

Pipe dream or pump dream?

by Anthony Waterkeyn

Following on from last issue's theme of replicability, perhaps the best way to achieve a minimum level of sustainability in the operation and maintenance of water supplies is to go back to the smallest unit — the family.

THE ARGUMENT FOR effective operation and maintenance of rural water supply projects has usually focused on the community handpump as the ideal solution. Perhaps if more attention was paid to the family bucket and windlass instead, rural water supply projects might stand a better chance of becoming genuinely replicable and sustainable. Perhaps family-level ownership and management (FLOM!) might be worth pursuing.

From VLOM to FLOM?

Since the early days of the Water Decade, a great deal of attention has been focused on the operation and maintenance of handpumps. Village-level operation and maintenance, VLOM, must certainly be one of the legacies of the Decade. One would find it difficult to argue against the proposition that for the long-term sustainability of safe drinking-water supplies, particularly in remote rural areas, the operation and maintenance of the supply should ultimately be in the hands of the users themselves.

Handpump programmes are frequently planned according to assumptions of minimum life-spans for certain pump components. For example, the pump rod might be expected to have a life of eight to ten years. If in fact the rod fails after only two or three years, then the whole programme is jeopardized. Rural communities are unable to meet the high cost of rod replacement at such short intervals, especially when they have been led to expect that they would only have to replace relatively cheap seals and bushes on an annual basis in order to maintain their water supply for a number of years.

Project planners usually assume that if 'the community' can be trained to operate, maintain, and manage the technology, then it will become sustainable. The trend has been to support 'community' waterpoints with some form of cost-recovery included in the

programme. But in practice how successful has this approach really been? What is the actual life of a handpump, even supposing that it is properly maintained? Can it ever be expected to last a lifetime? If not, how long should it last before it can be termed sustainable? Ten to fifteen years?

Who or what is a community?

It may be quicker and possibly more cost effective in the short term to support water and sanitation for a

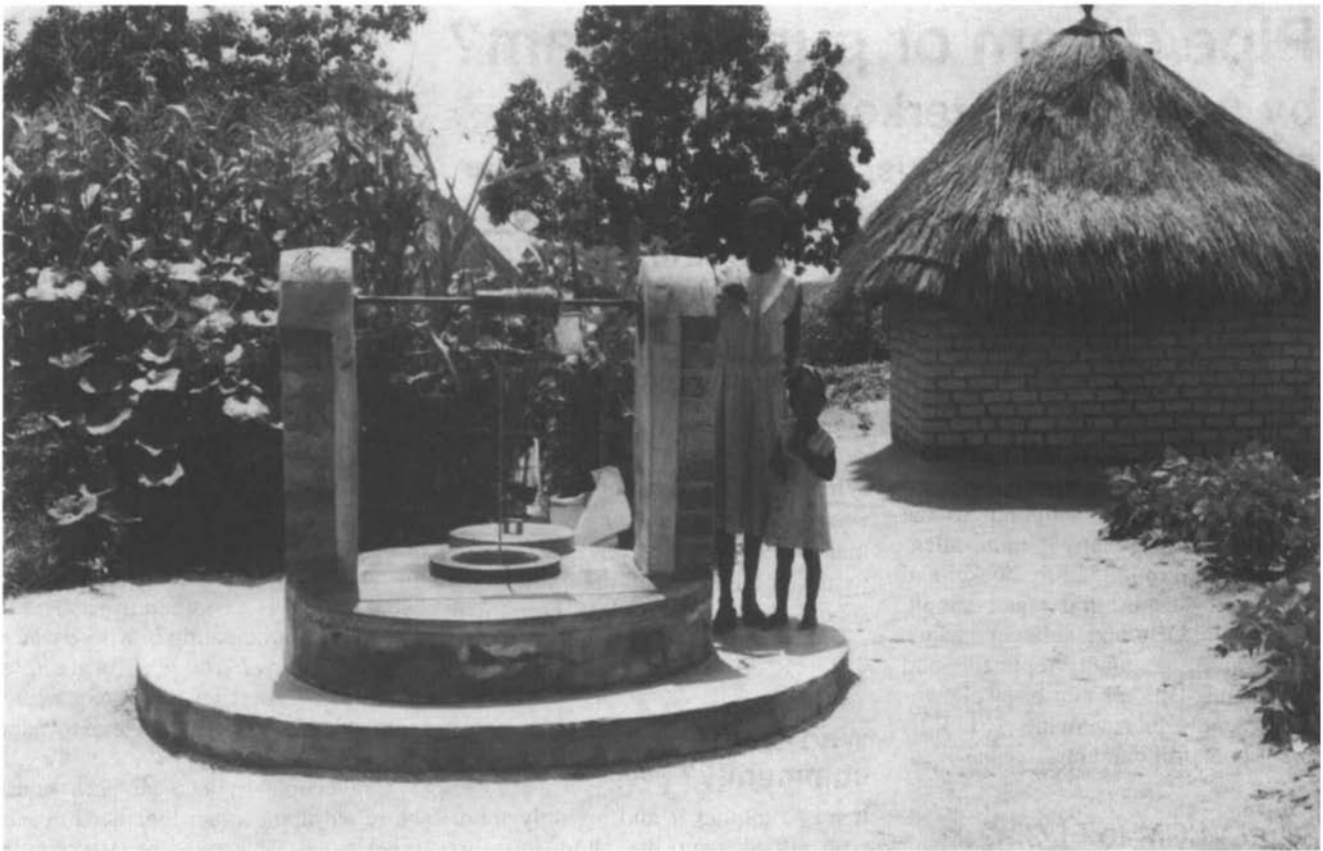
community rather than for individual households. But various false assumptions regarding 'the community' may also have been the cause for an over-simplification of the problem of sustainability. So many of the solutions have been top-down. Projects have often been imposed on individuals and rural villagers by well-meaning governments, NGOs, and donors. The term 'community water supply' is frequently heard, as is the need for 'community participation', 'community management', and 'community ownership'. But the question remains, what or who is a community, and who is actually participating in whose water project anyway? And what of the role of women? Are they genuinely being empowered as managers and owners of the project?

