



Date : January 7th 2011
Concerns : Project drinkingwater for ward Sunga, district Lushoto, Tanzania
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annex : statistical information of the population of Sunga
review of the pumps in Sunga
situation of the pumps to be replaced
inspection of 3 of the 9 recently replaced pumps

introduction

The situation of the drinking water supply in ward Sunga is worrisome. Until recent from the about 27 pumps only one was working. Recently 9 pumps, among which the only working one, are replaced by the government but this is still way to few to fulfil the needs, so many people have to walk far for their water every day. Also many people are tapping water from open sources like small brooks or holes dug in the ground.

According to the international standards where 250 people can live from one water pump, there should be about 90 pumps, this is 10 times more then available at the moment.

Project

In this document a proposal is made for a project to provide the necessary pumps and water filters, initially for Ward Sunga, but potentially for a wider area which is not investigated yet but where the problems are very much the same.

Idea

The idea is to provide robust pumps which can last more than 30 years. To make the project sustainable, not only the provision and installation is considered but also the utilization and maintenance.

For the maintenance it is necessary to establish a company that will install and service the pumps. Every community that wants to have a pump has to appoint a manager who is responsible for the pump and will have income from selling the water and other related items like water filters and filtered water. Every family has to pay \$ 10 to \$ 15 per year for the maintenance If the money is not paid the pump will be removed again.

This model is promoted by Fairwater and proved to be sustainable in various situations.

Budget

Every pump is about € 2.500 (\$ 3.250) including transport. The pumps are paid by the supporters of fairwater. In many cases these supporters are companies who like to sponsor a pump. Often they want to know where the pumps are placed and like to visit the place them selves.

MamboViewPoint eco lodge is a perfect place to meet these desires.

The installation inclusive the concrete foundation has to be paid by the communities and will be about the yearly costs for maintenance of about \$ 300.-. One pump will be used by about 150 people (30 families). This means a contribution of \$ 10 a family will be required.

To place new pumps on places without boreholes (in most cases) boreholes have to be drilled. Funding the necessary € 10.000,- (\$ 13.000) still has to be done.

Together with the pumps small water filters will be introduced to be used with one or 2 buckets. The idea is to sell those filters and to buy new ones from the profits. One filter will be some dollars. The selling points can sell filtered water and the filters.

For the first purchase of the filters funding organisations will be approached.

Inventory

In the annex an inventory is made of the current situation. From the pumps that are not working or not working properly the details are added to be able to estimate how easy or difficult it is to replace them.

In general the following problems have been found:

1. A lot of pumps are not working any more for some years. There was no policy to maintain the remaining bore holes so they are filled with soil or sometimes even not seen anymore.
2. Because of the use of pesticides some pollution is seen in the surface water. It is likely that the pollution also will have reached the water wells below. Unfortunately the pollution is wide spread all over the fertile farmland which is situated right at the places in the valleys where the water wells can be found. So there will be no cheap alternative solutions.
3. Most water wells are found in the valleys far from accessible roads.
4. Though the policy of the local board of the ward Sunga is to have water committees for every pump in the region, those committees mostly not have the power and the means to operate effectively.
5. The actual choice where the pumps have to be placed is accompanied by a lot of political interest and is not always clear or does not always lead to the most optimal solution.
6. The quality of the water is not controlled on a regular base. Some years back it was supposed to be inspected on some places.
7. Pumps which just have been replaced are not fixed well and are likely to break in short term again. The people around don't have the means, the awareness or the power to fix the repairs needed.
8. The water in the valleys is not deep. This means boreholes have to be made upto 10 meters. Luckily those can be made by relatively simple drills.
9. Momentarily many people take their water from holes they dig or small streams. With the holes they wait until the water raises enough to fill a bucket.
10. Since the quality of the water is poor and not controlled, the introduction of water filters is essential. This is not ingrained in this very moment and only very few people use filters.

Recently the government has replaced 9 pumps, which has given some relief. Unfortunately the new pumps are not installed well and also not spread equally over the region as a result of many people still have to walk far for their daily drinking water and it is likely that many people are drinking uncontrolled water from open sources.

