



**Final Report Project S 11009
School water filters for Burayu, Ethiopia**



Water transport by donkey, to supply water to schools



The filter-unit installed at one of the schools to filter the water

May 2013

TABLE OF CONTENTS

1	INTRODUCTION	1
2	GENERAL RESULTS ACHIEVED :	3
3	ACTUAL RESULTS WITH DETAILED INFORMATION	4
4	ACTUALLY REACHED SCHOOLS:	6
5	CONCLUSIONS	7
	ANNEX PICTURE REPORT:	8

1 INTRODUCTION

Title :	School water filters for Burayu	
Country:	Ethiopia	
No. of people reached:	6000	
Total budget:	12.680 Euros	
Requesting organization:	Arrakis	
Organization in Ethiopia:	GACD + Tulip Addis	
Period:	1 year 2011 – 2012	

Context

Ethiopia ranks 3rd out of 182 poor countries on the UN Development Index. Of the 81 million people, over 70% live in rural areas where the majority does not have access to a safe water source¹. Where water quality is a problem, Household Water Treatment and Safe storage (HWTS) is a solution which now is strongly promoted by the WHO. In Ethiopia, UNICEF and other organizations use Aquatabs (Chlorine tablets). In shops in Addis and other cities candle filters from India or UK (Brita) are for sale, starting at USD 30 per filter. Of the different HWTS options, filters are often preferred since they do not use chemicals and eliminate both turbidity and bacteria.

For this project the so called Tulip siphon filter is selected because of its small size, high filter capacity and low cost, ca 11 Euro retail price.*

One of the states with mayor water quality problems is Oromia where the organization GACD (Global Action for Community Development) is active in areas Burayu, Akaki, Dukem, Gimbich, and Illu-Galan. In many schools children take water from rivers, unprotected springs which are often polluted.

Objective

To improve health and reduce waterborne diseases of school children by means of the dissemination of effective water filters.

Scope of the project

This project seeks to provide safe drinking water to schools in Burayu and 2 other areas where water problems are most urgent. Teachers and children will be trained in the use and maintenance of these filters and a commercial supply chain guarantees the supply of spare parts.

History of the project

The project was approved October 2011,

The contract was given to the implementing organisation GCAD, who had good references. The first Progress report plus financial report was received in February 2012. At that time the first school had been chosen and the materials brought to the school for implementation. They reported that the costs exceeded the available budget.

Upon repeated requests for answers on further questions we had about the project, no reply came for months. Henk Holtslag visited the project to give assistance in April 2012 for 3 days

¹ Progress on sanitation and drinking water - WHO / UNICEF 2010

* In the Publication Smart Disinfection Solutions some 10 HWTS options are compared. Of Household filters both pot filters of PFP and Siphon filters are adequate options. www.NWP.nl

He found the project management rather poor and, besides training, suggestions for improvements, also gave severe warnings. Begin July we received a mail from Abera stating that he had been seriously ill and he asked for patience for the coming 3 months, for sending the progress report. Since this was going to take too long to finish the project, and also there was less trust, Arrakis suggested to A4all to give the remaining part of the project to the supplier of the Tulip filters in Ethiopia named Tulip Addis, informed GACD about this and asked for their cooperation to hand over the project. Begin August we received a mail that Abera would like to go on with the project, but we have consulted with Tulip Addis, and given them the contract on 6th august 2012. A4all approved a further postponing of the final date of the project with 8 months (until 1st of June). Since then we never heard from Abera from GACD again, probably because of his illness and we fear for his life. Tulip Addis performed rather well in implementing, although they also have limited capacity in communication.

2 GENERAL RESULTS ACHIEVED :

In total four (4) schools were provided with Tulip filters ;

One (1) school, by the First implementer GACD and three (3) more schools were each supplied by Tulip Addis the supplier of the Tulip Filter in Ethiopia. These are together providing some 3000 students with clean and safe drinking water. The 500 Filters sold, due to the project, have supplied another 3000 people with safe drinking water

A promising innovative Filter unit with tanks and 10 siphon filters was developed that can supply ca 1000 Ltrs per day. These filter units are placed at 3 schools.

