report 2016 - Pilot project

Talent Development Academy in Oyugis

NRO100 + susteq system

Table of content: **Page:**

1. INTRODUCTION AND BACKGROUND OF THE PROJECT

“When the well is dry we learn the worth of water.”

Though here we are talking about managing a not so dry well and making the maximum of it. The Talent Development Academy in Oyugis as our Pilot was not by default we choose for it. It has given us room to learn so much of how it all works and how it does not work as well. The result is magnificent! A living proof that Africa might have just again skipped the era of water infrastructure like we skipped the land line telephone to mobile and perhaps the electric poles direct to solar and even banks to mobile banking. We can all relativate this but bottom line NRO100 is standing in Talent Development Academy and it is still working two months after we left with management system engaging three young people and over 300 kids drinking purified, safe and clean water. We thank Aqua-Etiem, Susteg Company and everyone engaged in this project one way or the other.

2. ON LOCATION

The school location, was just perfect for the first pilot cause it helped us galvanise a team that is able to run the NRO system efficiently and at the same time it guaranteed us that it will be there when we come back. Further it has entrenched our position that we did bring a system that is working. From Equity Bank, one of the employers told us if we could have put the NRO in Homabay town we could make a kill! Yes and No. Yes there is a high end market which indeed will be lining up for our water. No, because now we know what it takes to make one which runs successfully and what it takes to mount one. This involves way more than just technical skilled people. It entails a whole social and cultural process as well. Homabay has a lot of potential and could indeed be our next target.

Another thing is schools. They were overwhelmed. They have seen how it is working. The combination of purification and management system brought a lot of excitement. The way this system could bring down costs such as medical costs is tremendous. The combination of water for the pupils as well as the community around the school is a practical idea and very welcomed.

3. Results in image

Borehole; this borehole was idle. Depth 34 feet.
Pump; we bought this pump in February 2016.
With the aim of automatic flow of water from borehole to outlet Susteq and to safeguard property, we protected the pump with a tailor made metal box (padlocked).
Electricity and waterpipes from borehole to 10.000 liter tank are underground.

Recommendation: to fence the borehole or complete the protection of water pipes and electricity from the borehole.

The 10.000 liter tank next to the school building. Property protected with a fence (iron sheets). Storage of rainwater (collected from the roof of the school building) + borehole water. Gutters, tank etc to collect rainwater were implemented in February 2016.

The kiosk consists of two rooms; one the shop and the other for the NRO100.

before

after

The Susteq system we bought appeared to be a demo unit. We designed and built a metal frame to protect the Susteq system and mounted it from inside the NRO room. Another metal frame was designed to protect to solar panel (Susteq) on top of the roof.

Good finishing....call it branding

We built a tank raiser for rejected water and did ceramic finishing at the outlet.
The final touch to march our resolve of providing clean water in a clean environment engaging the local youths with skill in e.g masonry.

Extra hand with our metal guy, plumber and electrician ‘men@work’

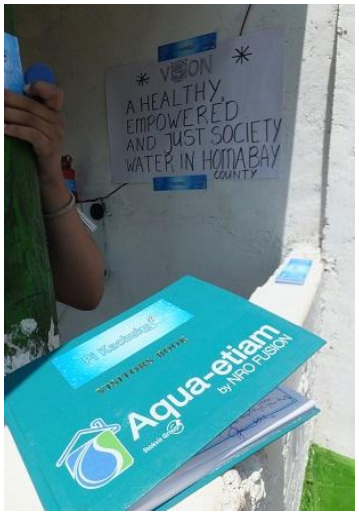
The learning centre

‘Guys this is how it works’ says George from Susteq Management system.
Students from the Belgium organisation Humasol are visiting us that day.

Visitors: Local government and future generation

Capacity building & Marketing

Marketing is an aspect that we will have to look at...and invest on massively!



Networking and massive publicity is the way to go and we started it in style with organising a launching day in collaboration with Talent Development Academy.

Grand opening and educating people about ‘safe and clean drinking water’

Moments of pride.

Rejected water is 100% in use..

In the garden and sanitation. Toilets have a red bucket filled with rejected water. Recommendation: to pipe rejected water and create toilet flush and hand washing area.

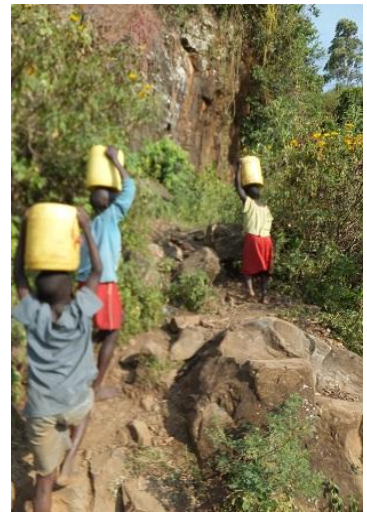
Field trips – meeting other water projects

Every school wants NRO but...

