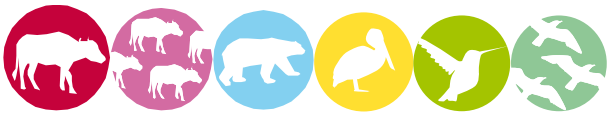
GOLD STANDARD PASSPORT

CONTENTS



SECTION A. Project Title

[See Toolkit 1.6]

Title: GS2404 International water purification programme – CPA1 Gravity Driven Membrane Filters in Uganda

Date: 27/09/2013

Version no.: 01

SECTION B. Project description

[See Toolkit 1.6]

Estimated project start date: 01/11/2013

The proposed small-scale CDM Programme Activity (hereafter referred as CPA) is developed under the Small-Scale Programme of Activities (PoA) titled "International water purification Programme". It consists of the distribution and installation of Gravity-Driven ultrafiltration Membranes (GDM) in Buikwe District, Uganda.

The IWPP is managed and coordinated by Pure Water Ltd. (CME). This CPA is implemented by the Water School Uganda (CPA implementer).

Inadequate access to microbiologically safe drinking water continuously threatens the health and well-being of more than a billion people, primarily in developing countries. In many areas worldwide the central water infrastructure is not available at all, or not reliable, leading to unsafe water at the tap. In such cases, decentralized water treatment can be used.

Figure 1. Buikwe district, Uganda.
1) Children collecting water **2) Non-functional borehole** **3) Boiling water on three stone stove**

In Uganda, around 40% of the rural population doesn't have access to safe drinking water[1], and this varies dramatically from one region to another. Buikwe District is located in the eastern part of the

[1] WHO / UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation Database

Central Region of Uganda. The sources of water in the district include Lake Victoria, streams, springs, shallow wells, and boreholes (majority of which are non-functional). The majority of the population boils its water using the conventional "three-stone" cook stoves. The combustion of the non-renewable biomass generates a variety of gases included carbon dioxide (CO2). Therefore there is a great damage on the environment as wood is the main source of fuel.

The CPA seeks to further the access of households and communities to clean and safe drinking water, using a low greenhouse gas emitting water purification technology, the Gravity-Driven Ultrafiltration-Membranes (GDMs).

Ultrafiltration is an effective technology to treat water and can be applied on a decentralized scale. Most ultrafiltration membranes have pores that are smaller than the size of bacteria and viruses. Thus, water filtered through these membranes is microbiologically safe. This GDM technology has been developed by a Swiss research institute, EAWAG[2].

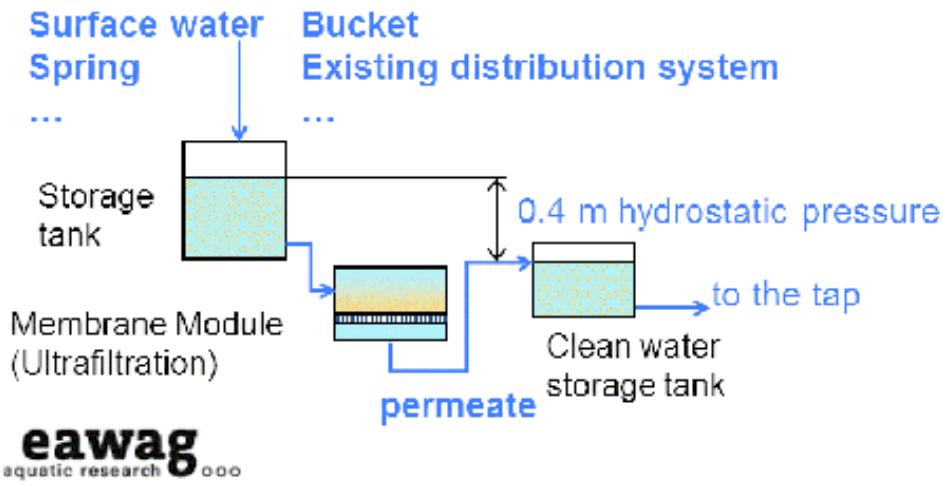


Figure 2. EAWAG Household water filter based on Gravity Driven Membrane technology
Source EAWAG

During dead-end ultrafiltration all macro and microorganisms, particles and colloids accumulate on the membrane surface and a fouling layer is formed. Back-flushing or chemical cleaning is usually used during conventional ultrafiltration to remove fouling layer. This prevents the membrane from clogging, which is expected to occur during filtration on a long term. However, back-flushing or cleaning result in complex and maintenance-intensive systems, which are difficult to operate on a long term in developing countries.

In GDM filtration no pumps are required. A water column of 40-60cm is enough to operate the system using 0.5 m^2 of membrane, to produce at least 20 litres of safe drinking water per day.

No chemical cleaning or back flushing is used in GDM filtration, and thus no maintenance is required for a long-term operation. This is possible due to the phenomenon of flux stabilization. GDM filtration therefore is a highly effective, maintenance-free and low-cost system for household water treatment.

http://www.wssinfo.org/data-estimates/table/
[2] http://www.eawag.ch/forschung/sandec/gruppen/ws/projects/membrane_disinfection/index_EN

The principle of the technology is illustrated in the picture below.

