project.	[illegible] ahategeka@poverty-action.org
Kumanya christian / Agric. offic	M	[illegible]	MASHA S/C NAADS	0[illegible] 640/0704-404541 G-ISINGIRO D.
MUGANYIZI JOSEPH	M	JM		07[illegible] 546
Mutahunga Apainaei	M.	Mutahunga A	V. H. T	078[illegible]
Kahangirwe Elisa	m	[illegible]		07[illegible] 57
Rwamuyiwa Godfrey	M	[illegible]	Rwamuyanja Elman LCI	077[illegible]
Mutungi John.	m.	[illegible]	v/chman LCI	077[illegible]

Samaritan's Purse
INTERNATIONAL RELIEF

ATTENDENCE LIST

22/01/2014

Location: STAKEHOLDERS MEETING AT MASHA SUBCOUNTY HEADQUARTERS

Name of participant, job/ position in the community	Male/ Female	Signature	Organisation (if relevant)	Contact details (Phone / Address / Email)
Kaheeru Nazario	M	[illegible]	LCI C/P. Kinyonza	07[illegible]
TURYAKIRA ENOCK	M	[illegible]		07[illegible] 8.
Pastor Turyatemba NELSON	M	Turyatemba		07[illegible] 5
Baguma Francis	M	[illegible]		0[illegible] 16
Muhangizi David	M	[illegible]	C/P LCI Nyambuya	07[illegible] 07[illegible] 2
Bamukama Julius	M	[illegible]		07[illegible] 07[illegible] 84
Asiimwe Amon	M	Amon		07[illegible] 078[illegible] 4 8
Mugyenyi Herbert	M	[illegible]		07[illegible] 3

Samaritan's Purse
INTERNATIONAL RELIEF

ATTENDENCE LIST

22/01/2014

Location: STAKEHOLDERS MEETING AT MASHA ~~SUB~~ S/COUNTY HEADQUARTERS

Name of participant, job/ position in the community	Male/ Female	Signature	Organisation (if relevant)	Contact details (Phone / Address / Email)
Mbonyaga Nabott	male			07
Brigit Valuna	male		LC1.c/p Nyakakoni A	0
Kiwafunda Joseph	male		Nyamitsindo	0
Joseph Wanaga				0
KAKUNGU BERNARD	M		LC1 C/P Masha	07
KAGWA ALEX	M		Rwenderi	07
Mwesigye Robert	M			07
Tooto Francis	M		LC1 c/p. Masha	09

Samaritan's Purse
INTERNATIONAL RELIEF

ATTENDENCE LIST

22/01/2014.

Location: STAKEHOLDERS MEETING AT MASHA SUB COUNTY HEADQUARTERS

Name of participant, job/ position in the community	Male/ Female	Signature	Organisation (if relevant)	Contact details (Phone / Address / Email)
Byamungo Arthur Stc/c Masha	M		Masha S/c L.C.	07
NIWAMANYA BOAZ WATER DEPT ISINGIRO D.LG	M		WATER DEPT ISINGIRO D-L-G	07 84 boa yahoo.com
MPAKA SAM	M		From the office of area M.P.	07 07
Mabaire Robert Project manager Samaritan's Purse	M		Samaritan's purse	07
Daniel Enarson County Director, SP Uganda	M		"	de
Asaba Stephen Imubar National WASH Manager	M		"	
Munyanhwa Daniel S/P staff	M		Samaritans Purse	07
STEPHENSON BUTAKA BYARUGABA SP. Staff.	M		— do —	077

Samaritan's Purse®
INTERNATIONAL RELIEF

ATTENDENCE LIST

22/01/2014.

Location: STAKEHOLDERS MEETING AT MASHA SUB COUNTY HEADQUARTERS

Name of participant, job/ position in the community	Male/ Female	Signature	Organisation (if relevant)	Contact details (Phone / Address / Email)
MUTAHIGWA BOAZ Samaritan's Purse	M		Technician Samaritans Purse	07 49.
Tumwesigye Nixton	M		Masha SLC	07 00

Annex 6: Original feedback forms

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Kureba ngu twara kufuna amaizi amagonji.
Nokundaki aha purojekiti?	Kureba ngu tihatiriko kushasuna tindikukuridde butatukoresa gendi Maizi
Omukono/Ekinkumu	0770/629353

