

DATA BASE MANAGEMENT FOR LONG TERM GROUNDWATER LEVEL
TRENDS IN UTTAR PRADESH

R.P. Agarwal*, J.N. Rai** & Nusrat Zaidi***

ABSTRACT

The indiscriminate utilisation of water resource has created many adverse effects on the natural environment, such as water logging problem, development of Reb deposit rendering fertile land into Usar, and depending of water level. The present paper deals with the changes which have taken place in the hydrological regimes of U.P. with the growth of developmental activities in the field of irrigation specially through groundwater. The data base system (D.B.S.) composed of Data file and programme file have been utilised to store the water level data and retrieve the same to evaluate the changes in hydrological regime. For the purpose, the available water level data of 564 points, well spread over the 50 districts of U.P., for the period 1981-90 have been subjected to time series analysis to assess the effect of recharge and discharge conditions. The water level trend for pre and post monsoon seasons have been analysed over the period 1981-90 and corresponding changes with respect to 1981 situation have been worked out. The trend analysis have been done by simple linear regression of water level data with respect to time.

The analysis of water level trend has shown a general decline in the water level over the larger parts of State of both the seasons (Pre and Post-monsoon). By and large the decline in premonsoon level between 0 and 2 metres is shown by 60-80% of observation wells. The decline in premonsoon level of higher magnitude is prominent in Western parts of the state. The rising trend mostly between 0 and 2 metres are observed in 20 to 40% wells. The rising trend is mostly confined as isolated patches in eastern U.P. and along Tarai Bhabhar belt in Western U.P. The post-monsoon level in wells show a declining trend, over the larger parts (50 to 80% area) of the state, of the order of 0 to 2 metres. The rising trend is mostly confined in eastern U.P. specially in Sarda Sahayak, Gandak Command and parts of Sarju command. Besides, rising trend has been observed in isolated patches over. Ganga-Ramganga Command in West U.P. and Betwa-Jamuna command of parts Bundelkhand region.

* Sr. Hydrologist, Central Ground Water Board.
** Scientist 'C', Central Ground Water Board.
*** Scientist 'B', Central Ground Water Board.