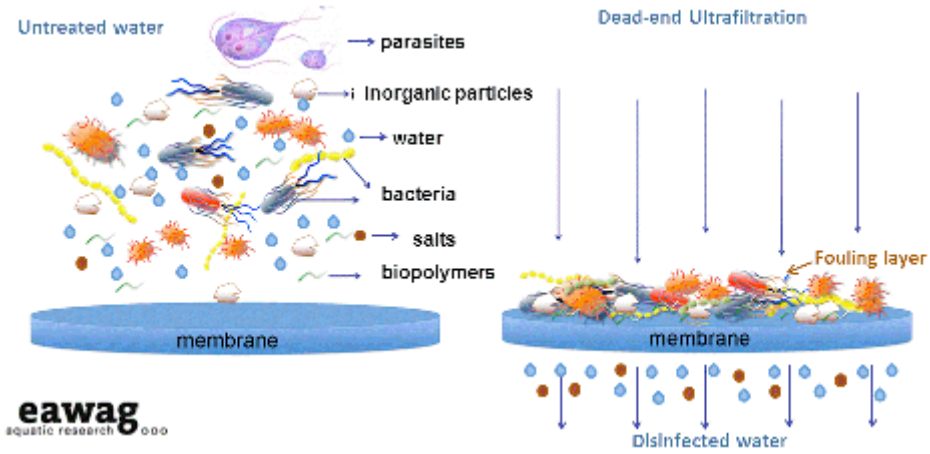


Figure 3. EAWAG Gravity Driven Membrane technology principle

Specifications of the GDM filter

Membrane	• Ultrafiltration • Component: organic polymer polyethersulfonate (PES) • Hydrophilic and chemically resistant • 150 kDa cut-off (20- 40 nm pore size) • 0.5 m^2 surface area
Capacity	10 liters in 2 hours
Effectiveness	Remove parasites, bacteria and viruses
Simple application	No back flushing, very low operation requirements, no power needed
Lifetime	5 – 8 years

The GDM technology will be used by households and communities in the areas of Uganda where there is low access to drinking water. This CPA is thus primarily designed for the long-term improvement of the living conditions of the local people of this rural part of Uganda.

The CPA reduces the use and demand of non-renewable biomass that would have been used to boil the water as a mean of water purification in the absence of the CPA. This directly leads to reduced greenhouse gas emissions.

The CPA is a voluntary initiative taken by the coordinating/managing entity (CME) of the PoA, Pure Water, and implemented on a voluntary basis by The Water School Uganda.

This CPA is implemented by The Water School Uganda (CPA implementer), a non-profit organization. The Water School Uganda will be responsible to disseminate the GDM filters in Buikwe district by setting up the distribution and supply chain and use proceeds realized to expand work in the whole project area. Filters will be sold to the end-users at a subsidized price, which will be determined during the first phase of the project. The price will take into consideration the income level of the community and their willingness to pay the filter.

The following timeline will be followed:

Date	Event
6th July 2011	Local Stakeholder Consultation according to the requirements of the CDM.
8th September 2011	Cooperation Agreement between the WSU and the Najja Sub-County Buikwe District.
26th September 2011	Cooperation Agreement between the Swiss Federal Institute of Science and Technology (Eawag) and the Water School Uganda (WSU).
25th January 2012	Cooperation Agreement between Pure Water Ltd. (the CME) and the Eawag.
1st February 2012	Contractual Agreement between Pure Water Ltd. (the CME) and WSU.
16th November 2012	Registration of the PoA under the CDM of the UNFCCC.
January to 2012 to September	Phase 1: 1) Determination of the not for profit price and payment scheme for filters feasible for low income households. 2) Evaluation of the most suitable non-profit oriented distribution mechanisms for filters taking into account the sustainability of the supply chain to assure replacement of filters and spare parts.
11th June 2013	Local Stakeholder Consultation according to the requirements of the Gold Standard.
July to October 2013	1) Conduct preliminary field-tests with selected households using the GDM Filter 2) Set up distribution and supply chain

	3) Produce filters for first project phase and transport them to project area
November 2013 to November 2020	Phase 2: Implementation: distribution of 6,000 GDM filters 1) Identification of suitable promoters for training and sensitization of stakeholders on household water treatment, storage and improved hygiene. 2) Training workshops in the project area on household water treatment, storage and improved hygiene. Distribution of GDM filters according to the following schedule:

Year	No. of functional devices
1	1,000
2	2,000
3	4,000
4	6,000
5	6,000
6	6,000
7	6,000

It is expected that the emission reductions will be 6,254 tCO_2 for 6,000 devices operating, thus meeting the small-scale eligibility criteria for Type III projects of a maximum of 60,000 tCO_2 emission reductions per year.

Contribution to Sustainable Development in Uganda

The proposed CPA will deliver a long-term, secure contribution to sustainable development in Uganda that without carbon finance would not exist. The project activity's impacts on sustainable development are assed in section F of this document.

