



## Self-supply in Mali

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**Although a long way off achieving the water-supply MDG through communal sources, Mali has a well-established tradition of people solving their own water-supply problems by using traditional wells. A survey reveals that improved wells are often preferred to borewells, and that the quality of the water is often good.**

The *Direction Nationale d'Hydraulique* (DNH) of Mali calculates a shortfall of some 40 per cent (or some 1.6 million people) in its progress towards reaching the water millennium development goal (Target 10, MDG 7, to halve by 2015 the proportion of people without sustainable access to a safe supply of drinking water). As a result, debate is opening up to consider the alternatives.

One option is to introduce principles of self-supply. Mali has a well-established tradition of people solving their own water supply problems, with over five million rural people (over 60 per cent) using traditional wells<sup>1</sup> and most of these being privately owned and shared with neighbours. Over 200,000 such wells exist in rural and peri-urban areas,<sup>2</sup> serving an average of 30 people and providing water conveniently close to households.

Mali has a governmental water policy which encourages communities to choose a level of supply they can afford to contribute to and maintain, making them aware of different levels of supply linked to increasing capital costs and community contribution. The minimum approved level is that of a 'modern well' (*puits moderne*) with full



A traditional well in Bourema Theiro, Sampaga, Mali

lining, pulley, bucket and rope, the highest level of supply including pumps driven by solar power. The question is, whether there is a place for building more on what people have already invested in, and on a sizeable pool of artisanal skills and small-scale entrepreneurship connected to water supply in order to maximize the number of people with improved supplies, extending options and contributing to several of the MDGs.

Many new boreholes with handpumps and high-cost community 'modern wells' (MW) are being built, and improvements are being carried out to raise family wells to a similar standard (improved traditional wells, ITW), turning them into communally managed systems. These improvements are usually at such a cost that they are not possible without outside funding. To explore the potential for the self-supply approach, WaterAid together with the Ministry of Health (Environmental Health Section) carried out a survey in the communities of Koulikoro region (which has over 70,000 family wells), funded through RWSN/ WSP.<sup>3</sup>

### People's preferences

A survey of communities without a protected supply asked for their preferred option, but without linkage to comparative costs:

- 65% of people preferred a modern well (MW), or an improved well (ITW, which consists of wellhead protection only)
- 21% preferred a borehole and handpump (HP/BH)
- 14% preferred a borehole and solar pump.

Reasons for choice include: breakdown and costs of handpump (40% are not working nationally), taste of water and wish for 'modernity'. There was also wide interest in further investment, especially in low-cost pumps. Choice might be further skewed in favour of modern or improved wells if cost considerations and issues relating to private or communal ownership had been included.

### Indicative costs

Supply costs are high in Mali, especially where drilling or much cement is needed (see Table 1). But most well owners have already spent \$75–200 on the excavation of their wells and often \$25–40 on a concrete surround. They have therefore already spent amounts in the range of most low-cost improvements.

### What are the benefits of self-supply?

Communal systems, of economic necessity, are built to serve an average of 400 people, but this may mean a considerable walk from house to the

Table 1. Comparative costs of water supply installation in Mali

Supply type	Unit cost (US\$)
Solar pump and borehole	60–80,000
Borehole with handpump	12,000
<i>Puits moderne</i> with pulley	6–10,000
Improved family well, meeting DNH present standards	2–6,000
Self-improved family well with low-cost pump	350–450
Self-improved family well with pulley	150–300

