



Designing to meet demand: putting users first

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IN 1992, IN A REVIEW OF EXPERIENCE gained during the international drinking water supply and sanitation decade, it was concluded 'the principle lesson is that progress and continuing success depend most on responding to consumer demand' (Cairncross, 1992). It was evident that both water and sanitation systems which did not meet people's demands were experiencing problems of under use, poor maintenance and poor cost recovery. The inevitable result was limited sustainability leading to expensive failures.

Clearly, project designs should reflect the demand of users for the service being provided, not only in terms of its technical characteristics, but also in terms of its management and financing throughout the project cycle.

How to design water and sanitation projects to meet demand is the subject of an on-going research project led by staff from WEDC, and involving project partners in northern Tanzania (Oxfam GB), South Africa (the Mvula Trust and DWAF), Nepal (NEWAH) and India (UNICEF).

The issues being considered do not only include how to meet demand, but also how users can be adequately informed (in terms of feasible technical, financial and managerial options and their characteristics, including their lifecycle costs) and the resulting demand assessed. Another major aspect of the research is to examine how the poor and other marginalised households and individuals can be included in demand responsive projects.

Complementing the research, a set of practical guidelines is to be produced by WEDC next year. These will enable watsan staff, and particularly engineers, to design demand responsive, poverty sensitive projects and programmes. Meanwhile, the various approaches developed by our partners are being reviewed in a series of field studies. As a result, some important issues are being raised.

Experience from the field

It would seem that relatively few projects are actually demand responsive. There are many reasons explaining why. A major factor is that the training of engineers in particular (many of whom go on to become project managers and programme designers) is focused on providing physical infrastructure rather than establishing and meeting the demands of potential users.

For example, an engineer may carry out very precise investigations to determine the yield of a spring or bore hole, and then go on to make sweeping assumptions about how much water households will draw from the taps provided. Often this quantity is extracted from a manual

based on the quantities needed to ensure adequate health, not taking into account more mundane factors such as convenience, location, taste and cost.

One example from Tanzania is the Arumeru West water project, which has been designed to supply 33 litres per capita day from 250 distribution points, to a rural population of over 40,000 in 12 villages. The tariff has been calculated accordingly. In practice, it is possible that significantly less water will be taken. Certainly, the women consulted believed they would take between 4 and 8 buckets a day, depending on how close the tap was to home, compared to the nearest stream (which they would continue to use for washing and bathing). Another water supply project in South Africa, designed to supply 25 litres per capita day through a prepayment system, was actually supplying only 1.2 litres per capita day instead. Here the water is probably too expensive for the level of service being offered (community taps). The fundamental issue for engineers and other watsan staff to consider is how much water from the scheme is actually going to be used by households, rather than the capacity of the infrastructure provided.

In order to understand use, it is necessary to find out what sort of service householders (both men and women) want and are willing to pay for. In other words, it is necessary to assess demand. Various methods have been developed to do this, and each has advantages and disadvantages, as described by Parry-Jones (1999). For example, by offering householders a number of options and explaining or demonstrating their major characteristics, they will be in a position to at least choose the one they prefer. This process certainly lends itself to an adapted sanitation or water ladder, both of which are established participatory tools. In fact there are opportunities to develop a raft of participatory tools to help inform and assess demand. The key point is that they are both appropriate and understandable.

A related example from South Africa is the Ubombo Family Wells Programme being implemented in northern KwaZulu Natal. Originally conceived with a particular technology and level of service in mind (the family well), the programme is now in a position to offer households a choice of technologies including dug wells and tube wells. These are either shared or individually owned, and can be equipped with anything from a bucket to a solar powered pump supplying water to the house via a roof mounted tank. Individual households can choose what they want and can afford. Future upgrading is a possibility.

By comparison, in other parts of South Africa, a national system has been established that 'delivers' a single level of service (a community tap no more than 200 metres from each household). Yet there is now considerable evidence that what most households actually want is a yard tap. In many cases, households have bought and fitted unofficial private connections. With no meters, water use is high and systems have crashed. In areas such as northern KwaZulu Natal, households are scattered and cannot afford the cost of a private connection unless it is paid for by instalments. However, few credit or savings schemes are available. As a result, the great majority of piped water schemes in South Africa are proving to be technically unreliable or financially unsustainable. Offering options in the way described requires increased inputs from engineers and technical staff in particular. It also requires staff to have an appreciation of social, financial and technical factors, and to work together as a team rather than individually. The project's management structure has got to be sufficiently responsive to enable this to happen.