As a direct effect of the school water filters until now about 500 household siphon water filters are sold for parents of the school children. Another effect of the project is that the Oromia Educational bureau came up with the proposal of having similar school water filters systems in about 33,000 schools in the region. A proposal for funding has been delivered to the UNICEF representative and some other NGOs in the region.

Oromia Education Bureau reported that the project is effective and very useful for the school community. The WASH committee visited the project and recommended to expand the idea of school water filters to other schools of the region.

According to Tulip Addis, the demand is going to arise very soon, so they need to have enough stock of filters. To accelerate the supply of filters and to reduce import taxes and transport cost they are developing with Basic Water Needs the assembly of filters in the country as soon as possible.

3 ACTUAL RESULTS WITH DETAILED INFORMATION

In total four (4) schools were provided with Tulip filters ; 1 school, by the First implementer GACD and three (3) more schools were each supplied by Tulip Addis the supplier of the Tulip Filter in Ethiopia. (who has already imported 70.000 Tulip filters in Ethiopia)

Tulip Addis designed two (2) special filter-units , consisting of an upper dirty water tank of 250 litre, a lower clean water tank of 500 litres plus 10 Tulip filters . This combination is build into a wooden stand, in a shaded area. A pipeline from the clean water tank leads to 8 tap points.



The top tank is filled up with a hose from the piped water system which is not guaranteed safe to drink. The Filter capacity of this combination is ca 1000 litres per day.



The outlet of the clean water tank is a pipe line with 8 taps, where students and teachers tap clean safe water.

The larger filter-units were developed after the first test with single Tulip siphon filters in classes. These were supplied to the elementary school in Gelan (Kuriyo elementary school). Two filters were placed in each class room to filter water for the students. However, placing water filters in the class room appeared not to be manageable. So Tulip Addis , after discussion with the education bureau, made another arrangement of the water filters. Tulip supplied two TORO tanks (one for collection raw water and one for storing the filtered water). The two ROTO tanks are placed on elevated stand and connected by Tulip siphon filters. ROTO tanks stores the clean water is connected with pipeline (water point) from which the school communities are using. One system will filter 50 liters per hour so ca 1000 ltrs per day Where there is no water connection students bring water in the morning to school from rivers or other sources and fill in to the ROTOtank. During the day they can drink the water and at the end of the day they can take home the excess clean water in their buckets/ Jerricans. Participants (of the |WASH committee) suggested the following:

- i) Before taking home the clean water, cleaning of the container/ jerricans should be done.*

- ii) Hygiene education should be given for school community,*
- iii) shade is required for the ROTO tanks to increase the life time*
- iv). The number of water taps should be 6 – 8 and close monitoring is required by Education health and water bureaus before recommendation for scaling up so that the strength and weakness of the water filters can be identified.*

Mode of operation for 2 of the schools

At each school 2 filter-units of each 10 Tulip filters were installed, giving in Total 20 tulip filters per school. With capacity of 5 litre filtering/hr per filter gives per school capacity of $20 \times 5 = 100$ litre/hr. The total dirty water tank capacity per school is $2 \times 250 = 500$ l.

The school has two shifts , a first shift of 400 students in the morning and a 2d shift of 400 in the afternoon.

With the first shift the students bring with them dirty water in their jerrycans and fill up the tank before school starts. Then the water from the 2 (tanks) of 250 liter is filtered and delivers 400 litres clean water after 4 hours, at the end of their shift. Then they clean their jerrycans with the clean water and fill them up and take the remaining clean water home.

The second shift of 400 students arrive after lunch time, bringing dirty water in their jerrycans, and fill up the uppertanks; again total 500 liters, and the same procedure as in the morning is repeated. So that means that about 1 litre of clean drinking water is available per student for all 800 students per day.

In each school there are 8 water points (taps) in two places that is in total 16 water points (taps). This number of tap-points for the students to drink during the breaks in the school program proved to be enough.

The third school has a pipeline connection from a well to the upper tank, through which the water is pumped up to the tank. So, there is no need for the students to bring dirty water with them. Where possible this option is preferred and most promising.

As spare parts Tulip Addis has given 15 extra Tulip siphon filters to each school. They are aware of the need for replacement of the filter elements after 7000 hrs operation.

The schools are cooperating well, they have appointed someone to control the use of the water system.



In April 2013, the project was visited by Ryan Rowe, of the HWTS network, who was quite positive about the results.

