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**LOCAL ACTION WITH INTERNATIONAL COOPERATION TO IMPROVE AND  
SUSTAIN WATER, SANITATION AND HYGIENE SERVICES**

**Creating sustained usage of household water treatment:  
a case study from Kagera, Tanzania**

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*In 2014 Basic Water Needs B.V. and South Pole Group, together with the Tanzanian NGO KADERES, developed a safe drinking water project in the Kagera region in Tanzania. The focus of the project was on sustained usage of household water treatment products. The project partners decided not to invest in the products, but in the creation of sustainable supply chain for a household water filter. This meant that filters were sold through local retailers and end-users were asked to invest the expected commercial retail price. By the end of 2016 an analysis of all monitoring data showed the percentage of households still using the household water treatment product exceeded expectations. 93,1% of households owning the product between 0-1 year were still using the product and 82,7% was still using it after 1-2 years. It seems probable that the project set up has influenced the high usage rates.*

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### **Introduction**

In 2014 South Pole Group and Basic Water Needs B.V. got the chance to set up a safe drinking water project. Carbon financing was available to increase access to safe drinking water for coffee farmers in the Kagera region in Tanzania. Together with the local NGO Karagwe Development and Relief Services (KADERES) we decided to set up the project 'Carbon credits for safe water'. As any safe drinking water project we faced three main challenges:

- how to reach as many people as possible with a household water treatment and safe storage (HWTS) product;
- how to ensure the product, in this case a Table Top water filter, is used correctly on a daily basis and over a longer period of time;
- how to provide access to replacement filters and spare parts for the long-term.

The third challenge is related to the second, but even if spare parts are available it can be a challenge to ensure that end-users use the product correctly every day and only drink water that is treated by the filter. When adherence of household water treatment product reduces from 100% to 90%, the predicted health benefit is reduced by 96% (Brown and Clasen, 2012).

This paper shortly introduces our project background, how we tried to face these three challenges in our project set-up, the results so far and our plans for the future.

### **Carbon financing**

The project could be funded through carbon financing. In the project area, the main method of treating drinking water is boiling it. When households use a water filter to make their water safe to drink, they will no longer have to boil their water, reducing their carbon emission. This means that carbon credits can be claimed for the amount of safe water provided to end users. As the Hystra study on Access to Safe Water for the BoP showed, this upfront investment in the creation of demand and a supply chain for safe drinking water is often a challenge (Hystra, 2011). For this project, a client was already found who was willing to provide upfront funding for the future delivery of carbon credits. This meant that there was budget to make

the initial investments to set up the project, but also that the project would have to generate a certain number of carbon credits to 'pay back' the initial funding.

This result based finance was highly dependent on the number of filters sold and the usage rate. For each year a filter was used correctly, carbon credits could be claimed and thereby income generated. The initial agreement with the client lasts until 2020. However, the goal of the project is to create a sustainable supply chain of safe water products that will remain even after the initial project activities.

### **Project set-up**

The project partners decided from the start that they would invest in setting up a sustainable supply chain for a water filter as opposed to investing in subsidizing water filters itself. This was based on two notions (Heierli and Osborn, 2014):

1. End-users should be highly motivated to use the products on a daily basis to increase the chance of long-term adherence. If end-users were asked to invest in a product, this would proof their motivation to use the product.
2. By providing the filters through a commercial supply chain, asking the estimated commercial retail price from the start, we ensured customers became used to that price and distribution channel. This will increase the chances that when project financing stops, the supply chain will not collapse.

To motivate end-users to invest in the offered water filters, a filter design was chosen that is aspirational and easy to use, affordable and improves taste and colour of the water (PATH 2012).