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Natunga ekishushani kyakungiza Amagezi nerung' alebasmiz nerung'
Nokundaki aha purojekiti?	Nakundi Purojekti alebasi kulunge Amizi nerung'
Niki ekyotarikukunda aha purojekiti?	Tiliriko
Omukono/Ekinkumu	Tooto Francis C/man LCI

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Nikirungi
Nokundaki aha purojekiti?	Okutuha amaizi manungi
Niki ekyotarikukunda aha purojekiti?	Tikiriho
Omukono/Ekinkumu	Muhumuza IRene

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Natunga okuregyezibwa Kuruzi aha Filta
Nokundaki aha purojekiti?	Nikukunda Kuregyesibwa Kutunga amaizi manungi
Niki ekyotarikukunda aha purojekiti?	Tikiriho
Omukono/Ekinkumu	[illegible]

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Natunga ekishumi: Kugira ngu Project egi nimungi
Nokundaki aha purojekiti?	nekuyamba Kutunga amagi mangi
Niki ekyotarikukunda aha purojekiti?	Tikiriho
Omukono/Ekinkumu	Bright Kahiwa

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	
Nokundaki aha purojekiti?	
Niki ekyotarikukunda aha purojekiti?	
Omukono/Ekinkumu	

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Abantu bashemerensa okuneeba baza Kutunga amaizi manungi
Nokundaki aha purojekiti?	Okutunga amaizi amanungi
Niki ekyotarikukunda aha purojekiti?	Tikiriko.
Omukono/Ekinkumu	

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	eKishani Kikaba
Nokundaki aha purojekiti?	Katunga amaizi matungi
Niki ekyotarikukunda aha purojekiti?	
Omukono/Ekinkumu	Joseph. m

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	omumushomo ogwe nkamba gwine entegunsta omumaka gaintu
Nokundaki aha purojekiti?	Amaizi marungi
Niki ekyotarikukunda aha purojekiti?	
Omukono/Ekinkumu	

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	amaizi Marungi aha Kuba omu CC-11 egi amazi nikyo
Nokundaki aha purojekiti?	Nyowe ku nashomira nakunda amazi Marungi
Niki ekyotarikukunda aha purojekiti?	
Omukono/Ekinkumu	Miss Chemutai Nkuba PATRICK

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Natungamu Ekishushani Kirungyi ahamagare geitu nobuyonzo.
Nokundaki aha purojekiti?	Okuta obuyonzo omubyameizi marungi Agegyeine.
Niki ekyotarikukunda aha purojekiti?	tikiriho.
Omukono/Ekinkumu	

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Obwenfye Burungi
Nokundaki aha purojekiti?	Amaizi marungi
Niki ekyotarikukunda aha purojekiti?	Byona nibirungi
Omukono/Ekinkumu	

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Natunga ekishushani kirungi kurugirira okurashomesibwa
Nokundaki aha purojekiti?	Nakundaho okukukorera amaizi maiungu kuruga omukaraje jena
Niki ekyotarikukunda aha purojekiti?	Okuburaho trasport kurugirira ahihwasomire kwihika omumaka
Omukono/Ekinkumu	Jm

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Nibirungi
Nokundaki aha purojekiti?	Obuyonjo bwamaizi.
Niki ekyotarikukunda aha purojekiti?	Byoona nibirungi.
Omukono/Ekinkumu	

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Okutunga amaizi manungi kandi amayonjo.
Nokundaki aha purojekiti?	Okutuhweera abaakukwataza Obamiire obukuunga omumaizi mabi
Niki ekyotarikukunda aha purojekiti?	
Omukono/Ekinkumu	Byamukama Deo

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Nayega, enkozesha, yamuri ni manungi. Kandi, Eta kutegamisa.
Nokundaki aha purojekiti?	Nagyi kundeeho. Obutekozesa enku, omu kuteka, amaizi yoku kozesa.
Niki ekyotarikukunda aha purojekiti?	Nokugyira, ngu kutanka kokugyeggyera. amaizi nikakye.
Omukono/Ekinkumu	Shugenle

FOMU Y'EBYARUGAMU

Eiziina	
Watunga kishushani ki kuruga omurukiiko?	Natunga Ekisusani Kinungi
Nokundaki aha purojekiti?	Abantu Kutunga amaizi marungi
Niki ekyotarikukunda aha purojekiti?	Tikiruho.
Omukono/Ekinkumu	

