

GLoWSPROS presents problems and potential solutions that have been developed in the context of the capacitybuilding programme Guided Learning on Water and Sanitation (GLOWS) in Ethiopia. This programme adopts a problem based approach in which participants together with community members identify key water, sanitation and hygiene (WASH) problems and possible solutions. In this process they receive external support from staffs from Technical and Vocational Training Centres (TVETC), Water and Health Bureaus and staff from core partners in the GLOWS programme. As a result of this process WASHCOs and Kebele leaders initiate actions that help to improve their WASH conditions, sometimes adopting very creative solutions for their problems. To make this wealth of experience available to others short write-ups are developed called GLOWSPROS (GLOWS Problems and Solutions), to help others to learn from this experience.

Handpump repair comes late

Introduction

Many handpumps show poor performance and can remain unrepaired for weeks or months. This is found to be the case in several of the GLOWS assessments in communities in Ethiopia. The problem is not just that handpumps remain unrepaired for weeks when they stop working, but before that moment comes they are already showing poor performance thus increasing the efforts of users to pump water and also increases their waiting time (Figure 1). In fact most problems in handpumps occur because of normal wear and tear of cup seals and washers, which is unavoidable and therefore needs to be managed (Figure 2). Leaking pipes and cracked cylinders are less common, but may occasionally occur. A reduced flow from a pump therefore will usually be the result of problems with the cup seals or the valve in the piston. Another cause for reduced pump flow may be a falling water table, which may even lead to a complete stop of the flow if the water level drops below the cylinder.

So not only is it important to quickly repair pumps but also to detect and remedy sub- standard pump performance.

The main challenges

The root cause for sub-standard pump performance is the lack of monitoring and timely replacement of worn parts or other repairs. An important support mechanism is to introduce a system to regularly check pump performance by exploring.

- The number of strokes it takes before water starts flowing in the morning or when the pump has not been used for some time. This should be a one or two stroke. If it takes longer the foot valve may be leaking.
- The time it takes to fill a jerrican and whether this time increased since the pump was installed or repaired. Users may give a fair indication and if it takes longer then the cup seals may need replacement.

Possible solution

The most important aspect to introduce in handpump water supply is adequate monitoring. The caretaker needs to monitor the pump on a regular (weekly) basis and needs to know the minimum acceptable performance before maintenance needs to be carried (Table 1). For some pumps (for example those having an open top cylinder) the caretaker can do the maintenance



Fig 1: Some handpump systems in Ethiopia



Fig 2: Cupseals and footvalves need monitoring

directly provided spareparts are available for other pumps the caretaker has to inform a technician or the Woreda team that the cupseals and washers need to be replaced within a period of one or two weeks. This type of monitoring will greatly facilitate timely maintenance and sustained performance of the handpump. Hence the pump caretaker and the WASHCO need to understand the need for monitoring adopting a schedule as indicate in Table 1.

Ensuring access to spare parts

A related issue that needs attention is the access to spare parts. Often these are only purchased when pumps need repair or sometimes even when the pump is already dismantled. Yet this may be precisely the moment that these parts are out of stock at the woreda level and then may need to be purchased from further away involving more time and more cost as a special trip needs to be made. The most crucial spare parts such as cupseals and washers are cheap and so it is a good option for the WASHCO or the caretaker to keep a double set in the community and at the moment that one set is used for pump repair to use the first opportunity that somebody travels to the location where spare parts can be bought to give them the worn parts and let them purchase a replacement. In this way there will be no extra cost for travel and there always will be at least one set of crucial spare parts in the community.

Table 1: Monitoring schedule for a handpump

Key monitoring items	Desired Situation	Actions to take if conditions are not met
Pump performance	Check weekly	
Discharge of the pump (time to fill a jerrican of 20 litres (same person stroke speed some 40 per minute)	T < 30 sec (time needs to be adapted to local conditions).	Schedule the replacements of the cup-seals (if needed inform a mechanic to come within one or two weeks; (If possible check water level in well during repair to ensure that reduced pump performance it is not caused by falling water table)
Discharge of pump (number of strokes it takes to start the water flowing after a short rest)	0 < N < 3	Schedule the repair of the foot- valve (inform the area mechanic that he needs to come within a week
Technical condition (No major dif- ficulties e.g.no play in handle, no loose bolts, no corrosion etc.)	Pump ok	Do regular maintenance (greasing) and inform mechanic when problems occur

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