Project budget was used to create initial local stock of filters in Tanzania; to invest in marketing of the product, train sales agents and setting up a data-collection system to collect data of all customers. We chose to sell the filters through local, existing sales points for a price that we expected to become the commercial retail price. Commercial retail price included the cost of the product, the costs of importing the product into the country and delivery to the project region, VAT and a margin for the local sales point. Import tax was not included, as water filters are exempted from import tax in Tanzania. The margin for the local sales point was set high enough that it would motivate the local entrepreneur for the sales of water filters.

We started selling the filters through local village banks associated with Kaderes and local shopkeepers who had expressed an interest in the product. This retail network was expanded throughout the project period and by the end of 2016 there were 42 sales locations. The hub of this network is located at the Kaderes office in the city of Kayanga. This is where the main stock of filters are and the project manager at Kaderes coordinates the distribution of filters to the sales locations and the collection of money for the sold filters. Each new sales location is trained in the product and in the requirement for selling it. A discount is offered when the shopkeeper is able to provide customer details for every filter sold. These customer data are collected and used for monitoring purposes.

We realized that by asking end-users to pay the commercial price for water filters and by investing in the creation of distribution channels instead of the products, we would not reach the poorest households in the region, as these would not be able or willing to invest in safe drinking water. We realized that the first group of customers would most likely be households that already boil their water, thereby already investing time/money into safe drinking water. The arguments for this decision were:

- Start with the low-hanging fruit in the region: people who already boil their water and have the money and willingness to invest in safe drinking water.
- These people often also have example positions within the community: NGO workers, church/mosque leaders, community leaders, successful farmers.
- Through these people the product will become more known, leading to more willingness to invest in safe drinking water.

However, when an appropriate product becomes available in a region, NGOs and governments can make us of this, by giving vouchers for the product to vulnerable groups. This option has been discussed with local government and NGOs, who responded positive towards this idea. Two local NGOs have already included the filter in their projects, to make safe drinking water available for the households they work with.

The money coming back into the project through the sales of filters and carbon credits will be used for social marketing and data collection into the coming years, ensuring continued sales support. The long-term goal of this project set-up is to create a financially self-sufficient supply chain that will continue in the Kagera region.



**Photograph 1. Trained entrepreneur demonstrating the Tulip Table Top filter**



**Figure 1. Promotion poster in Kiswahili. 'SAFE WATER, GOOD LIFE'**

## Results

### Sales numbers

When we started the sales activities in the project in May 2015, we expected to sell 7,500 water filters in the first year. In May 2016 we had sold about 10% of that number. After two years we have sold about 1,300 filters. Though this is far below initial expectations, we are still positive about this number, as we see many chances of improving this number in the future within this project or in new project areas.

The main reasons for the lower sales rates so far have been:

- The time and investments needed in local marketing, as not only the product, but the concept of water filters in itself was largely unknown in the region.
- Slow start in the marketing campaign as radio spots needed to be made, materials needed to be adjusted and spread amongst all sales points. As sales locations are spread around the region, it takes the project officer much time to visit all sales locations.
- As the product is unknown in the region, it takes time to create customer trust. Working with Kaderes, a locally well-known NGO, helped to create trust into the product. However, many people were afraid that, once initial project funding had stopped, so would the sales of water filters and more importantly, spare parts. During the baseline study several interviewed people worried about the availability of spare parts and wanted to be ensured these would be available, before investing in a water filter.
- Main marketing methods were focused on the idea that customers did not know the product. However, we did not take into account that sales agents also did not know the product and therefore had no experience in selling water filters. Initial training of sales agents included a training in the product, but not in sales techniques for water filters. After the first year this was realized and a follow-up training was organized for all sales people. Yet it proved difficult to motivate sales agents for a follow-up training, as this would require them to travel to Kayunga and take time off from their work for this.
- Almost 92% of households in the Kagera region are involved with agricultural activities. As a result most families have seasonal income, depended on harvests, most important of which is the coffee harvest. Outside of the harvesting season, money is sparse. Therefore most sales activities take place between June and August, which is the main coffee harvesting season. The rest of the year sales are more difficult, giving us only three months a year for main sales.