Feedback form

Name	
What is your impression of the meeting?	Nkatungamu ngu amaizi agagyegyeine tigaine nduzura kandi nintunga nabwi-re akakutategana nokureteka akabwenkunge.
What do you like about the project?	Nkakunda Enshomesa yabo, ahabwokuba Nketegereza. Kandi bakampa Obuire Burumumara, kandi baikuriza nakabuza.
What do you not like about the project?	Tihaine Ekintarakunzire, Okwihaka Obutetegereza rurimi rwa Brown man Ouu muruzire nawe.
Signature	

Feedback form

Name	
What is your impression of the meeting?	Its amenity that Come our right mi for right Cause
What do you like about the project?	Pure. Sand filth and Sanitation for Sanitation and hygiene
What do you not like about the project?	Visit the project involve house hold Famus · valley tank Construction of Health Centre II is at parish
Signature	

Feedback form

Name	
What is your impression of the meeting?	Good meeting
What do you like about the project?	Good water
What do you not like about the project?	NO
Signature	R

Feedback form

Name	
What is your impression of the meeting?	Bukabagye Good
What do you like about the project?	Provision of safe clean water by use of afilter
What do you not like about the project?	No
Signature	

Feedback form

Name	
What is your impression of the meeting?	IT WAS SO GOOD BECOUSE THEY BRING NEW TECHNOLOGY IN OUR SUB/COUNTY
What do you like about the project?	SAFE CLEAN WATER AND SANITATION
What do you not like about the project?	NOTHING.
Signature	

Feedback form

Name	
What is your impression of the meeting?	It was impressive
What do you like about the project?	To have Good water.
What do you not like about the project?	Its over the small size.
Signature	~~Ffe~~ ahanya.

Feedback form

Name	
What is your impression of the meeting?	Good
What do you like about the project?	Having safe clean water and sanitation promotion.
What do you not like about the project?	Non
Signature	Muwagabo

Feedback form

Name	
What is your impression of the meeting?	It was Good.
What do you like about the project?	Safe water provition
What do you not like about the project?	None
Signature	

Feedback form

Name	
What is your impression of the meeting?	It is nice for all people to know what the project is all about.
What do you like about the project?	The fact that hygiene and Sanitation will be done
What do you not like about the project?	It may not cater for places without water.
Signature	

Feedback form

Name	
What is your impression of the meeting?	It was promising
What do you like about the project?	Enabling community members to ~~ass~~ access safe clean water and sanitation promotion
What do you not like about the project?	Instead of providing Lunch, they would have given me cash.
Signature	Mutahunga .A.

Feedback form

Name	
What is your impression of the meeting?	Very Interesting
What do you like about the project?	As a farm who has been around for sometime and working with the community - people will appreciate the ~~out~~ come
What do you not like about the project?	Let cross the bridge ~~the~~ then we need it because I am optimistic
Signature	

Feedback form

Name	
What is your impression of the meeting?	Problems faced by people in Rukumba cell.
What do you like about the project?	for people to get good water
What do you not like about the project?	Nothing
Signature	[signature]

Feedback form

Name	
What is your impression of the meeting?	The content was so helpful.
What do you like about the project?	methods to use when cleaning water.
What do you not like about the project?	The capacity of the facility is small.
Signature	[signature]

Feedback form

Name	
What is your impression of the meeting?	The meeting was Good
What do you like about the project?	I liked the project because it makes the water clean to drink.
What do you not like about the project?	All were ~~Good~~ Good.
Signature	

Annex 7

Translation of feedback forms originally written in Nyankore

Name	[redacted]
What is your impression of the meeting?	Enabling us have access to safe water.
What do you like about the project?	Beneficiary's access to safe water at no cost (no payments involved).
What do you not like about the project?	Discouraged by not putting in place an improved water source.
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Gained hope of improved health after accessing safe water.
What do you like about the project?	Availing possibility to have access to safe water.
What do you not like about the project?	Nothing.
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	It was encouraging.
What do you like about the project?	Giving us opportunity to access safe water.
What do you not like about the project?	Nothing
Signature	*[See original]*

Name	[redacted]
What is your impression of the	The teaching about the filter was good.

