Water point hygiene and good sanitary practices – key to groundwater protection

A case study from Zambia

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In 2006 Water Aid undertook a rigorous testing of ground water quality involving 58 water points (WPs) in its operational area in Zambia where sanitation facilities entirely consist of on-site dry pit latrines of varying depths but up to a maximum of 3 meters. Open defecation was also quite common. The study brought some interesting findings.

Rope and Buckets on Ground

No Well Cover

A large number of WPs (41%) showed faecal coli form (FC) contamination of varying degrees but higher than the acceptable range <=15FC/100ml. A detailed analysis was done of the sanitary risks in the water points that showed FC contamination.

A number of sanitary risks were identified that can be broken up into two categories: Social and Technical. Social risks can be attributed to lack of motivation/will power of the community to act on issues like stagnant water, inadequate fences and soak-aways, solid waste and rope and bucket contamination. Technical risks comprised issues around poor design and/or construction, namely: apron cracks, inadequate apron diameter, inadequate/ cracked parapet, latrines nearby, and hand pump loose at point of attachment to apron.

The following sanitation risks can be considered technical risks but are exacerbated by social risks (examples shown in photos).

Stagnant water

Cracked Apron/Parapet

Rank of risk	No of WPs affected	SANITATION RISK
1	29	Inadequate fence, allowing animals to use WP and threaten water quality
2	33	Inadequate soak-away, either non-existent or insufficient to drain water in a hygienic manner
3	18	Stagnant water at or surrounding the WP, within 20m radius
3	18	Solid waste (animal excreta/rubbish) within 10m that could act as a source of pollution
5	8	Cracks in apron that potentially threaten the water quality or integrity of the system
5	8	Inadequate apron diameter (<1m)
7	6	Rope and bucket exposed to contamination (i.e. lying on ground)
8	4	Latrines within 30m and/or uphill
9	3	Height of parapet inadequate or parapet cracked
10	0	HP loose at point of attachment to apron

Table: Details of Water Aid Zambia supported WPs with Identified Sanitation Risks

Animal Feaces/Rubbish

The social sanitation risks were evident in many cases where FC contamination was prevalent. Where a community felt that water point protection was important and took measures to protect their safe water supply, FC contamination was within limits. In cases where WP hygiene was seen as a low priority most social sanitary issues were neglected. The lesson is that if a community doesn't openly display enthusiasm for WP hygiene, it is likely that most categories of sanitary risks will be neglected on an on-going basis affecting ground water quality. WPs with low daily yield and limited recharging were found with FC contamination. Many of those dry up at critical times.

Stagnant water

Stagnant water

Significant changes in water quality was noticed after Water Aid made technical changes by installing hand pumps on hand dug wells and focused more on hygiene education and better point - of - use water handing practices. This ensured better care of the WPs. WaterAid is planning to undertake activities such as small dams, rainwater harvesting closer to WPs to enhance ground water recharge in order to achieve water quality and security

No parapet