The desperate situation in the most populated village Mambo came to an end because the newly built Lodge MamboViewPoint provided initial 10 taps with running water from a source in the natural forest. The extension of the pipeline and the number of taps is foreseen but also needs some funding.

Unfortunately the main part of the ward Sunga is above the level of the source and the amount of water from the source is limited. This makes providing running water from the natural source for many places in Ward Sunga impossible.



Water is found in the valleys not far below the surface.

Strategy for sustainable replacement and extension of the pumps.

In the past also in the Usambara Mountains water supply and utilization mostly is done via water committees. Unfortunately the practice learned this is not the most optimal way to operate. Bribing and political issues made this system ending up in very poor situations.

The idea behind the new strategy is to involve a community of about 150 people with every pump. The ownership of the pump remains in the hands of a special CBO (Community Based Organization) Every community has to apply a responsible person who is taking care of the pump and is going to be paid. Every family has to contribute for a fair amount. From the yearly collected money the responsible person and the maintenance is paid. Before placing the pump the community has to pay the same yearly amount for installing. If the community is not able to raise the money the pump is removed again. The same responsible persons can make a business around the pump by all kind activities like selling water filters and soap for laundry.

An essential part of the project is to establish and train local technicians. The local technicians have to be instructed how to clean old boreholes or to make new ones and how to install the new pumps. Having a simple hand drill will increase the possibilities enormous. Locally first the community has to agree and the management for every pump can be established and instructed, after which the local technicians can (re)place the pump.

In case of technical problems the same technicians who placed the pumps can repair the pumps again or they know how to get help to repair them.

Another part of the project will be education about the importance of clean drinking water and good sanitation. This can go together with the placing of the pumps and lead to more activities around a good sanitation.

A system like this will meet the needs, be sustainable and will also create new jobs.

Conclusion

Providing water for the ward Sunga (22.000 people) is only for a small part possible through running water from a natural source. Partly this is done already and it can have some extension or repair. For the other areas there are good options for pumps since the water is not far under the surface.

From the 27 present pumps only 9 are working, which means about 7,000 people per pump which is far beyond an acceptable situation. Momentarily people are suffering because they have to fetch the water from far or take it from unsafe sources. A total of 90 pumps in the region should be the optimum. Since the regions around are facing the same problems also extending of the concept to other areas will be possible.

Placing and replacing of the pumps need a new concept where the local communities are contributing and the responsibilities are clear. Together with small economical activities and an organization for maintenance it will create a sustainable water supply.

In spite of having better water sources filtering water for drinking still is essential. Since paying for water is foreseen those selling points can also be used to sell filtered water and filters.

Together with the project education is needed about the importance of clean drinking water and good sanitation. Once the organization is setup this will be a perfect platform to extend to sanitation issues.

Annex 1: statistics of Ward Sunga

source: As from January till march 2009 village progress report

<i>Village</i>	<i>Number of households</i>	<i>Population</i>		<i>Total population</i>
		<i>Man</i>	<i>Woman</i>	
Masereka	732	1.574	2.228	3.802
Mambo	781	2.300	2.574	4.847
Mamboleo	337	418	699	1.117
Nkukai	452	1.146	1.029	2.175
Sunga	520	1.223	1.548	2.771
Kwemtindi	505	990	1.410	2.400
Tema	659	1.428	1.550	2.978
Kalumele	443	710	965	1.675
Total	4.429	9.789	11.976	21.765

Annex 2: review of the pumps in ward Sunga

<i>Village</i>	<i>Total population</i>	<i>Number of working pumps</i>	<i>Population per working pump</i>	<i>Number of not working pumps</i>	<i>Total number of pumps</i>	<i>Population per pump</i>	<i>Number of wanted new pumps</i>
Masereka	3,802	2	1,901	2	4	951	2
Mambo	4,847	3	1,616	3	6	808	0
Mamboleo	1,117	0		1	1	1,117	4
Nkukai	2,175	2	1,088	1	3	725	2
Sunga	2,771	2	1,386	3	5	554	3
Kwemtindi	2,400	0		3	3	800	0
Tema	2,978	0		5	5	596	2
Kalumele	1,675	0		0	0		2
Total	21,765	9	2,418	18	27	806	15

