Impact of Seasonal Variations and Anthropogenic Activities on Ground Water Quality of Developing Urban centre in Maharashtra Region, India

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There is no doubt that water and sustainable development are closely linked. Once viewed as an infinite and bountiful resource, water today defines human, social, and economic development. Without adequate supplies and management of fresh and salt-water resources, socio-economic development simply cannot take place. Bhusawal, Ahmednagar and Bhiwandi are one of the developing urban centres in Maharashtra region with nearly four laks of population in the city area. These cities are having different climatic conditions with different annual average rainfall. Among these three cities Bhusawal and Ahmnednagar comes under water scarcity zone with very low annual rainfall with depleted groundwater table. In addition to this poor water conservation approach enhance the drinking water scarcity problem during the summer season in the all the urban centres.

The nala water streams were selected for the surface wastewater sampling. Total 12 locations in each city were selected for the groundwater as a representative samples. The wastewater analysis carried out immediately after the sampling according to Standard Methods suggested by APHA & AWWA, 1998.

It was observed that all the nalas is having higher COD and BOD values with higher amount of total solids. Among the groundwater sample analysis it is observed that the dug-wells are having higher pollutional load (higher COD and BOD values) followed by bore well water samples. During the analysis remarkably bacterial pollution was observed in groundwater samples. This may indicates that there are chances of surface water infiltration in the groundwater at sampling locations. The groundwater samples also shows higher amount of chlorides in almost all groundwater samples. From the above wastewater and groundwater analysis we may conclude that the anthropogenic activities among the residential areas of these cities and poor drainage system leads to the groundwater pollution problems in the urban centre.

Keywords: Groundwater pollution, surface water pollution, water quality, Anthropogenic activities and water quality.