meeting?	
What do you like about the project?	Impressed by the safe water accessibility message.
What do you not like about the project?	Nothing
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	The project sounds giving hope.
What do you like about the project?	Helping us have safe water
What do you not like about the project?	Nothing
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Good impression
What do you like about the project?	Accessing safe water
What do you not like about the project?	Nothing
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Impressed to hear of an opportunity to have access to safe water.
What do you like about the project?	Getting access to safe water.
What do you not like about the project?	Nothing
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	
What do you like about the project?	Accessibility to clean water.
What do you not like about the project?	
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Reflected the improvement of our household's livelihood.
What do you like about the project?	Message of clean water.
What do you not like about the project?	
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Convinced of change from the long time water stress in our village to clean and safe water.
What do you like about the project?	Encouraged by the awareness raising pertaining safe water accessible.
What do you not like about the project?	
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Impressed by project's activities concerning improving our health.
What do you like about the project?	Incorporating hygiene and sanitation in the project.
What do you not like about the	None

project?	
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Good knowledge
What do you like about the project?	The issue of safe water accessible to the local people.
What do you not like about the project?	All was good.
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Good impression as the presentation
What do you like about the project?	Helping us have safe and clean water by filtering method
What do you not like about the project?	No facilitation on transport
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	All was alright
What do you like about the project?	Clean and safe water accessibility.
What do you not like about the project?	All was good.
Signature	*[See original]*

Name	[redacted]
What is your impression of the	Promising accessibility to clean and safe

meeting?	water.
What do you like about the project?	Helping us reduce on ill-health water related problems.
What do you not like about the project?	
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Impressed by the method of water treatment that is simple and cheap.
What do you like about the project?	Reduction on use of firewood hence having enough safe water for household.
What do you not like about the project?	The small size of the demonstration filter.
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Good impression
What do you like about the project?	People having access to clean and safe water.
What do you not like about the project?	None
Signature	*[See original]*

Name	[redacted]
What is your impression of the meeting?	Filtered water is safe and contributes to environmental preservation.
What do you like about the project?	Their outreach approach allows us time to interact enabling us acquire the right information.
What do you not like about the project?	I like all the presentation apart from few things.

Signature	*[See original]*

Annex 8

Sustainability Monitoring Plan

No		1
Indicator		Air quality
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		Average reduction of biomass consumed for boiling water by the owners of the filter
Current situation of parameter		The WHO estimates that indoor air pollution is responsible for 19,700 deaths per year in Uganda. Indoor cooking activities on open fires plays a major role.
Estimation of baseline situation of parameter		See above
Future target for parameter		Reduction of indoor smoke due to reduced emissions from treating water
Way of monitoring	How	Calculation of reduced CO-Emissions based on amount of wood saved by using BSF.
	When	Annually
	By who	Project Owner

No	2
Indicator	Water quality and quantity
Mitigation measure	N/A
Repeat for each parameter	
Chosen parameter	Number of people served with safe water
Current situation of parameter	According to the Uganda Water Supply Atlas 2010 in the Isingiro district only 26% of the rural population has access to safe water supply services.
Estimation of baseline situation of parameter	See above
Future target for parameter	3,000 household will receive a BSF

Way of monitoring	How	Usage survey and installation record
	When	Annually
	By who	Project owner

No		3
Indicator		Soil condition
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		Wood consumption
Current situation of parameter		The steady demand of firewood for cooking and boiling of water makes it necessary to cut down trees and contributes a large part to deforestation in Uganda. Deforestation leads to erosion and destruction of eco-systems. In Uganda, the fraction of non-renewable biomass is 82%.
Estimation of baseline situation of parameter		Non-sustainable wood consumption (NRB 82%)
Future target for parameter		Reduced wood consumption
Way of monitoring	How	Calculation of the amount of wood saved by using BSF (based on water quantity)
	When	Annually
	By who	Project owner

No		4
Indicator		Other pollutants
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		N/A
Current situation of parameter		N/A
Estimation of baseline situation of parameter		N/A

Future target for parameter		N/A
Way of monitoring	How	Not monitored
	When	
	By who	

No		5
Indicator		Biodiversity
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		Wood consumption
Current situation of parameter		The steady demand of firewood for cooking and boiling of water makes it necessary to cut down trees and contributes a large part to deforestation in Uganda. Deforestation leads to erosion and destruction of eco-systems. In Uganda, the fraction of non-renewable biomass is 82%.
Estimation of baseline situation of parameter		Non-sustainable wood consumption (NRB 82%)
Future target for parameter		Reduced wood consumption
Way of monitoring	How	Calculation of the amount of wood saved by using BSF (based on water quantity)
	When	Annually
	By who	Project owner