SECTION C. Proof of project eligibility

C.1. Scale of the Project

[See Toolkit 1.2.a]

Please tick where applicable:

Project Type	Large	Small
	☐	☐
	☐	☑
	☐	☐
	☐	☐
	☐	☐

	☐

C.2. Host Country

[See Toolkit 1.2.b]

Uganda

C.3. Project Type

[See Toolkit 1.2.c and Annex C]

Please tick where applicable:

Project type	Yes	No
Does your project activity classify as a Renewable Energy project?	☐	☑
Does your project activity classify as an End-use Energy Efficiency Improvement project?	☑	☐
Does your project activity classify as waste handling and disposal project?	☐	☑

Please justify the eligibility of your project activity:

Scale of Project:

It is expected that the annual emission reductions of the project activity will be 6,254 tCO_2 for 6,000 Gravity Driven Membrane (GDM) filters operating, thus meeting the small-scale eligibility criteria for Type III projects of a maximum of 60,000 tCO_2 emission reductions per year, as defined by the UNFCCC.

Host Country:

Uganda has ratified the Kyoto protocol. It is listed as a non-Annex I Country.

Type of Project:

The project activity classifies the under 'end-use energy efficiency' improvement category. The Gold Standard Requirements define this category as the reduction in the amount of energy required for delivering or producing non-energy physical goods or services. GDM filters solely use gravity of the water column to provide clean and safe drinking water and hence directly reduce the required energy compared to boiling water. The households and communities equipped with GDM filters are clearly identified as end-users. The utilization of the GDM filter requires physical intervention by the end-users, as demanded by the GS Requirements for this category.

Greenhouse Gases:

The project activity reduces carbon dioxide emissions by reducing the consumption of non-renewable biomass or fossil fuels.

Official Development Assistance:

The project does not receive any ODA finance.

Project Timeframe:

The project activity has not been previously announced without mentioning its dependence on revenues from carbon credits.

Implementation of the project activity did not start before the local stakeholder consultation meetings. Hence the project activity classifies for the regular project cycle.

Pre Announcement	Yes	No
Was your project previously announced?	☐	☑
Explain your statement on pre announcement No announcement was made about the project prior to PoA validation start. .		

C.4. Greenhouse gas

[See Toolkit 1.2.d]

Greenhouse Gas	
Carbon dioxide	☑
Methane	☐
Nitrous oxide	☐

C.5. Project Registration Type

[See Toolkit 1.2.f]

Project Registration Type	
Regular	☑

Pre-feasibility assessment	Retroactive projects (T.2.5.1)	Preliminary evaluation (eg: Large Hydro or palm oil-related project) (T.2.5.2)	Rejected by UNFCCC (T2.5.3)

	☐	☐	☐

If Retroactive, please indicate Start Date of project activity dd/mm/yyyy:__N/A_____

SECTION D. Unique project identification

D.1. GPS-coordinates of project location

[See Toolkit 1.6]

	Coordinates
Latitude	33° 3' 57" N
Longitude	0° 21' 50" W

☐

Explain given coordinates

This CPA will take place in the Najja sub-county of Buikwe District, in the South East of the Republic of Uganda. The given coordinates correspond to those of the city of Buikwe.

Buikwe District was formerly part of the bigger Mukono District. The District is bordered by Kayunga District to the north, Jinja District to the east, Lake Victoria to the south and Mukono District to the west. The district headquarters at Buikwe are located approximately 60km, by road, east of Kampala, the capital of Uganda and the country's largest city.

D.2. Map

[See Toolkit 1.6]

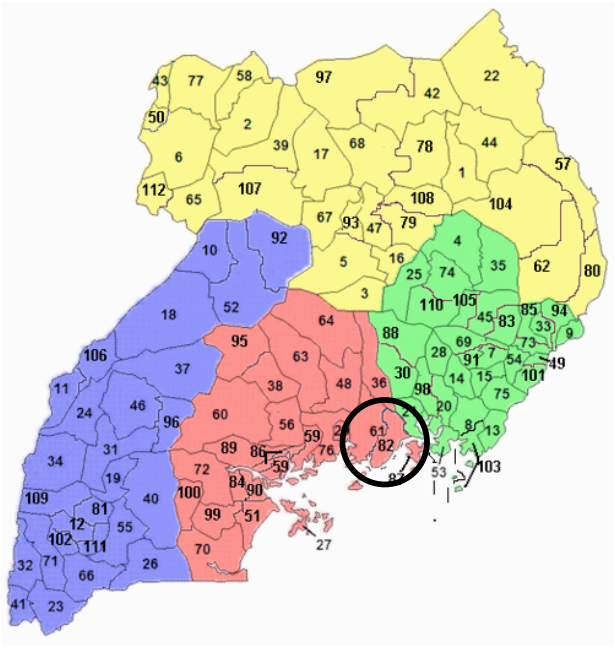


Figure 4: Districts in Uganda. Number 82 is Buikwe District.

