

# The history of a water pump in an African village

A case study Mtindili / Mbawai subvillage, November 2014

**Blue Pump** installed by Mambo View Point / Jamii Sawa

At 1728 m altitude in the Green Valley near Mambo Village, Tanzania

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## Description of the area around Mambo village

The village of Mambo is composed of several sub villages, including Mtindili. Mtindili is actually a valley with remnants of a dry riverbed. The river / stream is said to have been perennial until 30 – 40 years ago. Now it only contains water for several hours during peak discharges after a shower. The major part of the valley has fertile soils and is largely terraced for agriculture. The main crops are potato intercropped with beans and maize.

At the high end of the valley there is a small independent catchment area (Mbawai) with plenty of water until recently.

At the high end of the valley a traditional hand-dug well was constructed about 7 meters deep. This traditional well is now running dry and users (mainly children) are spending hours for fetching water which is not clear.



*Niek with the new Blue pump*

## Environmental restoration and -management

Our team was asked to drill a well upstream of the traditional well. The first test drill failed by hitting bedrock at only 3 m depth and expectations were low. However, the second test drill reached a depth of 10 m and a subsequent pump test yielded 33 buckets , 10 liters each. The standard survey screen casing (2 m) was from 5 - 7 m in a rather non-defined aquifer. This yield would normally not justify the construction of a tube well with Blue Pump, costing around 3.000 Euro's.

However, upon request of the Village Water Committee it was agreed to construct the well under strict conditions :

- Cut all Eucalyptus trees (invasive species) around the (upper) edge of the catchment area
- Replace these trees by planting local varieties like Mvumo, Mshai and Mkuyu.
- Introduce strict supervision by the Village Water Committee.

The interesting status of this small Green Valley is that no agriculture is allowed (by village by-law). Only one month per year, the green pastures are open for grazing cattle after the Idd ul Fitri feast at the end of the Ramadan.



*The drilling team in action*

## History of water supply around Mambo village

### A. German settlers (Thirties)

The earliest foreign interventions for water management were done by German settlers.

They constructed a dam at the edge of Shagayu forest. This was a successful effort by colonists in the Thirties, reflecting high quality civil engineering. The water was mainly used for irrigation purposes, but the water quality was probably good enough for drinking purposes. In the meantime the valves of the dam are broken and the water supply dried out since most water is taken higher up for drinking water and (illegal) irrigation.



*The dam which is still strong but not functional since the valves are broken*

### TIRDEP (Eighties)

Tanga Integrated Rural Development Project was running parallel to the Dutch rural water supply project in Morogoro : Mradi wa Visima (1978 – 1992). In fact TIRDEP procured their equipment for shallow wells from Morogoro. First they provided a kangaroo spring pump but later changed to the the Morogoro model called SWN 80 pump (Sociale Werkplaats Nunspeet, introduced in 1980). The design of their installed handpumps is exactly this SWN 80 Pump On several places some leftovers from foundations or even working samples are found. Most of these pumps however collapsed and the holes were not well preserved and became unusable like in Mbawai.



*The remaining's of a Kangaroo spring pump which were placed during the seventies*

### B. World Bank (1996)



*A traditional well*

A concept master plan was developed by the World Bank during the mid-Nineties. Mr Ibrahim (79 years) remembers how he was involved in that process in his function of Mtendaji (Village Executive Officer). However, the WB did not succeed in raising sufficient funds for implementing their plans.

### *C. Idara ya Maji, Water Department Tanga (2000)*

As far as I know, Idara ya Maji for some time has run a rehabilitation programme for handpumps in Tanga Region. Their standard hand pump is the SWN 80 model, as introduced by the Dutch and is still placed by the government.

In general their program involved replacing the yellow pumps of the TIRDEP -range. In the case of our Green Valley, the existing traditional HDW (Hand Dug Well) was modified to host a hand pump. The ring well was fully covered (with wood and cement) with a pre-cast cement pump stand in the middle. The newly installed pump was beyond repair when we visited this well with the Water Committee in April 2014. A few weeks later it was removed to give clients access to the water by using the bucket-and-rope system.



*The left overs during a visit from Blue pump sponsor Ralph Tuijn*

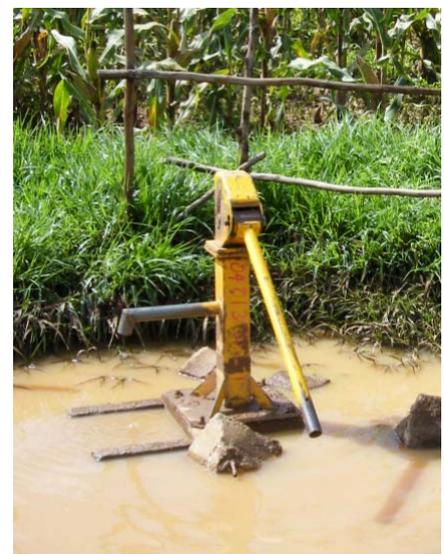
### *D. Mambo View Point (2011 – present)*

The next (known) intervention came from Mambo View Point eco lodge in September 2014. We know that local (environmental) management is a key to sustainable Operation and Maintenance (O&M). The Green Valley has no distinct aquifer, but the soil is somehow saturated with water from a depth of 6 m onwards. Hence, our drillers kept drilling and reached even 12 m, with volunteers from the village (Nguvu Kazi) ! So far this is our deepest tube well, with the longest screen (6m).

We used a PVC screen which is produced in Tanzania and comes in standard tube lengths of 6 m.

The drilling team now also masters the skill of making slots during a laborious exercise using a hacksaw and much patience...

And the newly installed **Blue Pump** is expected to last (almost) forever. This valley has the potential of becoming a "show case" for sustainable O&M. We will coach this process with inputs from the newly established office of Jamii Sawa (NGO), the implementing partner for village development projects.



*One of the few SWN 80 pumps which is still working but in a terrible condition. This one was replaced by the government in 2010*