

**ANALYSIS OF DRINKING WATER AND HEALTH SURVEY OF
THREE SELECTED SITES IN THIRUVANANTHAPURAM DISTRICT**

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SUMMARY

Access to safe drinking water is important for health and hence is one of the important concern of every nation. Kerala is rich in fresh water resources compared to other states in our country. Analysis of various physicochemical parameters in the drinking water samples (tap water) collected from the three selected sites of the Thiruvananthapuram District showed difference in the value at various sites. This could be due to the seasonal variations causing changes in the parameters of raw water and also due to difference in the site of the natural water source. Potable water was supplied in the study areas by the Kerala Water Authority. The water supplied is filtered and treated before being pumped to the distribution system. The analytical report clearly states that the potable water supplied through the piped system to these sites is safe as per the existing standards prescribed by various statutory bodies and Health organizations.

Samples of selected ground water sources were subjected to physicochemical and bacteriological analysis. The majority residents used the tap water for both drinking and domestic use and hence ground water used occasionally. Physicochemical parameter values of ground water sources in the study sites showed difference in the site wise and month wise comparison but all were within the tolerance limits. Almost all the wells were having a good water table which points to the natural gift available in these urban sites. Most of the wells showed high level of coliform contamination. The contamination of the wells is mainly due to anthropogenic activities. This point to the necessity to protect these neglected natural water sources by treatment and regular monitoring. These water sources can be utilized in the city areas during summer season or at times of water scarcity and thereby the use of tap water can be minimized and limited for drinking purpose only and can be distributed to other areas lacking the ground water source.

Physicochemical, bacteriological and biological analysis of the surface water bodies flowing through the study sites was carried out. Natural fresh water bodies, if unpolluted are of good quality and can be consumed without treatment. The current study showed that these inland water bodies are highly polluted and had poor status of water quality. Killiyar and Karamana River, the two major rivers with a number of smaller streams and channels flowing through the various spots of the city are being affected due to disposal of solid wastes into these water sources by the public. The study shows that the discharge from the canals remain in the river water for a very long time due to heap of solid wastes which affect the free flow of water and makes these water bodies stagnant on its way which leads to bacterial contamination. The present study also gives a clear evidence of the variation of pollution levels in the same water body at different locations due to irresponsible way of waste disposal. Bacteriological analysis report indicates a high index of both Total and Fecal coliform. Bacteriological and physicochemical analytical report clearly confirms the degradation happening to the various fresh water surface bodies flowing through the urban sites of the city. The natural fresh water resources mainly being used for drinking purpose are not only being polluted but also create an unhealthy environment in the urban areas.

Planktons collected from the surface water bodies from the selected sites were studied to understand the diversity and abundance of these organisms in the various water bodies since planktons are used as an index of water quality with respect to various kinds of pollution. Plankton diversity showed maximum phytoplanktons and less number of zooplanktons in all the surface waters. The presence of several phytoplanktons which serve as “bioindicators” of the water pollution along with the physical and chemical qualities and bacteriological reports give a clear and supportive evidence of the pollution status of the water bodies.

Health survey report did not point to any negative aspect of the water contamination in these sites which points to the significant laudable effort on the side of the Government Authorities in providing clean potable water to the well being of the people which made them minimize the use of ground water and surface water sources.