Such an approach also assumes that watsan staff are aware of a wide range of options and their characteristics, including their life cycle costs, and are able to adapt standard designs to suit local demand. As already mentioned, it is not just technical options that may need to be considered. How something is paid for and managed may be just as important as how it is physically delivered from the consumer's point of view. In practice the technical, financial and managerial options are interrelated and must be considered together.

So far, the examples considered concern water supply rather than sanitation. There are, if anything, more examples of demand responsive sanitation projects. This is associated with the fact that it is often the case that households are often expected to pay for their own toilet, or a significant proportion of it. In KwaZulu Natal, South Africa, the Mbila sanitation project requires that households are responsible for building their own toilet superstructures. Exactly how they do this is up to them. The substructure is however provided using the government subsidy. Local builders have been trained in a range of options and techniques, although as long as the final result is effective, the owner will get a R100 deposit returned whatever the design or materials used. Households can thus determine what sort of toilet they want.

On a visit to the project it was striking that the great majority of toilets are not only well built - out of materials ranging from reeds to cement blocks - but also how clean they are and the evident pride of their owners. The project may not be as quick as some would want (in particular, the donors!) but is one of the most effective in the province. In fact, pressure from the donor has resulted in the sanitation committee selecting households who have collected sufficient funds up front to complete the superstructure, rather than randomly selecting the names of interested house-

holders from a hat. As a result, the social equity of the system has been reduced at least for the time being.

Other lessons have been learnt from other projects. In Ndala ward in the town of Shinyanga, Tanzania, a market toilet has recently been completed. Again, indirect donor pressure to achieve concrete results may have been a factor. Located next to a new garbage transfer point (because that was the only land available), the standard VIP toilet block features four cubicles, two for men and two for women. The men also get a urinal. It would seem that there are just as many women as men using the market. A significant proportion of the local population is Muslim and judging from their domestic arrangements may prefer to use water for anal cleansing, but none has been provided for this purpose. Indeed, there are at the moment no hand washing facilities. The local committee has decided to charge all users Tz 100/-. This would seem expensive, especially for women and children who may have to ask a husband, brother or father for cash. Maybe women would prefer to use a separate toilet, managed by a woman, rather than a single block with provision for both sexes. The point is that without consulting users, the potential use of the toilet, and its financial sustainability, can only be guessed at.

At a different level, institutional toilets near markets, bus stands and clinics have proved very successful when users, rather than physical infrastructure, have been put first. Some of the toilets and associated facilities have become social marketing points to promote domestic sanitation. In fact, it may be possible to demonstrate different domestic sanitation options in this way.

The poor without

One particular concern often voiced about demand responsive projects is that poor communities and households can end up being excluded. Certainly, this is an important issue that needs further investigation. Many of the more demand responsive programmes such as those of Mvula Trust and WAMMA in Tanzania require that interested communities apply for development assistance, having already established a water or sanitation committee and saved up a proportion of the associated capital costs. Although the Mvula Trust specifically targets smaller rural communities, ultimately some communities may get left out due largely to their physical isolation.

An example is Kwamvutshane, an isolated rural community located in the extreme north east of KwaZulu Natal. The cost of getting an engineer there in order to conduct an initial feasibility study was so high that not one company was prepared to do so. This was despite the fact that members of the community had been very active in eliciting support. Although demand may be indicated by an up-front contribution, it cannot be responded to if engineers and others risk financial penalties if they take up such work.

The poor within

The need to identify and include the poor within communities is often overlooked. A study of rural infrastructure projects implemented in Africa found no mention of steps being taken to identify who these people may be. Very few evaluation studies raised the issue at all (Derbyshire et al, 1997).

During an evaluation of a WaterAid supported programme in Tabora, Tanzania (Sakafu et al, 1999), it was recognised that the poorest members of a rural community were excluded from a new water supply because they could not always afford to buy water. Their income was seasonal, based mainly on selling mangoes, and at times was insufficient. In practice, it is often assumed that the poor are 'looked after' by other members of the community. This may or may not be the case. However, unless projects make a positive effort to investigate this issue, no one will know and assumption will take the place of fact.

The way forward

This paper is not intended to produce answers: that would be premature. It is hoped it will provoke some thought about adopting a demand responsive approach and the issues involved. By the time the paper is presented, the field investigations will have been completed and work started on producing a research paper and the associated guidelines. It is then planned to present these in draft form to our partners, before they are finalised in the second half of next

year. If you are interested to find out more, you can e-mail the authors at WEDC:

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