Figure 5: Najja sub-county of Buikwe District

SECTION E. Outcome stakeholder consultation process

E.1. Assessment of stakeholder comments

Stakeholder comment	Was comment taken into	Explanation (Why? How?)

	account (Yes/ No)?	
Function of GDM Filers, Uncertainties concerning the necessity to clean the membranes	Yes	A sound understanding of the GDM filter by the user is a perquisite for a sustained use. Opposite to other filter systems, GDM membranes do not have to be cleaned. Project beneficiaries will receive detailed training on the use and maintenance.
Concerns on the price affordability and of the filters	Yes	The GDM filters will be sold to the end-users at a subsidized price. The price will take into consideration the income level of the local community and their willingness to pay for the filter.
Program should be extended to further areas	Yes	This CPA is part of the IWPP (PoA), which was designed with the explicit aim to reach a broad coverage of water purification in different countries and regions.
Applicability of GDM filters for Schools, possibility of extending the project to schools	No	The GDM filters promoted in this project are designed for households. The capacity of the filters is not sufficient to be used for whole schools. However institutional level GDM filters with increased water purification capacities are under development.
Importance of sensitization	Yes	Sensitization on water, sanitation and hygiene has a decisive influence on the health impact of household water treatment interventions. In this regard, the disseminating of the GDM filters will be complied by a sensitization campaign in the local communities.
Concerns on space requirements	Yes	The space requirements of the GDM filters are designed to use as little space as possible. The GDM systems are optimized so that they can comfortably be used either placed on the ground or on a table.
Concerns maintenance	Yes	The GDM filters are designed to be low maintenance. In opposite to most other filter systems, the membrane doesn't

		have to be cleaned back-flushed or replaced.
Concern on use of "foreign" technology	Yes	To ensure a sustained use of water purification projects it is crucial that the systems are optimally adjusted to the needs and usage patterns of local communities. Feedback from various local communities in Sub-Saharan Africa was taken into account at various steps of the design process of the GDM-filters. Producing the GDM filters locally would be a preferable option. However the production currently involves several steps that are not yet available locally. Yet it is a long term aim to be able to produce the filters locally.

Generally, the stakeholders perceived the project positively. Due to a positive impact on sustainability there were only minor discrepancies in the initial Sustainability Assessment so it required no adjustments.

E.2. Stakeholder Feedback Round

Please describe report how the feedback round was organised, what the outcomes were and how you followed up on the feedback.

[See Toolkit 2.11]

For the Stakeholder Feedback Round the following steps are planned:

- The Project Documentation including LSC Report, CPA-DD and CPA-Passport as well as supporting documents will be made available on the webpage of South Pole Carbon.
- An invitation letter for the Stakeholder Feedback Round will be sent out to all stakeholders invited to the Local Stakeholder Consultation.

A hard copy of all documentation made available online will be provided at the local liaison office of the WSU in Najja.

E. 3. Discussion on continuous input / grievance mechanism

[See Annex W]

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 Process Book	Location of comment book: Makindu Child Development Centre Project office Makindu Village Najja	The stakeholders were happy to have a book opened at the local liaison office of WSU, within their reach. Complaints or any other concerns can be stated and will be filed directly at the local liaison office of WSU. The local implementer intends also to work with promoters who will be established in the villages. To these promoters, concerns can be brought forward. They will pass them to the WSU. If concerns cannot be addressed directly by the WSU, they are forwarded to Pure Water Ltd.
Telephone access	Phone numbers: The Water School Uganda: (+256) 0772 757598 (+256) 0772 403597 Regional Gold Standard Office: +202 2274 5693	The phone number of the main office of The Water School Uganda as well as of the regional Gold Standard office will be made known to all project beneficiaries. Additionally posters explaining the project activity ad containing phone number and email of The Water School Uganda will we distributed at the project locations.
Internet/email access	Email addresses: The Water School Uganda: zmukalere@thewaterschool.org Regional Gold Standard Office: heba@cdmgoldstandard.org	The email address of the main office of the Water School Uganda as well as of the regional Gold Standard office will be made known to all project beneficiaries. Additionally posters explaining the project activity ad containing phone number and email of the Water School Uganda will we distributed at the project locations.

Nominated Independent Mediator (optional)	N/A	Taking into account the disperse nature of the location of the GDM filters, the selection of a Nominated Independent Mediator was not considered as an appropriate methods for continuous input and grievance expression.

All issues identified during the crediting period through any of the Methods shall have a mitigation measure in place. The identified issue should be discussed in the revised Passport and the corresponding mitigation measure should be added to sustainability monitoring plan in section G.

SECTION F. Outcome Sustainability assessment

F.1. 'Do no harm' Assessment

[See Toolkit 2.4.1 and Annex H]

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
1 The project respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicit in human rights abuses.	Uganda ratified the International Covenant on Civil and Political Rights[3] in 1987 and the African Charter on Human and Peoples' Rights in 1986. Additionally, fundamental and other human rights and freedoms are recognized by the constitution of Uganda[4]. By introducing a low carbon water purification technology, the project respects and protects human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicit in any form of human rights abuses.	Low	N/A
2 The project does not involve	Uganda has not ratified the	Low	N/A

[3] http://www.ohchr.org/EN/ProfessionalInterest/Pages/CCPR.aspx
[4] Constitution Of The Republic Of Uganda, 1995

and is not complicit in involuntary resettlement.	International Labour Organization (ILO) Convention 169 (Indigenous and Tribal Peoples Convention, 1989)[5]. The project introduces household or community level water purification systems that do not seize significant space. The project will not result in any temporal or permanent resettlements.		
3 The project does not involve and is not complicit in the alteration, damage or removal of any critical cultural heritage.	Uganda signed the Cultural Charter For Africa[6] in 1986. The project does not involve and is not complicit in the alteration, damage or removal of any critical cultural heritage. The only practice that is altered the replacement of boiling water as a means of water purification, which is not considered as a cultural practice.	Low	N/A
4 The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights.	Uganda has ratified the ILO Conventions 87 (Freedom of Association and Protection of the Right to Organise Convention, 1947) in 2005 and 98 (Right to Organise and Collective Bargaining Convention 1949) in 1963[5]. Additionally, Uganda has its own legislation concerning labour association and disputes.[7][8] Project implementation will require the employment for the dissemination GDM filters, training, as well as for the monitoring of the project activity. All people employed by the project participants will be subject	Low	N/A

