



Sustainability of Kabarole shallow wells

Mtwalib Walude, Uganda



KABAROLE SHALLOW WELL programme started early 1993 with WaterAid as its sole supporting agency. It is located in Kabarole District in Western Uganda. The aim of the programme is to help about 550 communities improve on their existing water sources and hence bring safer water close to their homes.

Some handpumps have been earmarked for use on shallow wells in Uganda. The Nira AF 85, the Tara and the Consallen are being tried out in the country. WaterAid has been asked to install 250 Nira handpumps in the country. The handpumps are being monitored by the Departments of Water Development to determine the one that best suits village level operation and maintenance.

For the improved water sources in Kabarole District, the mode of protection is a handdug well near an existing water source installed with the Nira AF 85 direct action handpump.

Up to-date, about 100 wells have been sunk in Kitagwenda county in the southern part of the district. There has been a series of stages that have been established to ensure long term sustainability of the installed water supply facilities. The paragraphs that follow attempt to explain the stages that have been developed.

Technology

The technology used is basically a handdug well of up to 7m deep with at least 3m depth of water in it. It is lined with cement blocks through for durability and the lining sits on a concrete strip foundation. Within the water table, the space between the lining and earth cutting is filled with hard-core to stop well collapse. The pore spaces within the hard-core and the bottom of the well are filled with 6mm granite stone chippings to check silt ingress into the well. The space above the hard-core is filled with clay to prevent inflow of dirty water from the surface into the well. The well is covered with a reinforced concrete slab which has a provision for installation of a handpump. The cover slab has an access hatch provision which can be used for inspection, silt removal from the well, deepening the well in case it dries or use of a bucket pump in case the community is unable to afford a handpump. Around the wellhead is the capping which checks the flow of dirty water into the well. A waste water drain of about 6 - 10 m leads away from the apron to an existing storm drain or soak away pit. Grass is planted around the well compound to make the soil firm and flowers to make it beautiful. A fence is also planted around well compound to stop animals from entering the compound and damag-

ing the apron. A storm drain is provided around the compound to stop the inflow of runoff water close to the well.

Originally, the handpump had a large spout which wastes water while drawing using a jerrycan of a much small inlet diameter, a very common container used in Uganda. The handpump body height was such there was little clearance between the spout delivery point and the jerrycan inlet.

The spout diameter has now been reduced and the handpump body height increased by the manufacturer to cater for all these anomalies.

Service level

The idea of service level has been considered as an important aspect of sustainability. Consideration has been centred around village, parish, sub county and county level.

The number of wells at village level is an integer multiple of 250 people, and depends on the number of people in the village. It has been realised that most families in Kabarole district live in families of 5 - 10 people and wells allocation considers the number of families per well. For any well, the number of families should not be less than 25. The more the number of families, the less the cost of spares per family.

At parish level (a collection of villages), the more the number of wells, the bigger the catchment for spares, the bigger the responsibility for an area mechanic and the parish water committee and the smaller the distance there is to cover to execute joint community work and hence the greater the commitment. Most parishes have about 20 wells. Also, the more the number of wells, the fairer the representation at parish water committee level.

At Sub County level, the larger the percentage of parishes with wells, the easier it is to form a well represented Sub County water committee, the bigger is the catchment for spare parts supply and the more chance there is to guarantee a spare parts depot.

Originally, none of the above factors was considered. Now the concept has been achieved up to parish level and it is hoped that it will fully apply in the north. It is important to note that the nature of technology does not allow for bigger service coverage in parishes or Sub Counties.

Community participation

Community participation has been identified as an important prerequisite for sustainability of the wells. Before a community participates actively, visual aids are used to

make it clearly understand what well improvement is about and the costs involved. Responsibility charts are drawn and circulated at parish and sub county level to show the commitment of the users towards meeting some of the costs. This makes them a little more responsible over their water facilities.

Communities are helped to review their existing water sources. This makes them understand the state of the sources of water in their villages and identify improvement needs. It is a useful tool for the agency to determine what kind of improvement choices exist for a village or parish. For villages where it is possible to sink shallow wells community leaders participate fully in siting and trial boring to determine the location of a well before actual construction starts.

Construction of a well sees division of responsibility between male and female community members. The male team takes on heavier activities while the female team takes on lighter ones. Working in shifts is encouraged to save time for other family activities.

After construction, a trained handpump mechanic from within the parish installs the handpumps on the wells in the parish so the community can identify him as a nearest and able member of their community. He moves around with the parish water committee members, who introduce him to the community before a handpump is installed. After installation there is joint monitoring of the installed facilities by the community representatives and the agency staff to introduce the members to monitoring and evaluation.

Institutional capacity building

Institutional capacity building entails selection, working relationships and job satisfaction community empowerment and financial management.

Selection of fundis (masons) and well committees is done just before the beginning of construction with the help of local leaders and the community. All well committees in a parish meet to form a parish water committee. The parish water committee together with the local leaders meet to select a suitable handpump mechanic. Training of local leaders, masons, and well committees takes place just before the start of construction. That for parish water committees, caretakers and handpump mechanics takes place after construction of the wells. Well committees take on the responsibility of daily planning and management at all levels before, during and after construction. Masons are foremen of all construction activities and repairs in a parish. Parish water committees are in charge of the overall management at parish level. Handpump mechanics remove the installed handpumps and clean them once every three months (servicing) and carry out the actual repairs in a parish.

To ensure job satisfaction, parish water committees are elected once every year, and caretakers and handpump mechanics are exempted from contributions for spares. The mechanics charge a small fee per well for each service

to keep them on the job before the actual repairs. During hand over all trained members receive certificates and each parish receives a bicycle, some stationery and hand-pump tools to facilitate their administration. Visits within and outside the locality are encouraged at all levels to exchange new ideas.

Handpump spare parts

The overall management of spare parts is the responsibility of the community. The cost of handpump spares to be replaced over a period of 10 years is estimated at \$450. This is referred to as a direct cost. Indirect costs to be met by the community include Income Tax (I), Cost in freight (C.I.F), percentage depreciation (D) and Local administration costs (L). For ten years, the total cost (T.C) of spares is given by: $T.C. = \$ 450 + I + C.I.F + D + L$. Indirect costs per well can be made very small if orders for many wells are made at once.

If a bucket pump is chosen, the cost of maintaining it will be very small compared to that of the handpump since it can be fabricated in the country. However it offers low service levels.

It is important to mention the costs involved in maintaining an installed water supply facility before, during and after construction to the community so that they either choose to use handpump or a bucket at the beginning of construction or at the end.

Financial management and record keeping

Financial management is a very crucial issue in ensuring that spare parts are available for use at the time when they are needed. A lot of training preparations have been identified as a requisite to this.

Training involves: Budgeting for the total spares needed in a village, parish and sub county; estimating the total cost of spares at each level; collection mechanisms of money for spares (monthly, quarterly, biannually or annually which is suitable for the community); payment for money (cash or in kind/through fines or fund raising drive); introduction of banking procedures to communities and the value of banking; identification of rural development banks close to the communities and helping them to open up accounts in the identified bank; demonstrating and encouraging public accountability; and an efficient supply of spares as a back up for community satisfaction and their willingness to pay.

Keeping records of well repairs, spares supply and sales and user comments is a very big financial management tool.

Conclusion

In general, most of the important aspects for Kabarole wells sustainability have been considered.

The aspects include:- technology used, service level, community participation, institutional capacity building, spare parts, financial management and record keeping.

A lot of effort is being put in to drive the issues to a reality. It is however early to determine any long term success achieved.