# Sustainable rural water supply

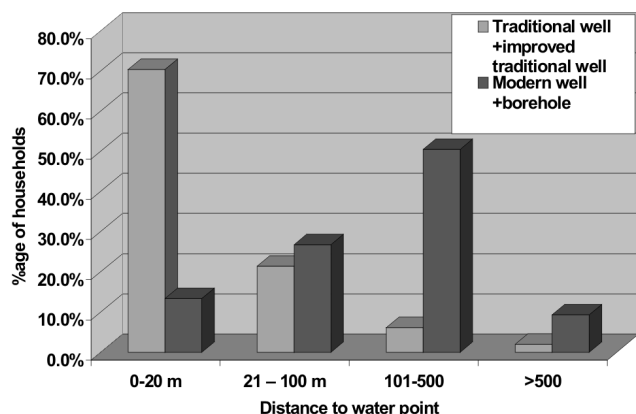


Figure 1. Distance between households and waterpoint

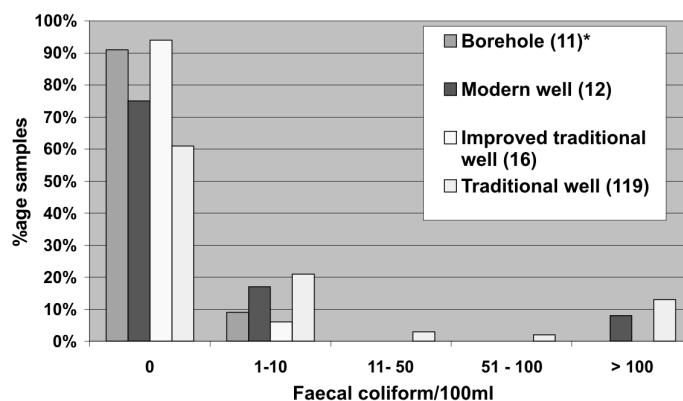


Figure 2. Water quality (faecal coliform) for different source types

supply. Family wells will usually be closer (see Figure 1). Their convenience has several benefits, reducing the burden on women in water collection through shorter distances, but also through men being more willing to collect water if they are not going to be seen doing so when the well is within the compound.

If water is close by, people are found to use more of it. The amount of water consumed averages 10 litres/person/day when the source is more than 500m away, but rises to 18 litres/person/day when it is closer than 100m.

Water quality might be expected to be jeopardized through lower cost and less protection. While technical guidelines are needed, 85 per cent of unprotected sources have less than 10 faecal coliform/100ml (see Figure 2), suggesting that good hygiene in drawing water may be as important as the structure itself in protecting source water quality. (In rural areas the aquifer itself is seldom contaminated by faecal matter.) Protection is most needed for those few wells (13 per cent) that show high contamination (over 100 FC/100ml). Collection and storage practices among

those studied were also generally good: 77 per cent of household water samples having zero FC/100ml and only 15 per cent with more faecal coliform in the drinking water container than in the source. Household and source chlorination are also practised by some, and their good example can be built upon.

Water is also regarded by government and users alike as being of economic benefit. The survey revealed that 57% of respondents had used supplies for watering animals, 44% for vegetable gardening, and 24% for making bricks. Almost all of these enterprises are privately, not communally, owned.

## Government perspective

The Ministry of Health supports source protection, improved storage and chlorination as risk-reduction strategies, encouraging a self-supply approach. DNH regards handpumps as the preferred level of service provision for rural areas, but is keen to lead in the exploration of lower-cost solutions and, as a result of the study, to see to what degree private initiative can be included in the drive for an acceptable improved supply. There is therefore an evolving partnership between government ministries, WaterAid and UNICEF, planning to pilot an incremental range of alternatives, and building up technical support in government and the private sector to assist those investing in water to do so at a low risk and with improved ability to generate income.

## Conclusion

Individuals have invested heavily in water supply already and appear to be

prepared to do more. Government acknowledges the need for a choice of technology. The main constraint is the lack of information for all stakeholders and the lack of advisory and financial services and equipment (low-cost handpumps, moulds, water filters etc) that would allow replicability with little subsidy, and hence a potentially rapid increase in improved supplies. For an enabling environment, the development and testing of options in financing, management, private-sector support as well as in technologies, are needed before considering going to scale; and this the government is planning to start immediately. Mali could therefore lead the way for West Africa where private traditional wells are a common feature.

## Notes

1. DHS (2001) *Demographic and Health Survey Mali*, Demographic and Health Surveys Macro-International Inc.
2. Ministère des Mines de l'Energie et de l'Eau (2003) *Plan National D'Accès à l'Eau Potable 2004-2015*.
3. Maiga, H., Maiga, B., Diallo, M. (2005) 'Etudes de faisabilité de l'auto promotion des systèmes alternatifs d'approvisionnement en eau en milieu rural au Mali', WaterAid Sept 2005.

## About the authors

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Most people in the survey preferred a modern well or high standard improved traditional well, such as this one