

Building on tradition — Zimbabwe's shallow wells

by Nason Mtakwa and Ephraim Chimbunde

Good for your health, and a status symbol, the shallow well has long been a Zimbabwean family favourite. What's its attraction?

WHILST ZIMBABWE HAS an active rural water supply programme based on the provision of handpumps (some 32 000 have so far been installed), between one and two million villagers still use a bucket and rope to draw their daily water from one of the country's estimated 100 000 shallow wells. The Zimbabwean tradition of digging shallow wells and waterholes, and protecting natural springs has existed for generations; chiefs and other village leaders would arrange for the construction of simple communal wells in wetland areas as a matter of course.

Early initiative

The first national initiative to promote improved shallow wells was launched in the late 1940s by the Ministry of Health's Environmental Health division. The major responsibility of this department was, and still remains, the prevention and control of communicable diseases. The politicians and government officials' main concern was to improve the quality of the water in existing wells and to promote a new method of construction which gave added permanence and protection to these valuable water sources. The shallow aquifers, which make the water potable, were mainly concentrated in Mashonaland, although some districts in Manicaland and Masvingo were also suitable. In other parts of Zimbabwe, where the water-table is much deeper, the technique of digging wells was hardly known 40 or 50 years ago.

Community mobilization

Ministry of Health staff, operating at village level, concentrated their efforts on mobilizing local people, so that they

became more willing to participate in the digging of improved wells, rather than poorly protected waterholes, which were viable only during the wettest time of the year. This role was performed by Health Educators and Hygiene Demonstrators who, by the 1950s went by the title of Health Assistants, a name which changed again, in the 1980s, to Environmental Health Technician. Whatever the official title, this professional's primary role has always been centred on health education and community mobilization.

Early technology

Most early community shallow wells were dug down in *vlei* or wetland areas so that up to 2m of water would be available in the dry season. Improved wells were lined with rocks, with the backfill above the water-table being rammed with clay to prevent water infiltrating from the surface. Very often, these wells were surrounded by an interception (storm) drain and diversion channels, about 3 to 4m from the raised well-head, which led surface



An old brick-lined well. The new windlass which will be used to upgrade it is being tested for size.

runoff water away from the site of the well.

Initially, the wells were covered with wooden logs but, by the 1950s, concrete well-covers had been introduced by the Health Department. This

improvement was often promoted by the offer of some cement. As fired bricks became more common, they replaced stones for the lining, especially in deeper wells.

Family wells

During the 1940s and 1950s, family wells were quite isolated, because Zimbabwe's population was small and scattered. The common technology at the time was the community well, but family-owned wells — called *mugodi* — gradually became the preferred option, and for one major reason; they were close by. Family wells were situated within the homestead, while the communal well could be as far as 3km away. By having the well on site, families saved time and effort, and had access to a lot more water which they could use to irrigate fruit and vegetables, which not only improved individual families' nutrition, but also could be sold, providing families with cash for other staples, such as soap, bread, and sugar.

As a direct result of the Health Department's promotional campaigns in Zimbabwean villages, local communities gradually acquired the extra knowledge they needed to improve the way in which their own family wells were protected. From the 1960s on, the number of family wells began to grow, as more and more people — particularly in areas where the water-table was easy to reach — exploited their new-found well-digging and well-lining skills. Families copied the technique and began to improvise on their own. Many chose the windlass as a method of raising the bucket, an idea which is thought to have originated in the mines, and was also used on commercial farms. Thus the concept of an upgraded family well was established by the individual efforts of progressive families taking their ideas from mines, farms, and from the lessons of the Ministry of Health's community-well programme. Whilst the Ministry officials continued to promote community-well construction, Health Assistants also offered advice on how to best protect family-constructed wells.

