WATER QUALITY STUDY IN MULTIPLE USE SERVICES

EXECUTIVE SUMMARY

The primary goal of the USAID West Africa Water Supply, Sanitation, and Hygiene Program (USAID WA-WASH) is to increase sustainable access to safe drinking water and sanitation and improve hygiene in West Africa. Knowing that potable water and sanitation is a vital sector that cannot be ignored in poverty reduction and living standards improvement, especially in rural areas, USAID WA-WASH introduced in its intervention areas, in partnership with Winrock International, the water Multiple Use Services (MUS) approach.

The MUS approach is an alternative model for water service provision in developing countries that involves planning, financing and management of integrated water services for domestic and productive uses (drinking, hygiene, sanitation, health, agriculture, and livelihoods). The approach aims to introduce economically viable self-supply technologies and/or techniques that enable rural households to sustainably and equitably improve their access to water, income, health, hygiene, and food safety.

Unlike the expensive conventional boreholes and unhealthy traditional wells, low-cost hardware (systems), namely the drilled-wells and manual direct boreholes promoted under the MUS approach intend to reduce the daily chores of populations. The infrastructures are affordable and enable access to safe drinking water while helping address the inadequate spatial distribution and the low coverage of modern water points.

To ensure this activity which was implemented in the Centre, the Centre-Ouest and the Boucle du Mouhoun regions of Burkina Faso is effective and beneficial, a study was conducted on the physical, chemical and microbiological quality of the water provided to communities. Using the MUS approach, a rigorous five-step methodological approach was developed and implemented, including: site selection and water point location; diagnosis of the cleanliness of water points; analysis of water samples in the laboratory; results interpretation and report writing. The water quality of a select number of MUS systems in three regions was analyzed and compared to control water supply sources like traditional wells and conventional boreholes.

In terms of results, the physical and chemical analysis of water in targeted areas revealed that the majority of the water samples had values up to standard on. However, it came out from the bacteriological analysis that 100% of the control samples are contaminated. The analysis showed very high levels of bacterial contamination. This is due to the fact traditional wells are in open air and often without edge and thus exposed to any form of pollution caused by dust, streaming water, and poor maintenance. Concerning the physical and chemical conditions, most of the traditional wells are not properly constructed and/or have some defaults resulting in collapses that cause or increase water turbidity. Regarding the MUS wells, namely drilled-wells and boreholes, results are satisfactory both on the physico-chemical and bacteriological ground. More than 94% of water samples are up to standards. This high compliance rate is explained by the fact that all boreholes constructed in the intervention areas are definitively closed with an apron before the installation of the rope-pump and they are regularly treated.

As far as the conventional boreholes are concerned, more than 90% of the selected boreholes for the study provide safe drinking water. Indeed, given the depth of these boreholes, the risk of water contamination is low. However, without proper monitoring, conventional boreholes face a real hygiene problem that may lead to bacterial contamination. Also, apart from the nature of the soil which is the cause of the turbidity and/or the high content of iron in the water, conventional boreholes are most often equipped with galvanized pipes which contribute to degrading the water quality. Under the effect of the water aggressiveness, the galvanized pipes undergo corrosion which degrades the water quality over time.

Based on the results, the USAID WA-WASH's MUS hardware, through the quality of the water they are providing, their easy access and their low implementation cost, would be enough to replace the classic boreholes, taking into account the need for better spatial distribution of drinking water points across localities. Definitely, MUS low cost hardware suits and better meet the rural people expectations by providing them with good quality water, relieving them from the daily water chore, and finally, reducing the use rate of traditional wells which provide low quality water as pointed out by the study.

Based on the study findings, the following recommendations are formulated: (1) ensuring immediate disinfection of water points after any repair or maintenance to avoid bacteriological contamination; (2) encouraging repairers to have a stock of chlorine to ensure at all times the treatment of water points; and (3) raising households awareness on water treatment methods at home, using Aquatabs products for example.

As far as the persistent turbidity of water at certain points is concerned, there is a need to provide assistance to beneficiaries, by encouraging them to use temporally, a filter until water becomes clear. Finally, households' awareness should be raised concerning the potential of water contamination by livestock wandering around the water points. Thus, there is need for the households to build fences around water points to avoid access and contamination by animals. It is only through clean water points that communities will access clean and safe drinking water.

This is an executive summary of a February 2015 report. The full report is available (in English) upon request via our website. For more details about our program activities and other reports please visit http://wawash.fiu.edu/.

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