Annex 3: Inventory of broken pumps				
<i>Nmb</i>	<i>Village</i>	<i>GPS and altitude</i>	<i>Situation</i>	<i>Pictures</i>
1	Sunga	-4.52093 38.23795 1886 m	The borehole looks ok, and old pump is placed but is not working any more.	
2	Masereka	-4.54179 38.23856 1826 m	There is a pump placed and is working a little but the spring is broken and it is not used. There are rumours the water is smelly. During inspection the smell is not detected. Water is fetched from a small river.	 
3	Kwemtindi	-4.51580 38.23600 1867 m	There is only a foundation and a borehole. The borehole is not covered and filled with soil.	
4	Maseraka	-4.54437 38.22854 1836 m	The top part of the pump is missing. The borehole looks ok. It should have been working until some weeks ago. No foundation and no drainage found.	

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5	Tema	-4.53278 38.21238 1684 m	Only foundation is left. Drill hole is filled with soil. It should have been working until 4 years ago.	
	Actual situation on June 22 th 2010		The borehole is found and cleared. Distance from ground level till water level: 90 cm distance from the water level till the bottom of the borehole: 110 cm.	 
6	Tema	-4.53072 38.21417 1695 m	It is said that there has been a working pump 6 month ago. Only some broken plastic pipe is left. The exact position of the borehole is covered by soil and has to be located.	
	Actual situation on June 22 th 2010		The borehole is found but not cleared. Distance from ground level till bottom of the borehole: 30 cm, no water.	 

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7	Tema	-4.53678 38.22042 1755 m	It is said that there has been a working pump 4 years ago. The exact position of the borehole is covered by soil and has to be located.	
	Actual situation on June 22 th 2010		The borehole is found but not cleared. Distance from ground level till bottom of the borehole: 60 cm, no water.	 
8	Tema	-4.53533 38.20978 1677 m	It is said that there has been a working pump 4 years ago. The exact position of the borehole is covered by soil and has to be located.	
	Actual situation on June 22 th 2010		After clearing, the pipe is few centimetres below water level. Distance from the top of the pipe till the bottom: 80 cm	
9	Tema	-4.52846 38.21211	It is said that there has been a working pump 4 years ago. The exact position of the borehole is covered by soil and has to be located.	

Annex 3: Inventory of broken pumps

Actual situation on June 22 th 2010				
14	Tema	S4.53707 E38.22075	The borehole is found and partially cleared. Distance from water level till bottom of the borehole: 60 cm	 
15	Mamboleo	S4.56143 E38.21344	No borehole left, only a hole where people fetch water. During rain the water is too much polluted.	
16	Manolo (1)	S4.60921 E38.21980	Spring pump is damaged by landslides and not working anymore. People fetch water from a small river.	
17	Manolo (2)	S4.62158 E38.22298	Water well. There are two wells that are used in turns. Local people ask money for fetching water.	
			Remains of rings for a water well from 2007. The well collapsed during construction. At the moment water is sold from a next door private water well. And fetched from open sources.	

Annex 3: Inventory of broken pumps

				
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Inspection of 3 of the 9 just replaced pumps

11	Masereka	-4.54437 38.24281	Pump is just replaced by the government, but the nuts for fixing the pump are missing, by which it is likely to break again in short term.	
12	Mambo	-4.51259 38.21147	Just replaced, is working well. Place is near Tema	
13	Mambo	-4.51118 38.22400	Pump is just replaced by the government, but the nuts for fixing the pump are not well fixed, and it is likely to break again in short term.	

Some other near by places				
15	Viti	S4.65749 E38.25346	Viti One of the few places with a water pipeline which is managed by a public waterboard. There is a responsible technician and water is paid by family per year. Others from other villages pay by bucket.	
16	Rangwi – Rangwi sisters	S4.57209 E38.25088	Rangwi Rangwi/Rangwi sisters and the villages around get water from a source in the rainforest. Unfortunately this brings not enough water for every village	