[5] http://webfusion.ilo.org/public/applis/appl-byCtry.cfm?lang=EN&CTYCHOICE=2290&hdroff=1
[6] http://www.au.int/en/sites/default/files/CULTURAL_CHARTER_AFRICA.pdf
[7] The Labour Unions Act 2006
[8] The Labour Dispute (Arbitration and Settlement) Act 2006

	to the mentioned conventions as well as the freedoms and rights provided by the legislation of Uganda. The employees' freedom of association and their right to collective bargaining will be fully respected. The project is not complicit in restrictions of these freedoms and rights.		
5 The project does not involve and is not complicit in any form of forced or compulsory labour.	Uganda has ratified the ILO Conventions 29 (Forced Labour Convention, 1930) in 1963 and 105 (Abolition of Forced Labour Convention, 1957) in 1963. Additionally, Uganda has its own legislation concerning employment[9]. The participation in the project as well as employment by the project participants will be voluntary. The project will not involve or be complicit in forced or compulsory labour.	Low	N/A
6 The project does not employ and is not complicit in any form of child labour.	Uganda has ratified the ILO Conventions 138 (Minimum Age Convention) in 2003 and 182 (Worst Forms of Child Labour Convention) in 1999[5]. Additionally, Uganda has its own legislation concerning child labour.[10] The legislation states, that no employment is allowed under 14 years and no hazardous work under 18 years. No child labour is employed for any project-related work. The Project is not complicit in any form of child labour.	Low	N/A
7 The project does not involve	Uganda has ratified the ILO	Low	N/A

[9] The Employment Act, 2006
[10] The Employment Act, 2006

and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis.	Conventions 100 (Equal Remuneration Convention, 1951) and 111 (Discrimination (Employment and Occupation) Convention, 1958) in 2005. Neither end user of the GDF nor any employees will be subjected to any form discrimination based on gender, race, religion, sexual orientation or any other basis by the project participants.		
8 The project provides workers with a safe and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environments.	Uganda has its own legislation in place concerning occupational safety and health[11]. The dissemination and monitoring of the GDM filter, as well as the training activities do not involve any hazardous work or the exposure to hazardous substances and processes. All work involved in the project is performed under save labour conditions. The project is not complicit in exposing workers to unsafe or unhealthy work environments.	Low	N/A
9 The project takes a precautionary approach in regard to environmental challenges and is not complicit in practices contrary to the precautionary principle. This principle can be defined as: "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically."	Uganda signed the African Convention On The Conservation Of Nature And Natural Resources in 1968. Additionally Uganda has its own legislation in place concerning environmental protection[12][13]. The project does not involve any agricultural activity, production of hazardous chemicals or waste. The project will have a beneficial effect on the environment, as the consumption of non-renewable biomass will be reduced.	Low	N/A

[11] Occupational Safety and health Act 2007
[12] The National Environment Act 1998
[13] The Water Act 1997

10 The project does not involve and is not complicit in significant conversion or degradation of critical natural habitats, including those that are (a) legally protected, (b) officially proposed for protection, (c) identified by authoritative sources for their high conservation value or (d) recognized as protected by traditional local communities.	Uganda has its own legislation in place concerning conservation of natural habitats[14][15] The project will not be involved in significant conversion or degradation of any natural habitats. The project protects natural habitats by reducing the consumption of non-renewable biomass. The project is not complicit in practices contrary to the precautionary principle.	Low	N/A
11 The project does not involve and is not complicit in corruption.	Uganda ratified the UN Convention Against Corruption in 2004. Uganda did not ratify the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions. The Water School Uganda as the project Implementer will be externally audited annually. The project is not involved or complicit in any for m of corruption.	Low	N/A

F.2. Sustainable Development matrix

[See Toolkit 2.4.2 and Annex I]

Insert table as in section D3 from your Stakeholder Consultation report (Sustainable Development matrix).