No		6
Indicator		Quality of employment
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		N/A
Current situation of parameter		N/A
Estimation of baseline situation of		N/A

parameter		
Future target for parameter		N/A
Way of monitoring	How	Not monitored
	When	
	By who	

No		7
Indicator		Livelihood of the poor
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		Firewood savings from reduced boiling of water for consumption
Current situation of parameter		People have to walk long distances to reach the safe water supplies. In Western Uganda 67% of the population has to walk up to 1km and 31.7% between 1 and 5km; 0.8% has to walk even more than 5km . Walking of long distances is time-consuming and carrying water over long distances is hard physical labor, especially for girls and women. People thus often draw on unsafe water supplies such as ponds or surface water closer to their homes.
Estimation of baseline situation of parameter		See above
Future target for parameter		Decreased firewood consumption
Way of monitoring	How	Calculation of the amount of wood saved by using BSF (based on water quantity) + monitoring survey
	When	Annually
	By who	Project owner

No		8
Indicator		Access to affordable and clean energy services
Mitigation measure		N/A
Repeat for each parameter		

Chosen parameter		N/A
Current situation of parameter		N/A
Estimation of baseline situation of parameter		N/A
Future target for parameter		N/A
Way of monitoring	How	Not monitored
	When	
	By who	

No		9
Indicator		Human and institutional capacity
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		N/A
Current situation of parameter		N/A
Estimation of baseline situation of parameter		N/A
Future target for parameter		N/A
Way of monitoring	How	Not monitored
	When	
	By who	

No		10
Indicator		Quantitative employment and income generation
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		N/A
Current situation of parameter		N/A

Estimation of baseline situation of parameter		N/A
Future target for parameter		N/A
Way of monitoring	How	Not monitored
	When	
	By who	

No		11
Indicator		Access to investment
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		N/A
Current situation of parameter		N/A
Estimation of baseline situation of parameter		N/A
Future target for parameter		N/A
Way of monitoring	How	Not monitored
	When	
	By who	

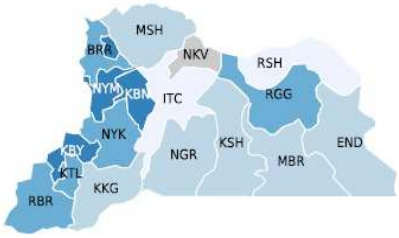
No		12
Indicator		Technology transfer and technological self-reliance
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		N/A
Current situation of parameter		N/A
Estimation of baseline situation of parameter		N/A
Future target for parameter		N/A

Way of monitoring	How	Not monitored
	When	
	By who	

Annex 9

Uganda Water Supply Atlas (27.04.2016)

Access to Safe Water



20 % 60 %

40 % 80 %

Total Access		33 %
Rural Access		33 %
Urban Access		31 %
BRR	Bireere	48 %
END	Endiinzi	33 %
ITC	Isingiro TC	9 %
KBN	Kabingo	NWSC
KBY	Kabuyanda	74 %
KKG	Kikagate	28 %
KSH	Kashumba	23 %
KTC	Kabarebere TC	71 %
KTL	Kabuyanda TC	55 %
MBR	Mbaare	26 %
MSH	Masha	21 %
NGR	Ngarama	31 %
NKV	Nakivale	Unknown
NYK	Nyakitunda	42 %
NYM	Nyamuyanja	67 %
RBR	Ruborogota	42 %
RGG	Rugaaga	40 %
RSH	Rushasha	11 %

Access to safe water is the ratio of people served by a safe water point and piped water supply to the total populati
The calculation is based on an estimated number of people per water point type. Maximum access rate can be 95

Functionality of Point Water Sources

60 % 80 %

70 % 90 %

Rural Functionality		99 %
Urban Functionality		97 %
BRR	Bireere	97 %
END	Endiinzi	99 %
ITC	Isingiro TC	97 %
KBN	Kabingo	NWSC
KBY	Kabuyanda	97 %
KKG	Kikagate	96 %
KSH	Kashumba	99 %
KTC	Kabarebere TC	99 %
KTL	Kabuyanda TC	94 %
MBR	Mbaare	96 %
MSH	Masha	99 %
NGR	Ngarama	100 %
NKV	Nakivale	Unknown
NYK	Nyakitunda	100 %
NYM	Nyamuyanja	99 %
RBR	Ruborogota	99 %
RGG	Rugaaga	98 %
RSH	Rushasha	100 %

Annex 10

Template of project/monitoring &usage survey

PROJECT/MONITORING & USAGE SURVEY V1.0

Date:

Interviewer:

Filter ID:

Name of beneficiary:

Community:

Address (if available):

Phone number of beneficiary (if available):

Number of household members:

Questions should be directed to **primary users** only to ensure accuracy!