Can people living near each other be relied upon to act together in each other's best interest when they face difficulties, such as when their



Projects have often been imposed on villages, instead of letting the villagers choose their own priorities.

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handpump breaks down? Just because people live near each other, whether it be in a city apartment block or in a rural setting, it may not automatically mean that they are a cohesive, self-supporting group. A woman may bitterly resent her neighbour, perhaps only because she was the one chosen to act as Water Committee Treasurer!

There is also the rather contentious issue that cost recovery is necessary to ensure community commitment and ownership. This is sometimes even directed at the poorest of the poor. Poor rural communities worldwide are understandably suspicious of taking risks in the name of progress. They simply cannot afford to make mistakes with whatever small savings they may have. Unless a water supply can be seen to last a lifetime and provide worthwhile benefits, there is a natural reluctance to invest. Evidence from the World Bank supports this view.¹

Forward to basics

In the last issue of *Waterlines* Ron Bannerman, in his article 'Development and the environment' made the point that 'as we descend the technological scale, we seem to approach sustainability'.² Looking at the problems of technical sustainability this appears to make a lot of sense. But perhaps this same outlook can hold true on the sociological side as well. An upgraded family well has more

chance of long-term sustainability than a borehole fitted with a handpump, and is more likely to be maintained properly by the family who owns it as compared with the 'community-owned' waterpoint. In both cases, it is by descending the scale, both technologically as well as socially, and getting back to basics, that we will ensure more long-term success.

Unsuccessful technologies have to change, whereas successful technologies tend *not* to change over considerable periods of time. Successful examples include the plough, the wheel, and even the bucket and windlass. After all, the bucket and windlass, fitted to a well, is a tried and tested 'technology' going back several thousand years! Only within living memory has it been phased out in the more industrialized countries. The family is the fundamental unit in society. By simplifying the technology and literally homing in on the recipients, are we not in fact going *forward* to basics?

Private ownership

Perhaps far more attention should be given to the idea of supporting, with training and small subsidies, the concept of private ownership of household water supplies. Already, private ownership has been widely accepted as necessary in order to achieve improved sanitation. Individual households are encouraged, and subsidized, to build

their own latrines and to maintain them themselves. Communal latrines have consistently failed to be maintained. Only where they are in an institution where discipline and controls can be imposed, such as a school or clinic, have communal latrines sometimes been effective. The same argument should hold true for a water supply.

