

Water Usage Survey and Promotion of Sustainable Utilization of Water Resources In a commercial building complex at Yakkala

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Abstract

Water usage surveys and water quality assessments have become a major requirement in the present context in Sri Lanka due to growing pressure on water resources caused by population and economic growth, increasing urbanization, increase of pollution, climate change and various other challenges. These are posing a severe threat on the quantity and quality of the water resources. The degradation of the quality and quantity of available water resources have caused the increase in the cost of water treatment. Also improper usage and misallocations of water resources have caused scarcity of water. Therefore, considering the growing problem of water scarcity, misallocation of water resources and non-sustainable water usage practices and the lack of awareness among people on water conservation, this project mainly focused on conducting a water usage survey in a multi-storied commercial building complex, and thereby identifying the ways of occurrence of water wastage and encouraging that organization to conserve water by the implementation of sustainable water management practices. The source of water for this complex is from municipality supply and they have three major tanks to store water. This study was done with the objective to assess the various water usages within the commercial building and to identify, quantify water losses and rectify them with creating awareness among the water users. In this study a questionnaire was distributed to each of those shops in order to assess the knowledge of people on conservation of water resources and sustainable usage of water and their problems in that shopping complex on water usage was also identified. The drinking water quality within the premises was continuously assessed using the physical, chemical and biological parameters. The physical parameters analyzed were pH, temperature, total dissolved solids (TDS) and salinity. The chemical parameter analyzed was dissolved oxygen (DO) and a fecal coliform test was performed as a biological indicator to find out any occurrence of fecal contamination.

The results showed that in most of the shops, the consumed units of water has decreased from the pre-awareness period to the post-awareness period. This shows the effectiveness of the awareness program and leak rectifications. The results of the survey showed that with the rectification of water losses from the delivery system and the creation of awareness among the water users, the total overall consumption of water has decreased during the period of this project. There was significant temporal variations in the temperature, DO, pH, TDS and salinity. Fecal coliform test showed negative results for all the samples.

The results of this baseline study suggested that, identification of causes of water wastage, prioritization of causes, creation of awareness among users, rectification of leakages and implementation of water conservatory practices ensures the optimum consumption of water resources and there by paves way for sustainable usage of water.

Keywords: Water scarcity, water usage survey, water quality