Indicator	Mitigation measure	Relevance to achieving MDG	Chosen parameter and explanation	Preliminary score

[14] The Uganda Wildlife Act 1996
[15] The National Forestry And Tree Planting Act, 2003

Gold Standard indicators of sustainable development.	**If relevant copy mitigation measure from "do no harm" –table, or include mitigation measure used to neutralise a score of '–'**	Check **www.undp.or/mdg** and **www.mdgmonitor.org** **Describe how your indicator is related to local MDG goals**	**Defined by project developer**	Negative impact: score '-' in case negative impact is not fully mitigated score 0 in case impact is planned to be fully mitigated No change in impact: score 0 Positive impact: score '+'
Air quality	N/A	MDG 4 and 5: GDM filters reduce the amount of biomass and fossil fuel burnt for water purification and hence leads to reduced smoke emission. This will reduce the exposure of mothers and children to hazardous air pollutants.	Parameter: Exposure of project beneficiaries to hazardous air-pollutants.	0
Water quality and quantity	N/A	MDG 4 and 5: GDM filters provide clean and safe drinking water and can help reducing waterborne diseases, to which mothers and children are especially vulnerable. MDG Goal 7: The Government of Uganda set itself the target of increasing the share of the population with sustainable access to safe drinking water and basic sanitation to 89% by 2014/15, which is	Parameter: Number of households supplied with a satisfactory level of safe drinking water.	+

		ambitious than the target implied by the MDG.[16] Clean water is an environmental resource that is crucial for sustainable development. GDM filters provide clean and safe drinking water.		
Soil condition	N/A	MDG Goal 7: Reduced deforestation by decreasing consumption of non-renewable biomass will lead to reduced soil erosion.	As the impacts of GDM filters on deforestation are indirect and difficult to measure, the parameter was scored neutral, following the principle of conservativeness.	0
Other pollutants	N/A	N/A	The project activity does not result in the emission of significant amount of hazardous substances, light, noise or other pollutants. The project activity may reduce the amount of plastic waste by reducing the use of bottled water. However this parameter is difficult to assess. This indicator was scored neutral.	0
Biodiversity	N/A	MDG Goal 7: Reducing deforestation by decreasing the consumption of non-renewable biomass will help to preserve the	As the impacts of GDM filters on deforestation are indirect and difficult to measure, the parameter was scored	0

[16] Ministry of Finance, Planning and Economic Development, 2010: Millennium Development Goals Report for Uganda 2ds010.

		biodiversity in local woodlands.	neutral, following the principle of conservativeness.	
Quality of employment	N/A	The project activity will create job opportunities with save working conditions.	Due to insufficient information on the baseline concerning working conditions, the project's impact on this parameter is difficult to assess. The parameter was scored neutral, following the principle of conservativeness.	0
Livelihood of the poor	N/A	MDG Goal 1: The GDM filters will reduce the demand of fuel and hence save time and money spent to collect firewood or to purchase firewood and fossil fuels and hence contribute to poverty alleviation.	Parameter: Time spent on firewood collection by households Household expenses for fuel.	+
Access to affordable and clean energy services	N/A	MDG Goal 1: Affordable energy services are crucial for poverty alleviation. MDG Goal 7: Clean energy production will prevent the exploitation of natural resources.	The project will reduce the demand of fuel and firewood of project beneficiaries. However it will not have an impact on price and availability of energy. The parameter was hence scored neutral.	0
Human and institutional capacity	N/A	MGD Goal 3: In rural households, It's mostly women' responsibility to collect firewood. The GDM filters will reduce the demand of fuel and thereby save time particularly of women.	Parameter: Time spent on firewood collection by women.	+

Quantitative employment and income generation	N/A	MDG Goal 1: The project will create job opportunities, what will help to approach the aim of full productive employment.	Parameter: Number of jobs created by the project activity.	+
Balance of payments and investment	N/A	N/A	The project does not have a significant impact on this indicator.	0
Technology transfer and technological self-reliance	N/A	MDG Goal 8: Technology transfer is an integral constituent of a global partnership for development. The project will transfer a novel and innovative water purification technology to Uganda.	Parameter: Number of GDM filters disseminated.	0

Justification choices, data source and provision of references

Air quality	Positive Score The baseline survey for the CPA showed that 98% of the surveyed households in the Buikwe district use firewood to boil water. 93% of the households use traditional cook stoves[17]. Cooking and heating with solid fuels on open fires and traditional cook stoves results in high levels of indoor air pollution, emitting a broad range of hazardous pollutants, among them small soot particles that penetrate deep into the lungs[18]. The resulting exposure to hazardous air pollution has severe impact on health, as increased risk of acute respiratory infections (ALRI), chronic obstructive pulmonary disease (COPD), lung cancer and further diseases. Affected are especially women and children in low and least developed countries[19][20][21]. GDM filters will reduce the amount firewood and fossil fuels burnt compared to the baseline situation[17]. Hence the project activity will reduce the exposure of

[17] Pure Water Ltd, 2012: CDM-SSC-CPA-DD: Gravity Driven Membrane Filters in Uganda - CPA 1.
[18] WHO 2011: Fact sheet N°292: Indoor air pollution and health.
[19] WHO, 2002: The health effects of indoor air pollution exposure in developing countries.
[20] WHO and UNDP, 2009: The Energy Access Situation in Developing Countries.
[21] World Bank, 2011: Household Cookstoves, Environment, Health, and Climate Change: A New Look at an Old Problem.

