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### *Self supply in Mali: early steps towards an innovatory approach*

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**Citation:** OSBERT, N. and SUTTON, S., 2009. Self-supply in Mali: early steps towards an innovatory approach. IN: Shaw, R.J. (ed). Water, sanitation and hygiene - Sustainable development and multisectoral approaches: Proceedings of the 34th WEDC International Conference, Addis Ababa, Ethiopia, 18-22 May 2009, 5p.p.

**Additional Information:**

- This is a conference paper.

**Metadata Record:** <https://dspace.lboro.ac.uk/2134/29949>

**Version:** Published

**Publisher:** © WEDC, Loughborough University

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Please cite the published version.

**34th WEDC International Conference, Addis Ababa, Ethiopia, 2009**

**WATER, SANITATION AND HYGIENE:  
SUSTAINABLE DEVELOPMENT AND MULTISECTORAL APPROACHES**

**“Self supply” in Mali:  
Early steps towards an innovatory approach**

*N. Osbert, Mali & S.E Sutton*

REVIEWED PAPER 318

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*The introduction of a new concept cannot be rushed. It is necessary to go through a process in which stakeholders have the opportunity, at various stages, to assess its relevance to them as members of government or local administration and, most of all, as end-users. Mali was one of the first countries to start this process with respect to Self Supply in rural water. The experience there has helped define the process and gives encouraging signs for its potential. This paper looks at the progress thus far, the response at grassroots and national levels and plans for the future, but also identifies some of the challenges that need to be tackled.*

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### **Background**

‘Self Supply’ is a concept which builds primarily on user investment in incremental improvements to rural water supply (RWSN 2007). This can help in increasing coverage of improved supply but also contributes to almost all eight MDG goals. To date, user investment has largely been ignored, but the many family wells and small supply improvements made across Africa, and even more in South-East Asia and the developed world, suggest that there is a growing desire to improve supply where governments are not yet able to provide the level of service people feel they are able to sustain.

The process of integrating new approaches into rural water supply strategies follows a sequence that requires continuous monitoring.

#### **The 6 p’s - Steps towards self supply scaling-up**

- Potential – scope, demand, physical suitability, links and possible conflicts with government policy
- Piloting. – testing and demonstrating possible solutions, monitoring impact and user satisfaction / lessons learnt
- Package – developing models relevant to geographic, socio-economic and political conditions
- Policy and plans- integration of self supply into policies and plans for scaling up
- Promotion /partnerships– a continuous advocacy and communications process with government, donors and NGOs to encourage assessment of relevance and effects on policies, budgets and plans.

In Mali, there are over 25,000 boreholes and protected wells and over 200,000 traditional wells. That is one traditional well for about every 30 people. However, the National Directorate for Hydraulic (DNH) estimated in 2005 that approximately 40% of handpumps were not working, reducing operational protected supply to 15,000 for a rural population of over 8.5 million.

The Joint Monitoring Program (JMP) estimated the coverage in rural area for 2006 at 48% (*Progress on Drinking Water and Sanitation, JMP 2008*) and the need for additional strategies was acknowledged by the DNH to sustain progress towards reaching the MDG target.

## Potential

A study of the potential application of this concept was carried out by WaterAid and the National Directorate for Health (Public Hygiene and Health Division –DNS/ DHPS) in 2005. It was funded by WSP (Water and Sanitation Program, World Bank) and assisted by the Rural Water Supply Network (RWSN). This study indicated that major investments by users in their own supplies and included initiatives to support both low and high cost methods of up-grading their supply. Such efforts in risk reduction were strongly supported by the health sector, even for low cost options (*puits amélioré* or *aménagé*), whilst the water sector generally favoured higher cost solutions. Household Water Treatment and Safe Storage (HWST) was included alongside source improvement.

## Water quality and reliability

The study (Maiga et al 2006 (1,2)) included 169 waterpoints, the majority being traditional unimproved water sources. Of the traditional wells gross contamination was found to be rare, with 83% having less than 10TTC/100ml (thermo-tolerant coliform) even in the rainy season. High contamination (>100 TTC/100ml) was found in 13% of wells, which should perhaps be the first to be targeted by any attempts to promote improvement. The study revealed that levels of risk could be reduced further by upgrading traditional wells to *modern wells* (fully lined wells) or simply to *improved wells* (head protection only) as almost all improved wells tested (96%) had less than 10 TTC/100ml. Samples were too few to show whether the higher investment in modern wells (10-20 times more) was justified on quality grounds, but initial results tended to indicate that it was not.

Just over two out of five traditional wells were said to have gone dry in the previous year, but over half of all family wells had been re-deepened (at a cost of \$50-100 a time), and 82% were regularly maintained. Thus, investment in supply was continuous.

## Ownership, water consumption and treatment

Most traditional wells are privately owned. Family ownership is very highly valued, both for the flexibility it gives the owner in what the water may be used for, and for the control it gives him or her, over the management and improvements they may wish to make. People look for a return on their investment; 57% of supplies were used for watering animals and 44% for irrigation. Of these 85% were family-owned rather than communal water sources. Thus improved access to water is viewed as a key area for personal investment and is also one which strengthens ownership by being visible and bringing status.

Provision of water at household level improves access allowing not just multiple uses but also increased domestic use. Reducing the distance to water with family wells meant that 70% of people were within 20m of a waterpoint and 91% within 100m, compared with 60% of communal well users who were more than 100m from a supply. Those within 100m of a supply used almost twice as much water in the home as those walking more than 500m, but it may also be that at that distance people tend to wash clothes at the source rather than carry water home. Water close to the home is much valued for privacy, safety for children not abandoned during water collection by the mother and reduced time taken in collection.