Already indentified 10 schools (over 8,000 students in total) who are committed to cost sharing due to real need.
KPAG Aqua-Etiam found a collaboration with these schools enticed to the Ministry of Education.

For the students this is water ... from the pond

Like this we came across several schools which would really appreciate if they can even have an NRO100 cause the kind of water they use is a one way ticket to cholera.



Homabay county government

Apart from making the road to the KPAG Aqua-Etiam kiosk using ‘China graders’, the County Government was really impressed. County Government visited to pilot project. Provided a letter of commitment, concerning the 8 boreholes as talked about in February this year.

Environment in mind no plastics!

Market day – promotion of the drinking water at the roadside

During schooltime – shopkeeper(s) provide drinking water to The children of the school.

Children going to school to bring water back home using renewable materials.

4. CHALLENGES AND RECOMMENDATIONS

Challenges:

The main challenge is the cost of installing this machines. There is a lot of potential but starting capital is for most of the investors a challenge. Secondly the socio-political environment needs to be considered as well as the cultural background of where we are aiming to install purification and management system. The habitats and beliefs, whether cultural or religious, need to be taken into account. The process of engaging the community whereby locals are being trained and guided towards full ownership is an important aspect.

Further challenges were:

- Susteq system we bought was a show model, we therefore had to build a protection around it. We faced a lot of difficulties getting the system to work properly.
- Technical challenges in terms of full automatic flow of water from 10.000 liter to all the way through NRO100 to the outlet of Susteq system. Pump was added before susteq outlet and pump before NRO100 was replaced with another pump. Everything was new for the local team, technical know how was put on a test.
- People consider safe and clean water to be packed in a bottle. We need to invest on tackling the mindset.

Recommendations:

- Considering the black-outs it's recommended to research on solar and let the full system run on solar.
- Localizing the management system could bring more local engagement, ownership and growth.
- Marketing and publicity is an aspect that we need to aggressively tackle.
- To get all costs involved clear; transportation from Netherlands to Kenya, import duty and declaration costs, taxes etc.
- To incorporate local partnerships such as The Ministry of Education for the sales of the system to schools and therefore not approach the schools individually but build strategic plan.
- To work on a stronger partnership with Aqua-Etiam, KPAG Aqua-Etiam and Susteq to enhance the above recommendations and tackle challenges as opportunities.
- Considering ownership by the locals: let's consider all the services needed and build on the organisational model. From training, employment, support independent entities to maintenance. And to build strong network with universities (local and international), vocational training institutions (electricians, plumbers, timbers) and create job opportunities as we develop the market for purification system.

In the media:

http://www.standardmedia.co.ke/lifestyle/article/2000212277/homa-bay-residents-quenching-thirst-the-smart-way

innovator/ – WITH AMIMO ZACCHAEUS

Quenching thirst the smart way

Residents of Kachuku Village in Homa Bay County can now enjoy clean and safe drinking water, thanks to a new automated purification machine

Residents of Kachuku Village in Homa Bay County are enjoying "healthy and tasty drinking water", thanks to a purification technology introduced by one couple.

Known as Kpag-Aqua-etiam, the technology is a designed "point of use" purification system and can treat water from sources like boreholes and rivers. It purifies 120 litres of water per hour and is expected to produce clean and safe drinking water for at last 300 residents on a daily basis.

"We will sell excess water to the neighbourhood and use the cash to pay electricity bill and other services.

- Ken Odak

The couple, Ken Odak and his wife Saskia Ottenhoff, says the machine will produce surplus water that they will sell.

Users of the service will simply swipe a tag (key nob) at the distribution point to enable them access the essential commodity. They will be charged a small fee. "We will sell excess water to the neighbourhood and use the cash to pay electricity bill and other services," said Odak.

Payment of water credits is done through phone to the sales point owner who then transfers the payment through M-Pesa to the filtration systems owner.

"The service provider transfers the water according to the set litre price and quantity per credit to the buyer. M-Pesa or a similar mobile banking system permits real time transfer," said Odak.

By swiping the key knob at the contact point, the RFID (Radio Frequency Identification) fitted to the filtration system metres out a pre-set amount of water until the credit is exhausted. After which, a new credit can be loaded again. The payment system operates in such a way that not only does it manage the water credits but also provides valuable data to the systems owner.

"The systems owner can tell the total number of credits sold and the total water drawn from the distribution point or the number of unique users," he said. The system works through remote communication between the owner, with both the RFID unit in the shop and the RFID unit on the distribution point through a short text message.