Is the person being interviewed the primary user of the BSF?

yes
no

Only proceed when the person is the primary user!

Part I: Project/Monitoring Survey

Section I: Before BSF was installed (baseline scenario)

1) Did you have sufficient safe water available (either from a safe source or by treatment of raw water) for drinking, washing hands, cleaning fruits and vegetables, cooking and personal hygiene?

   Yes

   No

2) If no, can you name the reasons?

3) What was the source of your water?

River or pond / lake

Open spring / well

Rainwater harvesting tank

Protected spring / well

Tap stand

Piped water

Valley tank

Deep borehole with pump

Other: _____

4) What was the distance to the water supply or the total collection time required?

More than 1km / more than 30 min round-trip

Within 1 km / within 30 min round-trip

On plot or in the house

5) Did you experience interruptions in water supply from that source?

No /almost no interruption of flow at the source

Frequent (daily or weekly) interruptions of flow at the source

Seasonal service variation resulting from source fluctuation

6) Did you do anything to make your water safer to drink?

Yes

No

7) If yes, what method did you use to make your water safer?

Settling

Boiling

Chlorine

Other: _____

If boiling was one/the treatment method for making your water safer:

8) What did you use to boil your water?

Three-stone-fire

Charcoal stove

Efficient stove

Other: _____

9) What type of fuel did you use to boil your water?

Firewood

☐ hand-collected

☐ purchased

Charcoal

Other: _____

10) Did you have a save water source on your plot?

Yes

No

11) If yes, did you experience interruptions in water supply from that source?

No /almost no interruption of flow at the source

Frequent (daily or weekly) interruptions of flow at the source

Seasonal service variation resulting from source fluctuation

12) Did members of your household frequently experience water borne diseases?

Yes

No

13) Did you or members of your household take part in sanitation and hygiene training?

Yes

No

Section II: With the BSF installed (project scenario)

14) Did you have sufficient safe water available (either from a safe source or by treatment of raw water) for drinking, washing hands, cleaning fruits and vegetables, cooking and personal hygiene?

Yes

No

15) If no, can you name the reasons?

16) What was the source of your water?

River or pond / lake

Open spring / well

Rainwater harvesting tank

Protected spring / well

Tap stand

Piped water

Valley tank

Deep borehole with pump

Other: _____

17) What was the distance to the water supply or the total collection time required?

More than 1km / more than 30 min round-trip

Within 1 km / within 30 min round-trip

On plot or in the house

18) Did you experience interruptions in water supply from that source?

No /almost no interruption of flow at the source

Frequent (daily or weekly) interruptions of flow at the source

Seasonal service variation resulting from source fluctuation

19) Did you have a save water source (rainwater harvesting tank, protected spring / well, tap stand, piped water, valley tank, deep borehole with pump) on your plot?

Yes

No

20) If yes, did you experience interruptions in water supply from that source?

No /almost no interruption of flow at the source

Frequent (daily or weekly) interruptions of flow at the source

Seasonal service variation resulting from source fluctuation

21) Did members of your household experience <u>less water borne diseases</u> compared to the time before your BSF was installed?

Yes

No

22) Did you or members of your household take part in sanitation and hygiene training?

Yes

No

23) Did expenditures (e.g. money/ time for acquiring fuel) for water treatment change with the BSF?

Yes, now we spend less money/time.

Yes, now we spend more money/time.

No

Guidelines for evaluating whether the sampled household was using a non-boiling safe water supply in the baseline scenario

In the project/monitoring survey the sampled household must show the following characteristics:

Section I: Before BSF was installed (baseline scenario)

There was no source of safe water (rainwater harvesting tank, protected spring / well, tap stand, piped water, valley tank, deep borehole with pump) on plot / in the house.

or:

If there was a source of safe water on plot / in the house, there were frequent (daily or weekly) interruptions of flow at the source.

in addition:

Household did not threat water or treated water by boiling (simple/three-stone-fire or charcoal stove).

