



Towards the Ethiopian goal of universal access to rural water: understanding the potential contribution of self supply

Executive summary

This summary is based on Working Paper 23 Towards the Ethiopian goal of universal access to rural water, available for download at: www.rippleethiopia.org

Research-inspired Policy and Practice Learning in Ethiopia and the Nile Region (RiPPLE) is a Research Programme Consortium funded by UKaid from the Department for International Development and led by the Overseas Development Institute (ODI) in partnership with IRC, Addis Ababa University, WaterAid Ethiopia and Hararghe Catholic Secretariat

Traditional (family) well development in SNNPR

- Findings of this study are based on surveys and sampling of 438 drinking water sources in SNNPR including 345 unprotected or semi-protected traditional 'family' wells, 35 rope pumps and 58 protected 'community' wells with handpumps. Household surveys targeted families that owned or shared traditional wells to access drinking water with a total of 128 households sampled. Surveys were carried out by regional, zonal and *woreda* level staff from BoWR and health extension services. Government participation in the study, including release of staff for the surveys by their respective offices and the use of BoWR equipment, is gratefully acknowledged.
- Many hundreds of family wells were found in the four study *woredas* of Aleta Wendo (Sidama zone), Boloso Sore (Welayta zone), Meskan (Gurage zone) and Chenchu (Gamu Gofa zone). However relatively few of these traditional wells were used as drinking water supplies on a regular basis. This is because households often use protected supplies where they are available for access to drinking water, or go to specific traditional wells regarded as providing the best water.
- The present level of family well development is almost totally through householders' own initiative. In Boloso Sore there has been some encouragement to improve well head protection through the Productive Safety Net Programme, and a few rope pumps have been installed through *woreda* and JICA-supported initiatives, but overall the present



spread and functioning of family wells is a result of personal resourcefulness and generally without advice or outside support. Such resourcefulness is shared by giving neighbours access to the well in almost all cases. On average, 'family' wells are shared by six households.

- Traditional unlined wells were found to be remarkably long-lived, with over half being more than ten years old. A high proportion provided a reliable supply in all the four *woredas* (80% wells on average), and especially in Meskan where 92% were found to have never dried in the previous five years. Traditional wells are dug without de-watering pumps so



benefit from deepening in particularly dry years to reach below the normal seasonal water levels. Well owners generally provide regular cleaning out of wells and deepen them when necessary. Reliability was markedly improved by deepening. Half of the wells that had been deepened were found to no longer dry up.

- Traditional wells cost an average of about \$50-100 to construct, including the materials, labour and rope and bucket. Most well owners were found to have kept costs low by participating in excavation. Addition of a rope pump cost about \$150-300. Judging by previous levels of investment, incremental improvement for around \$100-200 appears to be affordable to existing well-owners.

- Traditional well ownership is not confined to the most wealthy or well-educated. Over half of the

wells visited were owned by families in the lowest two quintiles in wealth ranking and a third of owners were illiterate.

- Family wells bring major advantages in increased food security, health, school attendance and better childcare according to well owners. More animal watering and crop production seem to be the two major economic changes which follow from more easily accessible water.

Supply performance and benchmarking of family wells

- Comparisons were made between the supply delivery of traditional unprotected wells, rope pumps and protected wells with handpumps with a particular emphasis on water quality risks. There is an improvement in water quality as one moves up the technology ladder from the most basic traditional wells to protected wells fitted with handpumps, but even these do not reach the high levels of consistent good quality which would be expected. Only 47% of handpumps sampled in the study provided bacteriologically uncontaminated water, and 73% had low levels of contamination (<10 TTC/100ml).
- Even with no protection, a significant proportion of traditional wells (19%) were found to be with low contamination levels and this rose to 34% where simple measures had been

taken (semi-protected wells) to reduce the return of spilt water or run-off to the well.

- Among wells delivering water of highest risk (>50 TTC/100ml) conventional handpumps were found to be only marginally better (4%) than traditional wells with a parapet and small apron.
- No traditional wells or rope pumps were found to have proper well-protected headworks to avoid the return of dirty water to the well. They were at best semi-protected. Traditional well owners had had little advice on simple measures of protection, and almost all were looking for technical advice and ideas on what to do.
- Most rope pumps (even when known to be used for drinking water supplies) were poorly installed in terms of the wellhead being sufficiently above ground level and top slabs with spilt water taken off to a pit, soak-away or area of plants to absorb waste water. At least half had been installed primarily for irrigation purposes although most were also used for domestic purposes.
- Water quality overall indicated the effects of poor site hygiene and in some cases of poor installation design or practice. Improvements in water quality require good training of masons for wellhead protection and of pump installers for good alignment of wheels, ropes and sealed top slabs. Improved water quality also requires good hygiene education of well owners and users.
- Sanitary surveillance systems used as standard at present give an acceptable indication of risks to water quality for standardised handpump installations. They are less reliable for rope pumps and very unreliable for traditional family wells. For these, new systems of assessment are needed (and are at present being tested in the second round of sampling).
- Half of all households were familiar with household water treatment (HWTS), with almost a third having used chlorine products for disinfection. Few practice HWTS regularly at present but previous experience could be built on if relevant products were made more easily available in the market place.
- If functionality of water lifting devices is combined with reliability of the source, protected handpump supplies were found to be providing a slightly less year-round delivery of water than traditional wells.
- From the well users' point of view, water quality is only one aspect of their water supply. Long-term reliability, adequacy and convenience, reflected in user satisfaction are all integral parts leading to a sustainable and valued supply. Different types of supply also fulfil different purposes and can, as a whole ensure adequate supplies for all domestic and hygiene purposes through conjunctive use where one supply (particularly communal ones) may not be sufficient on its own.



Recommendations

- A decision should be taken by policy makers on what level of risk is 'acceptable' for family wells (i.e. for calculating coverage with safe sources based on National WASH inventory data) while promoting movement up the water supply ladder. The findings in this report and associated studies provide significant improved information to support this decision-making.
- The rope pump should be promoted as a significant improvement on semi-protected traditional wells and an acceptable level of service, but only with new guidelines on installation and site hygiene. It should first be promoted as a family level solution rather than for large groups.
- Whilst much can be done through upgrading to higher technology levels, attention needs to be given particularly to quality of construction and site hygiene for all types of installation. Measures needed to improve communal source protection and hygiene are also appropriate for family wells and should lead to significant reductions in risk for all, at relatively low cost.
- An impermeable parapet and apron (>0.5m wide) with drainage could be regarded as a minimum level of family well protection. It may be possible to aim at achieving a household level for a water quality of <10 TTC/100ml initially in 50% of cases, aiming for 90% within five years.
- The role of government in accepting and accelerating household investment in water supply should be clarified further, based on the new WASH implementation framework (MoWE, 2011). Government's role in community water supply development and maintenance is well-established. However to promote and support small scale private investment in water to improve service and increase coverage requires different roles and strategies at all levels of public service.
- At least two of the *woredas* identified as having most potential from the surveys in Oromia and SNNPR should be taken as preliminary areas for developing and testing the best ways to plan, accelerate and monitor private investment in household water supply.



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