An upgraded family well programme

In most countries where the water table is suitable, traditional family wells are already in existence and have been for many centuries. If they are properly lined and upgraded they offer a cheap and viable option for a dramatically improved and sustainable water supply right on the family's own doorstep.³

Evidence is already accumulating in Zimbabwe of an enthusiastic demand for upgraded family wells once one is introduced into an area. It is especially interesting that this phenomenon is taking place in a country with a good record for water and sanitation coverage and where the indigenous Zimbabwe Bush pump has already achieved an impressive nationwide reputation for its robustness over the last sixty years.

The minimal maintenance which is required with the upgraded family well is taken care of by the owner, who has little more to worry about than the

occasional replacement of the rope and bucket. One of the aspects which is stimulating the replication of the programme is that those families with an upgraded well tend to develop flourishing vegetable gardens next to the well. Not only does the family benefit from improved hygiene as a result of the much greater quantity of water used in the home, but there are also improvements in the family's nutrition. Often a powerful incentive is that the family income is increased through the sale of the extra vegetables, which soon offsets the cost of the well construction.

If individual families, district health authorities, and local builders can be shown the benefits of upgraded family wells through demonstration, and a relatively low-cost version is offered as an incentive, a quite remarkable uptake is usually experienced.

The family is ultimately responsible for as much as 60 to 70 per cent of the overall cost of the completed well. This includes digging the well, lining it, providing the stone, sand, and bricks, and paying the trained builder of their choice for the headworks. The cost of the subsidy includes three bags of cement for the headworks, a robust steel windlass, and a tin lid, and it amounts to about £18 per upgraded well, a per capita cost of under £2.

Already there are cases of families upgrading from the windlass to a handpump. Perhaps the next generation may even have solar-powered pumps and possibly even in-house connections — our pipe dreams come true! Certainly, by investing in an upgraded well which is constructed of sound masonry, the family is investing in an asset which could serve them for generations.

The current programme in Zimbabwe, which was originally introduced by Peter Morgan, is now being actively supported by WaterAid. In 1992 the goal was to support a pilot programme with the construction of 1000 wells in six districts. By the end of the year, over 2400 wells had in fact been completed and over 5000 more families were in the process of deepening their wells and constructing the lining in order to qualify for the subsidy.

Our experience has been that as soon as the upgrading of existing wells is introduced into an area, many households are quick to construct new wells in order that they too will benefit from the subsidy. Our target for 1993-4 is to support the completion of a further 11 000 wells, but at the present rate of take up this figure is likely to be exceeded.

Admittedly, the devastating drought in the region last year gave the programme a boost by focusing everyone's minds on how vulnerable the existing water sources were. But when it became clear that despite the greatly lowered water table in most areas, water from the wells was still accessible, the family well programme began to multiply. The one positive thing about a drought is that it provides an opportunity to construct good wells. Clearly, if a well still functions at the end of a drought you can be sure of an excellent well under normal rainfall conditions. When the heavy rains did finally arrive, it was encouraging to discover that the demand for the expansion of the programme into many new districts has become stronger than ever.

The fact that local builders from every district are coming forward to be trained in the technique, and that rural tinsmiths are spontaneously making the well-cover lids and buckets, is perhaps a further indication of just how replicable and sustainable this simple technology could become.

The potential in Zimbabwe is for a substantial proportion of the rural population (perhaps as high as 50 per cent), to be able to benefit in this way. This would greatly reduce the burden on local authorities and enable them to increase their support for handpump operation and maintenance systems in those areas where the family well is not an option.

Upgraded family wells should be the first technical option. Handpumps should only be located in settings where the groundwater is either too deep for wells, in institutions, or where no other alternative is possible, and, in all cases, only where operation and maintenance is assured.

The upgraded family well option may be an example of going back to basics, but it may also be the surest way to long-term sustainability. ●

References

1. The World Bank/UNDP Regional Water and Sanitation Group, Accra, 1991.
2. 'Development and the environment', *Waterlines*, Vol.11 No.3.
3. 'Upgrading family wells in Zimbabwe', *Waterlines*, Vol.9 No.3.



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