

An Assessment of the Quality of Drinking Water Supply in Urban Ghana and its Effects on Health (The Case of Teshie)

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ABSTRACT

Teshie is a Ga fishing settlement along Ghanaian the coast of the Gulf of Guinea. The area has been without any proper water supply for the past 20 years. Due to the perennial water shortage in the community, people in Teshie depend mostly on water supplies from private water companies (tanker supplies) and store the water in storage facilities like polyethylene and cement tanks for long periods of time. Storing water over long periods of time has been documented by some researchers to reduce water quality. Some inhabitants of the community also depended on shallow private hand-dug wells. The shallow nature of these wells could therefore lead to contamination from the environment. This study was conducted to identify the physical, chemical and bacteriological quality of these water sources, the extent to which guideline values had been compromised and how, even more importantly, if compromised standards was affecting the health of the people of Teshie. A total of 19 sampling sites were visited on monthly basis for six months. Twelve out of the 19 sites were from treated sources and the remaining 7 samples were taken from wells. In all 114 water samples were collected over the six month period. The water samples were analysed for different physico-chemical and bacteriological parameters to ascertain extent of deviation from WHO and Ghana Standard Board guideline values. A social survey was also conducted by way of questionnaire administration, interviews and observations, to determine the economic status, sources of water supply prevalence of water borne diseases and willingness to pay attitudes in the study area. Evaluation of the water samples showed that the quality of treated drinking water (pipe and tanker supplies) consumed by the urban population of Teshie through physico-chemical and bacteriological analysis was somewhat satisfactory as most of the parameters were within WHO guideline values. However evaluation of the ground water (well) samples through physico-chemical and bacteriological analysis indicated highly unsatisfactory water quality as most of the parameters were above WHO

guideline values. In effect the quality of the treated water samples was better than the ground water samples. From the questionnaire survey it was found that the people had two sources of drinking water, pipe and wells. People were concerned about the quality of water they were consuming and were aware of the existence of waterborne diseases. Waterborne diseases were found to be prevalent in the area. Inhabitants were of the low income status and were unwilling to pay for improvement in water quality. It was evident in this study that there was potential for contamination of water supplies during transportation from the source / treatment points through the distribution channels before it reached the consumer, also contamination increased over long periods of storage; storage tank cleaning reduced the rate of microbial contamination and water obtained from shallow ground water sources ought to be treated before consumption in order to reduce the potential health risks associated. Based on the results of this study, it was recommended that Ghana Water Company should ensure regular supply of water to homes so that consumers will not be motivated to store water in tanks. It was also recommended that elevated storage tank owners should clean their tanks 3 or more times per year in order to reduce bacteriological contamination. In order for well contamination and consumption to be reduced it was important for community authorities to come out with specifications for well installations (strata penetration, depth of digging and other materials) or for them to destroy most of the wells in the study area.

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