## Usage rates

Though the sales numbers were lower than expected, the usage rates exceeded expectations. Monitoring data collected in 2016 for the carbon reporting, showed positive usage rates, as can be seen in Table 1.

Period filter used	0 – 1 year	1 – 2 years	2 – 3 years
Percentage of end-users still using the filter	93,1%	82,7%	Not known yet

Usage was measured by several indicators.

- Asking the questions ‘How do you make your water safe to drink’ and ‘How often do you normally make your water safe to drink’. If the answer to the first question was ‘Tulip filter’ and to the second question ‘Always’, a household was given 100% adherence.
- This was crosschecked by asking when the last time was that they used the filter and if they still boiled the water before adding it to the filter.
- Next to that the interviewer observed if the containers of the filter contained water, if the filter was functional and if the filter was clean.

We believe that reasons for the high usage rates are:

- The product is easy to use on a daily basis and does not require much maintenance or spare parts.
- The product does not only make water safe, but also attractive to drink. Most water sources in the area, especially in the dry season, provide turbid water. The product also takes out the turbidity of the water and improves the taste, making it attractive to drink.
- End-users invested the commercial retail price, showing a motivation to use the filter.
- The monitoring data showed end-users are saving time and money by using the water filter. On average the interviewed households reported to save 78 minutes and 4,523 Tanzanian Shilling (about \$2,-) a week. Time and money are mainly saved as households no longer need to boil their water to make it safe to drink. It is likely that the real time and money saved is even higher, as the health gain is not included in this monitoring survey. It is probable that people will spend less money on medicine and have less sick time.

## Replacement parts

In the coming years the project monitoring will continue and the results will show whether the usage rates remain at this high level. In 2017 many filters that have been sold at the beginning of the project will need a replacement filter element to continue to function. These filter elements are available at the local retailers at cost about 40% of the complete filter price. Early market research showed much interest in the replacement filter elements. End-users wanted to ensure they could continue to use the filter after the initial investment. We trained all retailers to explain to customers when they would need a new filter element, the costs of this and that they could purchase this at the same store. However, there is a difference is saying and doing. The coming year we will be promoting the filter elements with extra radio spots, market demonstrations and text messages to all current end-users. So far 51 replacement filter elements have been sold and we aim to increase this number in the coming year.

## Conclusion

### Main lessons learned

- Making end-users invest in the product gives a higher chance of high usage rates in the years after purchase. This requires a product that is attractive for end-users.
- Invest in creating the infrastructure so people can buy a HWTS product, not in the product itself. This requires investments in the marketing of a product, the thorough training of sales people on sales and marketing skills and in the availability of local stock.

- Introduce an affordable HWTS product that is easy and attractive to use on a daily basis. Though safe water is attractive, don't underestimate the importance of clear water and a good taste.
- Investment in local marketing is necessary. This does not have to be social marketing, only focusing on the safety of water, as this might not be the most effective method. In the project region many water sources have a high turbidity rate. As the filter takes out turbidity and improves the taste and colour of the water, this is easier to explain/show to people than safety of water.
- If water filters are unknown in the area, it will take time to introduce it to households and convince them of the benefits of a filter. Therefore it is not realistic to expect mayor sales numbers in the first year. (Social) marketing helps with the introduction, but seeing the product at your neighbor or hearing about it from your cousin or the teacher of your children is even better. This word-of-mouth marketing takes time.
- It is not enough to have spare parts on stock, these will have to be actively promoted, together with the HWTS product itself. This will ensure that customers know when, how and where they need to buy replacement parts.

Despite the lower sales numbers in the first two years of the project, we believe the high adherence rates shows us the potential of our set-up. In combination with the lessons learned we believe this project will be scalable toward other areas. The coming year the third challenge will be an extra focus, making replacement parts available. This will be the big test to see if our goal can be reached: households drinking safe water in 2020 from the filter that they have bought in 2015.

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