	project beneficiaries to hazardous air pollutants. The overall affect of project implementation is positive on air quality, but since the quantification of improvement in air quality is not easy to quantify, the parameters rating is changed to neutral.
Water quality and quantity	Positive Score Improving the access to clean and safe drinking water can make an important contribution to improve health conditions[22]. Alone diarrheal diseases are responsible for estimated 4.1 % of the total global DALY[23] burden of disease. 88% of that burden is attributable to unsafe water supply, sanitation and hygiene.[24]. Official data from the Directorate of Water Development, Ministry of Water and Environment of Uganda show that within Najja sub-county the access to improved drinking water sources is equal to only 51%[17]. Additionally, a considerable share of the improved water sources is considered non-functional[25]. Extensive research showed that GDM filters efficiently remove protozoa and viruses while keeping up stable flow conditions over years[26]. Hence they will supply the project beneficiaries with clean and safe drinking water.
Soil condition	Neutral Score The Area of Uganda's forest is steadily declining. Between 1990 and 2005 the total area of woodlands decreased by 29%[27]. Removal of fuel wood is one of the main drivers of deforestation ad forest degradation in Africa[28]. Especially in Africa, deforestation causes severe soil erosion and degradation[29]. Hence the reduced consumption of firewood with GDM filters is likely to have a beneficial impact on soil condition. However the effects are indirect and thus difficult to measure and attribute. Following the principle of conservativeness, the indicator was scored neutral.
Other pollutants	Neutral Score The GDM filters do not contain or produce any significant amount of hazardous substances of other pollutants. The project activity does not result in any light

[22] http://www.who.int/topics/drinking_water/en/
[23] Disability-Adjusted Life Years (lost)
[24] http://www.who.int/water_sanitation_health/diseases/burden/en/index.html
[25] Ministry of Finance, Planning and Economic Development, 2007: Millennium Development Goals, Ugandas Progress Report 2007.
[26] Swiss Federal Institute of Aquatic Science and Technology, compilation of several studies: http://www.eawag.ch/forschung/sandec/publikationen/ws/index_EN#GDM, http://www.eawag.ch/forschung/eng/gruppen/gdm/downloads/index_EN
[27] Uganda Bureau of Statistics, 2012: 2012 Statistical Abstract.
[28] Kissinger, G., M. Herold, V. De Sy, 2012: Drivers of Deforestation and Forest Degradation: A Synthesis Report for REDD+ Policymakers.
[29] FAO, 2012: Land and environmental degradation and desertification in Africa, FAO, 1995. State of the World's Forests 2012.

	or noise emissions or any visual pollution.
Biodiversity	Neutral Score As mentioned above, the deforestation rate is high in Uganda[27]. Removal of fuel wood is one of the main drivers of deforestation and forest degradation in Africa[28]. The high global rate of deforestation and forest degradation as well as the decline in primary forest area is a severe threat for the world's forest biodiversity[30]. Hence the reduced consumption of firewood with GDM filters is likely to have a beneficial impact on biodiversity. However the effects are indirect and thus difficult thus measure and attribute. Following the principle of conservativeness, the indicator was scored neutral.
Quality of employment	Neutral Score The project activity requires employment for dissemination of the GDM filters, training as well as monitoring. All staff employed for the project activity will be subjected to the labour rights guaranteed by the local legislation. However the information on the baseline concerning working conditions is not sufficient to make clear statements on the project activity's impact on this parameter. Hence, following the principle of conservativeness, the parameter was scored neutral.
Livelihood of the poor	Positive Score In rural Uganda, over 40% of the population lives below the national poverty line[31]. As shown in the baseline survey for the CPA, 98% of the surveyed households in the Buikwe district use firewood to boil water[17]. The collection or purchase of firewood is a substantial burden for poor households[3233]. GDM filters reduce the demand firewood. Hence they can substantially save time and money for the project beneficiaries. This will contribute to poverty alleviation, as the saved money and time can be used for the improvement of the living conditions of the project beneficiaries (e.g. health services, education or income generation).
Access to affordable and clean energy services	Neutral Score Uganda's energy supply is mainly depending on firewood[34]. Of the surveyed households in the Buikwe district, 98% use firewood to boil water[17] The fraction of non-renewable biomass on total woody biomass used as fuel amounts to 81%[17]. GDMs filters will reduce the consumption of firewood and hence substantially reduce the dependence of households on non-renewable energy sources. The total amount of energy consumed per household as well as

[30] FAO, 2010: Global Forest Resources Assessment 2010.
[31] World Bank, 2006: Uganda Poverty and Vulnerability Assessment.
[32] Uganda Bureau of Statistics, 2012: 2012 Statistical Abstract.
[33] GIZ, 2007: Economic evaluation of the improved household cooking stove dissemination programme in Uganda.
[34] Uganda Bureau of Statistics, 2012: 2012 Statistical Abstract.

	the money spent for energy will decrease.
Human and institutional capacity	Positive Score GDM filters reduce the demand firewood. Especially in rural households, women carry an over proportional share of the burden of collecting firewood.[35] The GDM filters will reduce the demand of fuel and hence they will save time particularly of women. As the women can use the additional time available for education, health care or income generation, this will contribute to women's empowerment.
Quantitative employment and income generation	Positive Score The project activity requires employment for dissemination of the GDM filters, training as well as monitoring. Staff for the dissemination of the GDM filters will be hired by the WSU. For the training of project beneficiaries, it is estimated that around 100 local health technicians will be employed temporarily.
Balance of payments and investment	Neutral Score Project is not expected to have an impact on investment exceeding carbon finance for generated credits.
Technology transfer and technological self-reliance	Positive Score The GDM technology was extensively studied at the Swiss federal Institute of Aquatic Science and Technology (Eawag)[36]. Based on this extensive research the Eawag developed the GDM filters used in this project. The project will help to transfer this novel and innovative water purification technology to rural areas of Uganda. However since the quantification of parameter is not easy to monitor, the parameter is rated as neutral.

