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GLOWSPROS presents problems and potential solutions that have been developed in the context of the capacity building 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.

Multiple Use Systems (MUS)

Introduction

Multiple use of water supply systems is common in Ethiopia. Two clear examples are water ponds which are used for cattle, human consumption and sometimes also for small plot irrigation, and shallow wells with rope pumps many of which were built in the first place for small scale irrigation, but are also used for cattle and human consumption. For piped systems multiple use may be more limited as people need to pay per jerrican and as a result try to minimise water use from these systems. They may use it for drinking water and in the dry season for cattle and perhaps also for water seedlings.

The main challenges

The main challenges for multiple use systems are water quality and the continuity of supply. Ponds usually are seasonal and this implies that other water sources must be available in the period that ponds are dry. Water in ponds is not bacteriologically safe as the water runs over the surface to the pond and picks up contamination and also in many cases people and animals are in direct contact with the water in the pond. Shallow wells with rope pumps may also have water quantity problems, but also water quality problems. Unfortunately many of these pumps are installed at a level

below the surrounding area to allow run-off water to enter into the well. For agriculture this is fine, but for drinking water this entails an important problem of contamination.

Possible solutions

In the case of the rope pump it is essential to first do a good sanitary inspection to establish all possible source of contamination. If indeed for example the slab is lower than the surrounding area than it may be explored if the installation can be adjusted to avoid run-off water entering directly into the well. This may already provide a considerable improvement of the water quality and may even result in not needing any other action but to operate the pump properly and perhaps some disinfection after maintenance and repair.

As an alternative it can be suggested to introduce some household treatment such as the use of chlorine, or even cheaper solar disinfection.



A rope pump is often a MUS

In the case of ponds it is not realistic to expect that protection measures in the area that feeds the pond will result in the pond water becoming safe to drink. So in this case two options may be available. Either the community takes a limited volume of (paid) water from an improved water source for drinking and use the pond water for other purposes such as washing of cloths.

Another option is household water treatment. But in this case it may be anticipated that the water in the pond particularly when it rains can be quite turbid. This turbidity first needs to be reduced by sedimentation or often better by filtration through a cloth or the use of a sand filter. Yet this will not be enough because cloth filtration, but also a household sand filter, usually do not sufficiently remove bacteria and viruses and so an additional treatment is needed which may be solar disinfection, chlorination or boiling.

A point to take into account as well is that the people that use the pond for domestic use, should be encouraged to explore the direct collection of rainwater from the rain or from the roof. This water will be of much better quality than the water from the pond even if collected from the roof and particularly after the first rain has cleaned the roof. Still however it may be good to use solar disinfection. Water directly collected from the rain in rural areas is suitable for drinking without treatment provided the recipients used for its collection were clean.

It may also be worthwhile to explore if some productive water use can be introduced such as growing tomatoes or other vegetables. This will require some water particularly in the dry season, which may have to be paid for. This is interesting as it may help to sustain the pumped system with the income that is being generated with this water.



Small vegetable plot

Further advice may also be needed on other measures such as improved rainwater catchment for crops and more efficient water use in small plot irrigation to avoid wastage of water and fertilizers.

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