Roots of expansion

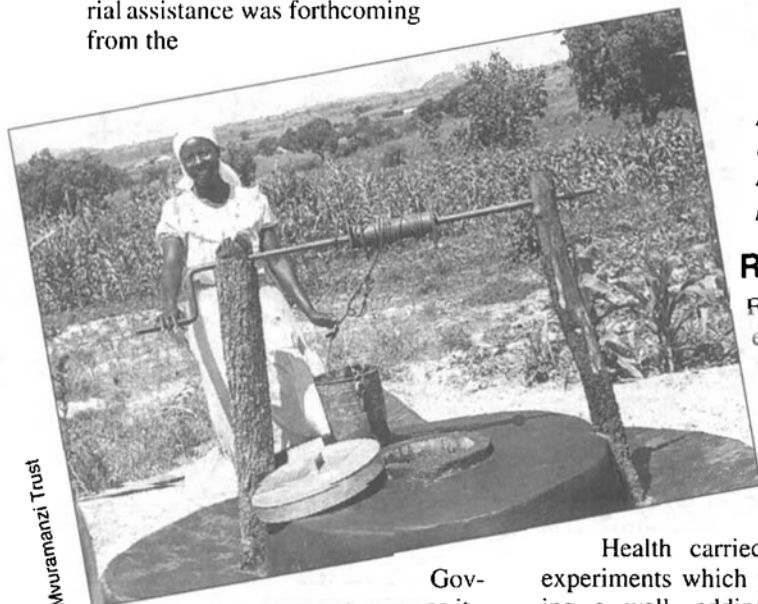
Good ideas multiply and, over the years, many more families dug wells at their own expense. By the mid-1980s, tens of thousands of families were able

to obtain water from their own backyards using simple, improved well technology. But although successful — and much in evidence — these efforts had still not been officially recognized by the Ministry of Health, which continued to concentrate on the protection of community shallow wells. Perhaps, at the time, this lack of recognition was justified. Government policy was aimed at providing water at the community level — family sources were simply not included in the Zimbabwean national inventory of rural water supplies. At this stage, no material assistance was forthcoming from the



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A fairly typical, traditionally upgraded well with raised lining, concrete cover slab, windlass and tin lid (above). An early upgraded family well (left). These wooden poles were replaced by more permanent brick columns.



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Recognition

Finally, towards the end of the 1980s, the Zimbabwean Government began to recognize the importance of family wells. The Ministry of

Health carried out a series of experiments which proved that by lining a well, adding a raised collar, cover, windlass, and then surrounding the well with a hygienic apron and water runoff, the quality of the water could be greatly enhanced. There was lots of evidence that families looked after their own wells, rendering it unnecessary for outside agents, including the Government, to be involved — an important issue in evaluating sustainability.

Standardized well design

As a result, the late 1980s and early 1990s saw the Government design and promote a more standardized, upgraded family well. The well chamber had a more permanent lining, both to reduce the likelihood of collapse and to clarify the water. The well-head became far more hygienic, with the raised collar, apron and runoff diverting wastewater away from the well chamber. The windlass is useful for raising water, but its particular value to the villager is that it stores the chain or rope hygienically when not in use. Without a windlass, the rope or chain ends up on the ground, where it gets dirty. In the modified design, a lid is placed over the well to prevent dust from getting in — it also protects children, and keeps out chickens, snakes, and other trespassers.

In the late 1980s, the Ministry of Health ran a series of small pilot programmes in Zimbabwe's rural areas, in which families were given a material subsidy to assist them with upgrading their own well. The experiment was successful, and communities began to ask the Ministry of Health for more financial help to improve their own wells.¹ Government officials started to look more favourably at this approach, and began to acknowledge what a great national asset the combined family wells represented.

Expansion

Expanded programmes of promoting upgraded family wells have largely been financed through a Harare-based NGO, the Mvuramanzi Trust, established with support from British agency WaterAid in 1991. Over the next five years, over 21 000 family-owned wells were upgraded, serving over 200 000 people.²

Family wells for drier areas — future prospects

Whilst the main thrust of the programme has been in areas of relatively shallow groundwater, there is now a move to encompass village lands which have much deeper groundwater. Most rural integrated programmes introduced in Zimbabwe since Independence in 1980 have included deep well-sinking as an integral part. Many benefits have accrued to the various communities, including training in deep well-sinking, and handling deep well-sinking equipment and explosives for penetrating rock. Now there are pools of highly skilled well-sinkers available for hire to individual families.

