

## Groundwater Geophysical Studies in the Developed and Sub-Urban BBMP Area, Bangalore, Karnataka, South India

**Authors :** G. Venkatesha, Urs Samarth, H. K. Ramaraju, Arun Kumar Sharma

**Abstract :** The projection for Groundwater states that the total domestic water demand for greater Bangalore would increase from 1,170 MLD in 2010 to 1,336 MLD in 2016. Dependence on groundwater is ever increasing due to rapid Industrialization & Urbanization. It is estimated that almost 40% of the population of Bangalore is dependent on groundwater. Due to the unscientific disposal of domestic and industrial waste generated, groundwater is getting highly polluted in the city. The scale of this impact will depend mainly upon the water-service infrastructure, the superficial geology and the regional setting. The quality of ground water is equally important as that of quantity. Jointed and fractured granites and gneisses constitute the major aquifer system of BBMP area. Two new observatory Borewells were drilled and lithology report has been prepared. Petrographic Analysis (XRD/XRF) and Water quality Analysis were carried out as per the standard methods. Petrographic samples were analysed by collecting chip of rock from the borewell for every 20ft depth, most of the samples were similar and samples were identified as Biotite-Gneiss, Schistose Amphibolite. Water quality analysis was carried out for individual chemical parameters for two borewells drilled. 1st Borewell struck water at 150ft (Total depth-200ft) & 2nd struck at 740ft (Total depth-960ft). 5 water samples were collected till end of depth in each borewell. Chemical parameter values such as, Total Hardness (360-348, 280-320) mg/ltr, Nitrate (12.24-13.5, 45-48) mg/ltr, Chloride (104-90, 70-70)mg/ltr, Fe (0.75-0.09, 1.288-0.312)mg/ltr etc. are calculated respectively. Water samples were analysed from various parts of BBMP covering 750 sq kms, also thematic maps (IDW method) of water quality is generated for these samples for Post-Monsoon season. The study aims to explore the sub-surface Lithological layers and the thickness of weathered zone, which indirectly helps to know the Groundwater pollution source near surface water bodies, dug wells, etc. The above data are interpreted for future ground water resources planning and management.

**Keywords :** lithology, petrographic, pollution, urbanization

**Conference Title :** ICEWRM 2015 : International Conference on Environment and Water Resource Management

**Conference Location :** Tokyo, Japan

**Conference Dates :** May 28-29, 2015