

Tulip Household Water Filter

“Try & Buy” Concept

Ferry Akbar Buchanan, Rachel Molloy

Outline

- I. Try & Buy Concept
- II. Tulip Household Water Filter
 - A. Benefits
- III. Methodology
 - A. Identify community
 - B. Meet with community leader
 1. Take home item to test
 2. Generate list of participants
 - C. Week 1: Meet with community
 - D. Week 2: Questionnaires
 - E. Week 3: Sell/return filter
- IV. Results
- V. Conclusion
- VI. Appendix
 - A. MATLAB input-output example
 - B. Excel table

“Try & Buy” Concept

The “Try & Buy” concept was introduced as a method of marketing and selling products, by allowing customers to test a product for a fixed period of time, and then decide whether or not they would like to purchase the product at the end of the loaning period. The CCAP SMART Centre chose to test the effectiveness of this method on a local community with one of their water filter products. One service the SMART Centre provides to northern Malawi is the training of local entrepreneurs on business skills, by enabling them to buy certain technologies from the centre at a lower price, and selling it to local communities at market price for profit. By testing this marketing concept on a local community, the centre is able to spread awareness on both low-cost technologies available, and an opportunity to receive extra income.

Tulip Household Water Filter

The Tulip Water Filter is a low-cost water filter that removes 99.995% of bacteria and parasites from contaminated water, and allows families to clean water from unimproved sources, preventing waterborne diseases and providing safe drinking water for their household. The product filters the water using a ceramic candle made of algae fossils, with minute pores to remove bacteria, parasites, sediment, and dissolved solids. The candle also contains activated carbon that provides a large surface area for contaminants to attach to, and silver which helps kill any bacteria that was not filtered by the ceramic layer.

The tabletop filter comes with two ARKAY buckets: the top one to filter contaminated water, and the bottom to store and dispense clean, drinkable water. The filter also comes with a toothbrush and scrub pad to clean the candle, a plastic sensor to detect when the candle should be replaced, and a pre-filter cloth for filtering of highly turbid water.

The filter sells for 10,000 MK at market price, but if locals want to sell the filter for profit, they can purchase the set at the CCAP SMART Centre for 9,000 MK and sell at market price for a 1,000 MK profit. Typically, the candle must be replaced every 2-3 years, and currently costs 3,500 MK for a replacement.

Methodology

Area 1B, block 23, was chosen because the SMART Centre had already formed a relationship with them from a previous project involving some of the staff members. A meeting with the block leader, James Chiwona, was set up in order to present the filters. Mr. Chiwona was very open to the Try & Buy concept and the water filters. One set of the filter was sent home with Mr. Chiwona to show to his community. In addition, Mr. Chiwona was given a task to create a list of participants that would be interested in testing out the water filters.

Week 1

After creating an informational leaflets and a contract for the Try & Buy concept, the filters were ready to be sent out into the community. On August 5th, a demonstration was held with the community in Area 1B and the filters were sent out. After each household member signed the contract, they were assigned a set of water filters.

Week 2

During the second week, questionnaires were created to understand the households' perceptions of the water filters, and gauge their usage and effectiveness. At the end of the week,

the households with filters were visited, and semi-structured interviews based on the questionnaires were conducted. At each household, a GPS coordinate point was taken, and the filter was located inside the house to better understand how or if the filter was being used. The leaflets were also translated to Chitumbuka and distributed to the households during the interviews.

Week 3

During the third week, the SMART Centre returned to the community in the morning, and visited every household to collect the filters from families who were unable to put a first deposit down. The first installment requirements changed, so that on visiting day, the community member must be able to pay a deposit of 2,000 MK on visiting day, and the remaining 3,000 MK the following week. The second installment requirements did not change.

The instruction manual for the filters was also translated into Chitumbuka and distributed to each household with a filter during these visits as well.

Results

Week 1

During our meeting with the block leader of Area 1B, he seemed very interested in the filter, and thought the price for the filter was reasonable for his community to pay. However, when we met with the community, they expressed an ability to pay the first installment of 5,000 within three weeks, but said it may be difficult for them to pay the additional 5,000 over the next three months during the second installment period. Individuals who did not think they could afford to pay the second installment over the next three months can express this at the end of the loaning period, and come to the SMART Centre to meet with Reinier and individualize a payment/savings plan for the second installment period.