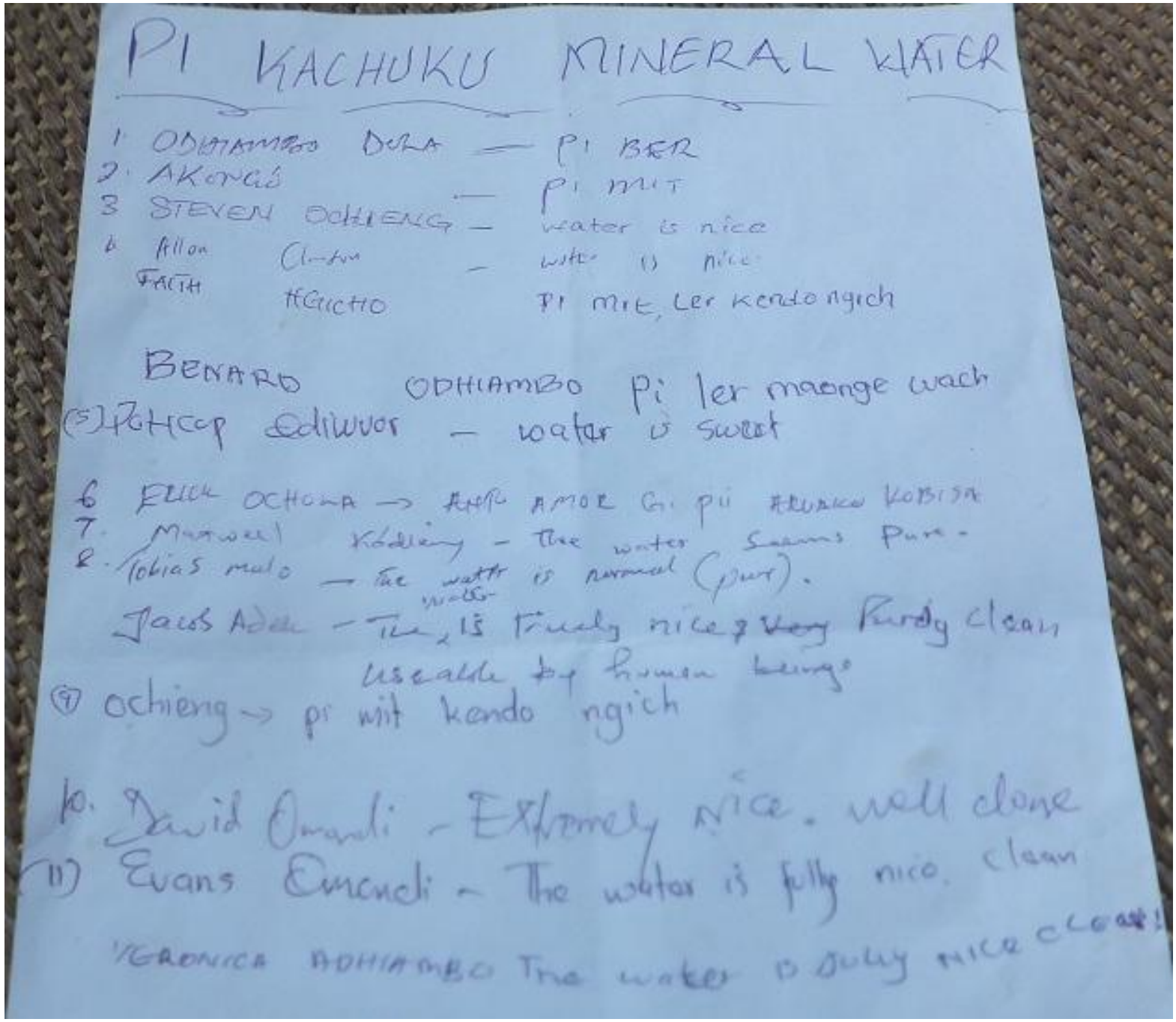
Ken Odak (right), his wife Saskia (left), a resident at the purification plant. Residents of Kachuku Village in Homa Bay County can now enjoy clean and safe drinking water, thanks to the new automated purification machine. [PHOTOS: AMIMO ZACCHAEUS/ STANDARD]

The purifier makes it possible to provide easy access to clean and safe drinking water for the users, while for the systems owner, it offers easy and secure control over both the financial and the technical management of his systems.

There is the pre-filtration stage, followed by the purification stage that sees the removal of unwanted substances while retaining the essential minerals.

A built-in electronic control system is designed to keep track of the maintenance requirements of the unit.

The couple plans to connect the entire county to healthy drinking water by installing nine other such machines.



PI KACHUKU MINERAL WATER

1. ODHIAMBO DORA — PI BER
2. AKONGO — PI MIT
3. STEVEN OCHIENG — water is nice
4. Allan Clan — water is nice
FAITH HGICHO — PI MIT, Ler kendo ngich

BENARD ODHIAMBO Pi ler maonge wach
(5) Hohcap Odiwuor — water is sweet

6. ERIC OCHOLA → AHPO AMOR Gi pii ATUAKO KOBISA
7. Maxwell Kodiang - The water seems Pure.
8. Tobias malo — the water is normal (pure).
Jacob Adek — The water is truely nice & very Purely clean useable by human beings.
(9) ochieng → pi mit kendo ngich

10. David Omondi - Extremely nice. well done
(11) Evans Omondi - The water is fully nice, clean

VERONICA ADHIAMBO The water is fully nice clean!

Feedback from people during Promotional day at the roadside.