Surveys were carried out in 254 households and these showed that whilst only a small proportion (5%) carried out HWST in most areas, 25% carried it out where focused promotion had been done, especially in cholera epidemics. Also, 25% of well owners chlorinated their wells. Since then DNS has included HWST in its policy and it is now being strongly promoted. There is, therefore, an understanding of health risks associated with water, and apparent interest among consumers to reduce those risks in a variety of ways. This is illustrated by the fact that only 15% of households showing any increase in TTC from the water source to point of consumption, suggesting generally good practice in drawing, transport and storage.

Local government was not found to be geared to the development of such private supplies. Decentralisation generally leaves local government with inadequate resources, unless donor funds come in, and these usually need to be spent quickly and so favour high cost solutions. So any development based on private investment will need to market itself not just to users, but also to local and national administration, and include training of artisans and others in the private sector.

## Piloting

### Activities

The results of the study on the potential of this concept were discussed in workshops with national and regional bodies (DNH and DNS) in 2006-7, and their generally positive assessments led UNICEF and WaterAid to support them in piloting Self Supply with NGOs in 2007. This started in seven districts, and has led to the completion of 137 improved supplies. In addition, since WaterAid worked mainly with local administration (communes/ mairies) and UNICEF with DNS and local health committees, a wider range of local government representatives have become aware of this approach.



**Photograph 1. Improved well with local pump.  
Well head protection by owner, pump provided by WaterAid**

Source: Sutton

Progress was reviewed by Sutton (2008) and shows that demand for improving domestic wells has been high and user acceptability generally good. Most improvements were to well head protection and water is still drawn by rope and bucket. Several owners who improved their supplies talked of plans for further improvements to build on those already made, and several neighbours have already contracted the trained artisans to improve their wells at their own cost. Two well-diggers/masons reported some 70 requests for post-piloting assistance in well-improvement. More water quality data is needed but samples of 22 improved supplies showed only one with TT coliform and this at a relatively low level (20/100ml).

In contrast to previous initiatives to improve traditional wells, the idea of piloting has been less the completion of improvements than the building up of local capacity to respond to grassroots demand from well-owners and the establishment of a ladder approach, where people are aware of options that can follow. These include household water treatment, improved lifting devices and water storage for agricultural as well as domestic use. Over 50 well-diggers/ masons have been trained in well-head protection, with many of the same technical elements as the construction of Sanplats and pit latrines.

### Planned next steps

#### *Evaluation of effectiveness, impact and acceptability*

Based on the two year introductory phase, a sound evaluation will be implemented especially to look at :-

- Availability/sustainability of the technical service provided by local skilled masons and well-diggers
- Attitudes of local administration to the inclusion of Self Supply and the degree to which they include it in their planning/ provide advisory support/financing
- Affordability/acceptability to users/ owners and growth in demand for improvement resulting from demonstration wells, social marketing implemented by trained masons, and hygiene education implemented by health workers

- Water quality: in targeted districts, compare water quality in protected/improved/unimproved wells and households

According to the results of this evaluation, the strategy for self-supply will be adapted, focusing on the resolution of observed bottlenecks.

***Improvement in the communication/social marketing/sensitization components of the strategy***

Having an efficient communication strategy is key to success for self-supply. Evidence of economic benefits and water quality/safety needs to be valued by targeted households/communities. This provides many parallels to Community Led Total Sanitation (CLTS) and requires many of the same skills, suggesting common strategies could be developed.

***Introduction of new technologies in household water treatment and water lifting***

HWTS can efficiently improve water quality and reduce diarrhoeal diseases. New low-cost technologies (e.g. making chlorine through electrolysis) that are safer and cheaper than the traditional promotion of bleach will be introduced in some pilot districts. Promotion by local traders, schools, traditional leaders and health posts will be developed alongside production and quality control. Another technology option may be the strengthening of rope pump production and marketing, depending on the results from piloting in Gao (Oxfam and ACF).

**Advocacy**

A key element to going to scale is government recognition of the value of incremental improvements in access and water quality. Partnership with government in the proposed evaluation will allow an objective assessment of the approach and provide evidence for use both locally and internationally. Key issues, such as effect of full lining, rope pump versus conventional piston pump, and impact of HWTS can be addressed and assist government in its debate on strategies to reach the MDGs and in local planning.

**Conclusions**

The piloting has revealed certain situations where Self Supply would be particularly relevant in Mali and in other countries. These include -:

- Small villages ('hameaux') with too few people to sustain a conventional piston pump (common in Mali)
- Communities with too many users per conventional pump (>300) (common with a policy of 400/ pump)
- Dispersed households with adjoining land for vegetables or other crops/ brick making, or many animals, for water dependent income generation
- Groups/ households which feel able to support a higher level of service than the public sector can provide at present.

It has also highlighted certain areas requiring more attention to form a package for scaling up. These include:

- The form and establishment of advisory services (coordination between local administration, health, traders, artisans) for low cost well-head protection, phased improvement and source hygiene, water lifting devices – from pulley to solar pump and HWST
- Marketing strategy and skills for promoting water supply improvements to households and decision-makers/ budget setters
- Finance mechanisms for those unable to afford even phased improvements
- Impact assessments to provide data from which decision-makers can evaluate the degree to which Self Supply can assist in improving coverage, respond to grass roots demand and be included in policy
- Widening the range of people aware of the approach to enable a movement to scale, if justified.

Overall, initial results indicate a popular demand in Mali for small-scale supply improvement. Well-owners are people with initiative and regard their own supply as an asset worth investing in. This ownership and initiative is common throughout rural Africa and could be more widely built upon.

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