To prepare for a case by case payment plan, we created a MATLAB code that created a savings plan for households, based on how much they could afford to save or pay per month. This amount can be inputted into a dialog box, and their individualized payment/savings plan would be outputted. The outputs determine the total remaining amount they would have to save for, if they could not pay the full 5,000 MK over three months (1,667 MK/month), as well as the number of months they would have to save for, and how much they should put aside per month during the saving period. These values were made on two assumptions: they are able to pay the first installment at a down payment of 5,000 MK and that they are willing to save up before beginning their purchase of the filter. An example input-output scenario can be found in Appendix A. There are two examples: Example 1 illustrates an example savings plan if they pay

their exact input amount per month, and Example 2 illustrates their savings plan if, after they consider their input amount per month, they will have a remaining balance to pay. They can personally incorporate that into their savings plan as they wish; however, that also may require an extra month of saving.

In addition, two Excel tables were created for “what-if” analyses, illustrating different saving plans based on different amounts households would be willing to pay/save per month (see Appendix B). Table 1 illustrates savings plan options based on the amount individual households are able to pay per month. The number of months was a rounded value, so a remaining balance is depicted in the last column, and households can choose how to pay that balance. If the households cannot pay the remaining balance at once, Table 2 is a savings plan option that requires an additional month of savings so that the total amount they must save is evenly distributed over a certain number of months. Those monthly payments do not exceed what they would be able to save per month.

There was also some confusion over the contract signing. One community member received the filter but did not sign a contract, and another signed a contract but did not receive a filter. However, the latter came back the SMART Centre to pick up her filter the following day. There were two households left on the list that did not receive a filter, so Mr. Chimaliro brought the filters to the block leader during the week to distribute to the remaining households.

Week 2

At the end of week two, the households were contacted and visited individually to conduct the interviews. They were visited in the afternoon, so some of the household heads, or individuals who signed the contract, were unavailable, so other members of the household were interviewed in their place. In some of these situations, an accurate depiction of households’ overall perception of the filter or usage may not have been obtained. For example, at one household, the niece was the only person available for the interview, but she did not know the answer to some questions, and at other points during the interview she was very distracted, giving ambiguous or one-word answers.

One woman signed the contract and took the filter home, but her husband said they could not afford it, so they decided not to test the product, and gave it to their neighbor instead. The neighbor decided they could not afford it either, so the filter went unused and no interview was conducted for either community member. One of the community members that did not receive a filter but signed a contract took the unused filter, and she was allowed an extra week to test the filter. Later that day, we met with the block leader, and found out that he received the remaining filters from Mr. Chimaliro, but had not yet distributed them. The secretary of Area 1B also received the toothbrushes, and they were distributed after we interviewed him.

One woman had not used the filter that day because she said other community members continued to come to her house and use the filter without permission. A few community

members said their filter was leaking, so the effluent tap was tightened and demonstrated to the borrowers, so that they understood how to fix it if this problem occurred with other community members as well. Others complained that it filtered too slowly, to which we explained that the flow rate was partially an indication of how well the water was being filtered.

Another household complained that they did not have enough time to use the filter because they had been out of town for a few weeks. They also did not understand the benefit of the product, and thought we were selling it simply to make a profit. After explaining the benefits and that we were not profiting from the sale of this product to them, they still had reservations, and decided they did not want to continue with the trial.

When discussing how much the members would be willing to put aside per month for the filter during the second installment, many responses ranged between 2,000 and 4,000 MK. Another said she could pay the first installment, and she would try her best to pay for the second installment in time. When visiting the households, many seemed much more well-off than they expressed when discussing the price of the filters. Many had multiple couches, a television, and stereo sets.

The interviews took all afternoon, and at the end of the day there were three people left to interview. Two were not around that day, and one was on the other side of the block, so we decided to interview the last three in the beginning of week three in the morning.

Week 3

The remaining three questionnaires were finished on Monday morning of the third week. Of the three households, one community member was hesitant to use the filter because she was unable to make it to the demonstration during week one, and sent her daughter in her place. This family was also out of town for weeks and requested to have an additional week to test the filter.

The trial period ended on Thursday of the third week, and each household with a filter was visited individually for the collection of the first installment. The first household visited was one of the members visited on Monday of that same week, and was confused about the contract. She said we failed to inform her that we were coming today, and that if she did know, she would have been able to acquire the money easily. It is worth noting that the community members get their pay day at the end of the month, which affects the payment plan. The husband of this community member expressed that he was unable to pay at the moment because of this reason, and both were reluctant to return the filter because they liked it.