4 ACTUALLY REACHED SCHOOLS:

District:	Nr Students	Achieved up to February 2013	Planning Remarks
School1: <i>Kuriyo in Aba-samuel kebele</i>	523 students	11 separate filters, with buckets	Implemented by GACD
Burayu woreda			
School2: <i>Gujie-Kerssa</i>	1100 students	2 filter units of 10 filters each plus 15 reserve filters (35 total)	Implemented by Tulip Addis
Sululta Woreda			
School 3: <i>Daleti in Sebeta</i>	761 students	2 filter units of 10 filters each plus 15 reserve filters (35 total)	Implemented by Tulip Addis
Akaki Woreda.			
School 4: <i>Kuriyo in Akaki Woreda</i>	630 students	2 filter units of 10 filters each plus 15 reserve filters (35 total)	Implemented by Tulip Addis

5 CONCLUSIONS

In general it can be concluded that despite the small budget, and the set back of the first implementer GCAD dropping out of the project, this project has given Tulip Addis, the second implementer in this project, a strong impuls in further promotion and further developing the supply chain of Tulip siphon filters in Ethiopia. Tulip Addis also started to sell filters in neighbouring countries like South Sudan and Somalia and may start in Kenya.

Due to regular meetings with the local government and NGO's , and good cooperation with the selected schools, they have designed and implemented a promising concept, namely the School water Filter unit consisting of 2 tanks on a stand with 10 filters, supplying 50 litre/hr of clean water, which is distributed via a pipeline to 8 tappoints. Technical Assistance and first ideas for the design was given by Henk Holtslag, who went once for a support mission and had much contact via mail and telephone during the project. The new systems are more expensive than just the single filters as originally planned. Also the dropping out of Abera caused extra cost. Due to these reasons the costs were higher than planned which resulted in 4 schools with filters instead of 6 schools, as planned.

These systems are presently working fine but functioning in the long term has yet to be proven. At this stage people are enthousiastic about it. Ryan Rowe, coordinator of the HWTS network was in Addis for the IRC meeting and did visit a school; he was very positive about this simple and effective system. The mayor important result of this project is that the government sees possibilities for the use of these filters in schools.

Under text from mails from the coordinator in Tulip Addis, mr Admasu

" This pilot program has contributed a lot on making a lot of demand and awareness of Tulip Water filter. There are other regional state offices that are asking us to implement in their regions too. This pilot project is held only in Oromia region while there are other regional states Like Amhara,Tigray, Benshangul,South , Hareri, Somale, Afar. Unless it is due to the shortage of budget, it would have been very use full to have this type of pilot program in the whole regional states. You know that Ethiopia is with over 85 million population ,may be the biggest market of the product."

Oromia Education Bureau reported that the project is effective and very useful for the school community. Also the WASH committee admitted the project and recommended it to be expanded to other schools in the region. Oromia Educational Bureau came up with the proposal of having tulip water filter in about 33,000 schools in the region and the proposal has been delivered to the UNICEF representative and some other NGOs in the region.

Tulip Addis took good care of marketing, using flyers and hand outs plus oral explanation of the filters to many school children and seems to have built up a good reputation in the country. They have high expectations of the market, not only in Ethiopia, but they are starting to target neighbouring countries as well.

Follow up

Henk sees possibilities to further improve the design and reduce cost and hopes to go to Ethiopia for follow up in August. (Unless there are others funds he will do this on his own account.)

ANNEX PICTURE REPORT:



School Kuriyo in Aba-samuel kebele, the first school where GACD implemented separate Tulip filters in February 2012.



The 1st school Kuriyo, with its Vision, Mission, Objective and Values displayed on a board.



School **Daleti**



School **Kuriyo**



School **Guji-Kerssa** in Burayu



School **Kuriyo**, with tanks not installed yet.



School in Daleti, Mr Admasu Tesfaye (Righth) showing the feed in pipe through which the unclean water from a well is pumped into the upper feeding tank.



*Typical unit with upper feeding tank of 250 liter, a clean water tank of 500 liter (lower round tank) and 10 Tulip filters.
At each of the 3 schools 2 of these units are placed.*



Schoolchildren showing Tulip filters.



Rather crowded class rooms