

## RELATION BETWEEN DEPTH AND QUALITY OF GROUNDWATER SOURCES, RAIPUR (C. G.)

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### Abstract

Underground water is one of the major sources of fresh water. 9.86% fresh water is found from 0.8 km. depth, 12.35% from 0.8 km. to 4 km. and rest below the earth surface. The source of underground water is the infiltration from surface water. Primary sources for TDS, Salinity and Conductivity etc. of underground water is receiving from agricultural and residential runoff, also point source water pollution discharge from industrial or sewage treatment plants. Geogenic causes are responsible for quality of underground water (e.g. leaching of soil contamination). The study area of Raipur extends from 21°13' N to 21°18' N Latitude and 81°31'E to 81°39' E Longitude. Geologically lime stone and shale of Raipur belong to Chandi Formation of Chhattisgarh Supergroup and occupies the study area. This study is based on the relationship between depths of ground water sources and it's quality. 3 different types of places (e.g. Urla Industrial Area, Bhatagaon Agricultural Area and Tatibandh Agglomeration Area) of Raipur have been considered to ameliorate the understanding of the impact of these 3 types of environment on the groundwater sources. 15 Groundwater samples from each type of area (Total 45 samples) having different depths were collected.

TDS, Salinity and Conductivity show mutual sympathetic relations except in Bhatagaon Agricultural Areas, where it shows relatively higher Salinity in comparison to TDS and Conductivity. Except Salinity of the Bhatagaon at all the places (three areas) TDS, Salinity and Conductivity shows concordant relationship. Water of the study area is feebly acidic to alkaline nature (pH 5.3 to 8.09). Total Dissolved Solids do not show any logical relation with the depth of the bore well, however in residential area the TDS remain within 0.5 ppt., in Bhatagaon Agricultural Area TDS is below 1.0 ppt. and in Urla Industrial Area with a much higher TDS 1.5 ppt. This variation may be due to the geogenic and anthropogenic activities. The ground water from these 3 areas is suitable for drinking purpose.

*Keywords:* Ground Water Quality, Depth of source.