After this household, we went to the house where the demonstration was held during week one. Several community members had gathered, including the secretary and block leader. During the discussion with the gathered members, we learned that there was a misunderstanding regarding the contract, as they thought we were coming that day to confirm whether they would be willing to pay for filters or not, as opposed to collecting the first installment that day. They thought that we would gauge who was willing to buy the filter, and that we would come by the

next week to collect either the first installment or the filter. After the confusion was resolved, two community members paid their first installment. Then we set out to each individual house and collected the payments from members if they had the money. A total of 13,000 MK was collected on Friday.

Conclusions

Overall, almost every household that borrowed a filter expressed both a satisfaction in the filter, and a willingness to pay for it. However, there were a few households that found it unaffordable, and decided not to try the product at all. There was one household that did not understand the benefit of the product, and ergo decided not to invest. Many of the household heads were also absent for the demonstration or questionnaires, and sent other, oftentimes younger, members of the household to relay the information to the household heads. Consequently, information about the product or schedule of our visits may not have been accurately expressed during these conversations, which led to more confusion and miscommunication between the SMART Centre and the Area 1B community. To prevent this in the future, the SMART Centre should decide on a specific date and time for the demonstration days in advance, so that the community members are prepared for the meeting and can plan accordingly.

In addition, the instructions manual for the filter, “Try & Buy” leaflet, and contract should be translated in Chitumbuka before the demonstration to prevent confusion. A fixed, specific schedule of the exact date and time for the questionnaires and payment collection should be outlined on the contract in a clear format so the community members can plan to be available ahead of time, and prepare saving for the filter. This would prevent confusion and allow for more time efficient visits. The schedule should be timed so that the third week, or collection week, is shortly after pay day so that the households have excess money to put aside for the first payment. Handing out a data table of savings plan options during the first week could also be very beneficial to the borrowers.

Appendix A

Example 1

Figure 1.1. Example of input dialog box for individualized payment/savings plan.

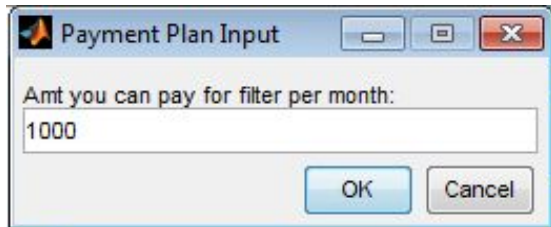


Figure 1.2. Example of output dialog box determining individual's payment/savings plan.



Example 2

Figure 2.1. Example of input dialog box for individualized payment/savings plan.

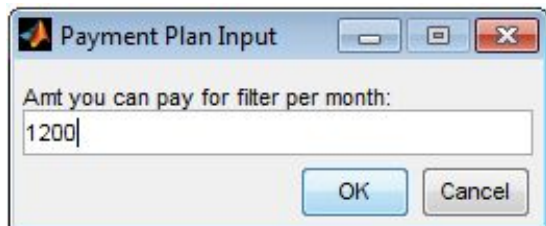


Figure 2.2. Example of customized payment/savings plan if remaining balance required to pay after savings plan.



Appendix B

Table 1. “What-if” analysis of savings plan options based on amount individuals able to save per month.

Amt Willing to Save Per Month (MK)	Total Amt Must be Saved (MK)	No. of Months to Save	Remaining Balance (MK)
100	4700	47	0
200	4400	22	0
300	4100	14	0
400	3800	10	0
500	3500	7	0
600	3200	5	200
700	2900	4	100
800	2600	3	200
900	2300	3	0
1000	2000	2	0
1100	1700	2	0
1200	1400	1	200
1300	1100	1	0
1400	800	1	0
1500	500	0	500
1600	200	0	200

Table 2. “What-if” analysis of savings plan options to include remaining balance in monthly plan.

Amt Willing to Save Per Month (MK)	Total Amt Must be Saved (MK)	No. of Months to Save	Amt Must Save Per Month (MK)
100	4700	47	0
200	4400	22	0
300	4100	14	0
400	3800	10	0
500	3500	7	0
600	3200	6	533
700	2900	5	580
800	2600	4	650
900	2300	3	0
1000	2000	2	0
1100	1700	2	0
1200	1400	2	700
1300	1100	1	0
1400	800	1	0
1500	500	1	500
1600	200	1	200