Section II: With the BSF installed (project scenario)

There was no source of safe water (rainwater harvesting tank, protected spring / well, tap stand, piped water, valley tank, deep borehole with pump) on plot / in the house.

or:

If there was a source of safe water on plot / in the house, there were frequent (daily or weekly) interruptions of flow at the source.

Part II: Usage Survey

Topic 1: Rate of usage

1) How often do you filter water with the BSF?

   Everyday

   4-6 times per week

   2-3 times per week

   1 time per week

   Less than once per week

   Never

2) When was the last time you filtered water using the BSF?

   Today

   Yesterday

   2-3 days ago

   4-7 days ago

   More than a week ago

Section III: Water storage

3) Do you store filtered water?

   Yes

   No

4) If yes, can I see the storage container please?

   Document your observations!

   Has narrow mouth

Has lid/cover

Size is appropriate

Inside appears clean

5) Do you clean your safe storage container once per week?

Yes

No

Section IV: Physical signs of usage

Observe the following to see if the BSF shows signs of usage!

6) Is the depth of the water above the sand according to the requirements?

Yes

No

7) Does the safe storage container contain filtered water (at the time of visit)?

Yes

No

8) Is there a two bucket system (one container to receive and one container to store)?

Yes

No

9) Is the lid extensively covered with dust?

Yes

No

Section V: Demonstration & knowledge

10) Ask the individual responsible for filtering to demonstrate use of the BSF.

User demonstrated how to use the BSF correctly.

User was not able demonstrate how to use the BSF correctly.

11) Ask the individual responsible for filtering to demonstrate/explain how to clean the BSF and safe storage container.

User demonstrated/explained cleaning process correctly.

User was not able demonstrate/explain cleaning process correctly.

Section VI: Functionality

Observe whether the BSF is currently functional!

12) Is the filter in a good location, away from weather and animals?

Yes

No

13) Is the BSF is installed correctly?

Yes

No

14) The filter container has no leaks and the lid as well as the diffuser have no damage.

Yes

No (If no, please describe the damage.)

15) Is the surface of the sand flat and level?

Yes

No

16) Is the depth of the water above the sand according to the requirements?

Yes

No

17) Is the flow rate of the BSF in a normal range?

Yes

No

18) Are the lid and the diffuser in place?

Yes

No

Take a picture of the beneficiary with its BSF (Filter ID must be visible)!

Guidelines for classifying the sampled household as user / non-user

It is compulsory to cover each of the six topics of the survey. If all six topics outlined are successfully completed the surveyed household can be classes as a user. If failure occurs in one or more of the topics, than the respondent is classed as a non-user.

The sampled household give one of the highlighted answers for the questions in the usage survey to be classed as user:

Topic I: Rate of usage

1) How often do you filter water with the BSF?

   Everyday

   4-6 times per week

   2-3 times per week

   1 time per week

   Less than once per week

   Never

2) When was the last time you filtered water using the BSF?

   Today

   Yesterday

   2-3 days ago

   4-7 days ago

   More than a week ago

Topic II: Water storage

3) Do you store filtered water?

   Yes

   No

4) If yes, can I see the storage container please?

   Document your observations!

   Has narrow mouth

   Has lid/cover

   Size is appropriate

   Inside appears clean

5) Do you clean your safe storage container once per week?

   Yes

   No

Topic III: Physical signs of usage

Observe the following to see if the BSF shows signs of usage!

6) Is the depth of the water above the sand according to the requirements?

   Yes

   No

7) Does the safe storage container contain filtered water (at the time of visit)?

   Yes

   No

8) Is there a two bucket system (one container to receive and one container to store)?

Yes

No

9) Is the lid extensively covered with dust?

Yes

No

Topic IV: Demonstration & knowledge

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User demonstrated how to use the BSF correctly.

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Topic V: Functionality

Observe whether the BSF is currently functional!

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Yes

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Yes

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14) The filter container has no leaks and the lid as well as the diffuser have no damage.

Yes

No (If no, please describe the damage.)

15) Is the surface of the sand flat and level?

Yes

No

16) Is the depth of the water above the sand according to the requirements?

Yes

No

17) Is the flow rate of the BSF in a normal range?

Yes

No

18) Are the lid and the diffuser in place?

Yes

No