Aquifer system of Chattishgarh

Ever increasing demand for ground water resources in hard rock regions of the State with limited renewal potential poses a serious threat to ensure sustainable development of ground water for its judicious use in various sectors. This precious resource needs to be managed judiciously to ensure adequate supplies of dependable quantity and quality. It is a natural resource with economic, strategic and environmental value, which is under stress both due to changing climatic and anthropogenic factors. Shortage of ground water in hard rock areas is well known due to its limited areal extent in secondary porosity generally developed due to weathering, fracturing, jointing, faulting, etc. within the hard rock formations which are sparsely distributed.

Chhattisgarh after carved out from the State of Madhya Pradesh on 1st November, 2000 has taken quantum leap in various developmental activities which fulfilled the long cherished aspirations of the local populace. The State richly endowed with natural resources is also true in respect of its water availability as almost 80% of the population is dependent on agriculture and allied activities for livelihood. It is pertinent to mention that water being a catalyst for development of the State is never understated as Chhattisgarh is known as rice bowl of India.

As per the 2009 assessment, jointly done by the Water Resources Department, Govt. of Chhattisgarh and Central Ground Water Board, Raipur, the annual replenishable ground water resource has been estimated as 12.22 billion cubic meter (bcm), out of which 11.58 bcm is considered to be available for development for various uses after keeping 0.64 bcm for natural discharge during non-monsoon period for maintaining flows in springs, rivers and streams. Out of 146 blocks, 38 blocks have stage of development within 30 to 50%, 25 blocks within 50 and 70%. Only 15 blocks have attained stages of development more than 70%. Rests 68 blocks have stage of development within 30%. The State as a whole has a stage of development of only 31.04%, 14 have been categorized as semi-critical from ground water development point of view.

In order to initiate the preparation of the aquifer atlas of Chhattisgarh, the geological map of 1:2,50,000 scale (GSI) was used as base map for identification of lithounits which in turn helped in delineating the principal aquifer systems in the State. Subsequently, these principal aquifers were further sub-divided into major aquifers based on the surface and sub-surface data generated by the CGWB through its ground water exploration programme. The base map of major aquifers in turn was utilized for generating various thematic maps by superimposing the diverse aspects that are essential for preparation of aquifer management plan.