Government, nor was it offered by the aid agencies to families who were keen to upgrade their own well.

Even by the mid-1980s many family wells were crudely built. Some were just simple waterholes without any lining, and generally open to contamination. The majority, however, had some protective features. Some were lined but had no other form of protection; a number had a combination of a full lining and a raised collar, while others showed simple — but very crude — aprons. A small percentage had a concrete cover-slab with some kind of simple tin cover over the opening. The most common feature to be found was the rope and bucket used for drawing water. Inevitably, both rope and bucket picked up contamination from the waterlogged areas at the well-head. Such wells were not hygienic.

As indicated above, many families had built improvised windlasses, often mounted over wooden poles positioned either side of the well. Most of the wooden poles were so crudely made, that the rotation of the windlass was less than smooth. Some wells used steel frames with bearings, direct copies of the mining windlass, and these were an improvement.



An upgraded family well in Musami. Solid, dependable — and easy to maintain.

While most shallow wells range between 5 and 15m in depth, they can go down to a depth of 35m. The deep well-sinking programmes have enabled the family well-sinking concept to infiltrate areas like Gokwe, Zvishavane and Nberengwa, which were traditionally classified as dry, borehole/deep-well territory. More and more suitable pockets are being identified in these drier parts of the country. Even in the driest areas, families especially would

see the value of having their own source of water, for which they bear sole responsibility.

Healthy aspirations

Several important lessons can be learned from the evolution of this programme. The first is that the technology promoted in current programmes is an upgraded version of what had been evolving slowly, within the villages, over the course of decades. Even two or three generations ago, Zimbabwean families were building family wells for their own convenience, copying ideas they had seen in mines, on farms and at government demonstrations. In turn, their efforts were copied by neighbours and, thus, family wells became common in areas where the water-table was not far beneath the surface.

More recently, Environmental Health workers have viewed health benefits as their major objective in promoting upgraded family wells, while the villagers see owning a well as a convenience which also improves their status. An upgraded well, standing elegantly within a homestead immediately becomes a centre of attraction, and spurs on neighbours to dig their own well. An element of competition is

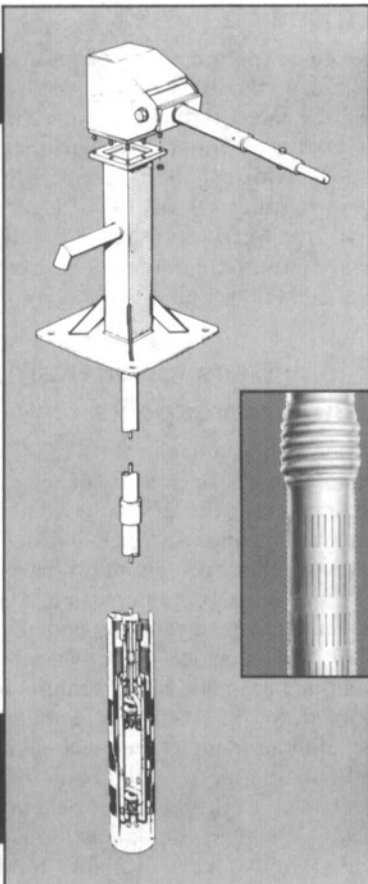
established within the community, and the driving force behind the programme is self-improvement.

The importation of new ideas into the traditional lifestyle of a rural community is an important process which is vital to the development of that community. It is an ongoing process which will continue long into the future. In all likelihood, the ideas being taught in the current well programme will, in turn, be examined by local craftsmen and only the best will be retained and disseminated to future generations.

References

1. The material subsidy was three bags of cement, a steel windlass, and a tin lid per family (equivalent to about £20 between 10 people). Families were selected according to their willingness to dig and construct a new fully brick-lined well, or deepen and line with bricks an existing well; the family must also be willing to supply sand, bricks and stones, and hire and pay a trained builder to construct the new upgraded well.
2. With financial support from Unicef, Norad, Sida, the Oak Foundation and Rotary. The programme was recently described in *Waterlines*, 14, 4, IT Publications, London, 1996.

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