SECTION G. Sustainability Monitoring Plan

[See Toolkit 2.4.3 and Annex I]

Copy Table for each indicator

No	1
Indicator	Water quality and quantity
Mitigation measure	N/A
Repeat for each parameter	

[35] World Bank, 2006: Gender, Time Use, and Poverty in Sub-Saharan Africa.
[36] http://www.eawag.ch/forschung/sandec/gruppen/WST/index_EN

Chosen parameter		Number households supplied with a satisfactory level of safe drinking water meeting the minimum the "interim" performance target of the WHO as per "Evaluating household water treatment options: Health based targets and microbiological performance specifications"[37] This parameter is calculated by correcting the number of households equipped with GDM filters for fraction of water quality measurements of GDM filters showing insufficient quality.
Current situation of parameter		About 40% of the rural population of Uganda does not have access to safe drinking water[38].
Estimation of baseline situation of parameter		N/A
Future target for parameter		Providing the project beneficiaries with clean and safe drinking water.
Way of monitoring	How	Number of households equipped with GDM filters: Sales records Fraction of GDM filters providing water with insufficient quality: Sampling survey including water quality measurements. A presence/absence test for E. coli colony forming units (CFU) in 10 ml of water or an equivalent quantitative test for E. coli CFU shall be used as the criteria for sufficient water quality. A presence of up to 10 E. coli CFU/100 ml shall be acceptable[39].
	When	Annually
	By who	CPA Implementer

No	2
Indicator	Livelihood of the poor

[37] WHO, 2011: Evaluating household water treatment options: Health based targets and microbiological performance specifications.
[38] WHO / UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation Database, http://www.wssinfo.org/data-estimates/table/
[39] WHO classifies a contamination of up to 10 E. coli CFU/100 ml as low risk. An absence of E. coli CFU in 10ml can therefore be used as an indication that the drinking water is safe. See: Table 5.2 on page 78 of Guidelines for drinking-water quality, second edition, Volume 3 Surveillance and control of community supplies.

Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		Time spent on firewood collection by households.
Current situation of parameter		Households have to invest considerable resources in collecting firewood or buying fuels. Decreasing availability of resources lead to considerable time required to gather firewood[40]
Estimation of baseline situation of parameter		N/A
Future target for parameter		Reduced time spent on collecting firewood by households.
Way of monitoring	How	Household interviews during monitoring survey: Perceived change in time invested for firewood collection.
	When	Annually
	By who	CPA Implementer
Chosen parameter		Household expenses for fuel.
Current situation of parameter		Households have to invest considerable resources in collecting firewood or buying fuels. Many households in Uganda spend a substantial part of their income to purchase fuels[41].
Estimation of baseline situation of parameter		N/A
Future target for parameter		Reduced expenses of the project beneficiaries for purchasing fuel.
Way of monitoring	How	Household interviews during monitoring survey: Perceived changes in expenses for fuel.
	When	Annually
	By who	CPA Implementer

No	3
Indicator	Human and institutional capacity
Mitigation measure	N/A

[40] World Bank, 2006: Gender, Time Use, and Poverty in Sub-Saharan Africa.
[41] Uganda Bureau of Statistics, 2012: 2012 Statistical Abstract.

Repeat for each parameter		
Chosen parameter		Time spent on firewood collection by women.
Current situation of parameter		Households have to invest considerable resources in collecting firewood or buying fuels. Decreasing availability of resources lead to considerable time required to gather firewood[42]
Estimation of baseline situation of parameter		N/A
Future target for parameter		Reduced time spent on collecting firewood by women.
Way of monitoring	How	Household interviews during monitoring survey: Time spent on firewood collection by households and share of workload for firewood collection carried by women.
	When	Annually
	By who	CPA Implementer

No		4
Indicator		Quantitative employment and income generation
Mitigation measure		N/A
Repeat for each parameter		
Chosen parameter		Number of people receiving employment from the project activity.
Current situation of parameter		N/A
Estimation of baseline situation of parameter		N/A
Future target for parameter		The project activity requires employment for dissemination of filters, training as well as monitoring. Additionally, it is estimated that around 100 local health technicians will be employed temporarily.
Way of monitoring	How	Employment records
	When	Annually
	By who	CPA Implementer

[42] World Bank, 2006: Gender, Time Use, and Poverty in Sub-Saharan Africa.

Additional remarks monitoring

N/A

SECTION H. Additionality and conservativeness

This section is only applicable if the section on additionality and/or your choice of baseline does not follow Gold Standard guidance

H.1. Additionality

[See Toolkit 2.3]

Not applicable. The section on additionally and choice of baseline follow Gold Standard guidance.

H.2. Conservativeness

[See Toolkit 2.2]

Not applicable. The section on additionally and choice of baseline follow Gold Standard guidance.

ANNEX 1 ODA declaration

[See Toolkit Annex D]

No ODA was used for this CPA.

An ODA declaration is provided to the DOE and the GS-TAC.