

Review of Water Supply Management in Lucknow City: Potential and Possibilities of Ground Water Resource.

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Abstract

Lucknow Jal Sansthan started water supply through pipeline in Lucknow city in the year 1892-93. Thereafter the Lucknow Jal Sansthan (Aishbagh water works) also increased its capacity continuously and it reached 172 MLD in the year 1975. Then another water works of 70 MLD capacity was constructed at Balaganj, Hardoi road. In the year 2001, Lucknow Jal Sansthan's total capacity of two water works was 245 MLD and additionally it was using 170 MLD of ground water through 300 tubewells for water requirement of Lucknow city.

The population of Lucknow city, being capital of the state is increasing at a very fast rate. The population of Lucknow city has increased by 3.56 times during last four decades i.e. 40 years. The population of Lucknow city was 22.46 lacs in the year 2001 and is 29.00 lacs as per census, 2011. Thus it has increased by 1.29 times during last ten years.

In the year 2012, Lucknow Jal Sansthan's two water works capacity is 250MLD. It may be mentioned that 3rd water works of 80 MLD capacity has been commissioned but is in trial stage and not yet handedover to Lucknow Jal Sansthan. Therefore presently Lucknow Jal Sansthan's water works capacity using surface water is 250 MLD and additionally it is using 374 MLD of ground water through about 660 tubewells for water requirement of Lucknow city. In this way Jal Sansthan's dependency on ground water has increased too much in Lucknow city during last ten years. The ground water requirement by Jal Sansthan has gone up from 170 MLD to 374 MLD i.e. by 2.2 times during last ten years.

Ground water level of Lucknow city is decreasing at very high rate. One of the main reason is much extraction of ground water in Lucknow city by Jal Sansthan. Apart from extraction of underground water by Jal Sansthan, private builders/colonizer are also using ground water through bore wells/submersible pumps in the Lucknow city. Thus there is too much extraction of ground water for drinking water and other purposes in Lucknow city.

Therefore it is suggested that Lucknow Jal Sansthan should use more and more raw/surface water after treatment for drinking water purpose both way by enhancing capacity of Aishbagh and Balaganj, Hardoi road water works and by installing two or three new water works in Lucknow city. It is learnt that Lucknow Jal Sansthan has already started working in this direction. The work for increasing capacity of two water works viz Aishbagh (by 45 MLD) and Balaganj, Hardoi road (by 100 MLD) is going on. The third water works of 80 MLD capacity using water of Sharda Canal has already been commissioned. The proposal of few more water works is under consideration.

Keeping in view fast depletion of ground water level in Lucknow city and as per recommendation of Central Ground Water Board, the 1st aquifer may be tapped only in the outskirts of city area in the north, north eastern and part of city area. In other words shallow tubewells may be constructed in this area. To meet the water supply in Lucknow city, the deep tubewells may be drilled by Lucknow Jal Sansthan in the northern and southern end of Lucknow city and water scarcity problem can be minimized with the help of these tubewells.

Key Words: Lucknow Jal Sansthan (Water Works), Surface Water (River Gomti), Ground Water, Population, Hydrology, Ground water level, Land use.

Introduction

Lucknow Jal Sansthan, an autonomous Organization of Government of U.P.(now under Nagar Nigam, Lucknow), is entrusted with the responsibility of providing safe and potable drinking water to the inhabitants of the city. The water supply through pipelines was started in Lucknow in the year 1892-93. At that time, the population of Lucknow was about 2 lakhs only. In the beginning, the slow sand filters were constructed with a capacity of 3 MLD. The lifting of water was done by the steam