

## **Evaluation of ground water potential of silabati river basin, West Bengal, India**

Sanjoy Ganguly  
*Presidency College, India*

Groundwater plays an immense role since the advent of civilization. So, exploration of groundwater emerges as topmost priority for socioeconomic development by agricultural growth, industrial production and the other various purposes. Groundwater utilization in Silabati river basin, southwestern part of West Bengal, eastern outskirts of Chhotonagpur plateau, India has been emerging rapidly in the wake of increasing population as well as growth of agriculture after green revolution. The present study investigates the groundwater potential of Silabati river basin by preparing detail hydrological map and preparing flow net map and analyzing long term trend correlating them with water level, water level fluctuation and annual rainfall within basin.

Hydrologically the entire basin can be sub divided into two broad hydrological units namely a) Consolidated to semi consolidated formation with or without weathered mantle with low ground water potentiality and b) Unconsolidated formation of loose alluvium comprising Older Alluvium and Younger alluvium having medium to high ground water potentiality(Biswas et.al.1999,).Ground water occurs in unconfined condition within the consolidated to unconsolidated formation where as it occurs in semi confined condition within Unconsolidated formation.

So far water table map is concerned the basin shows idealistic character having recharge, intermediate and discharge zone in post monsoon period while there is contradistinction in pre monsoon water table where the whole basin is characterized as discharge zone. The gradient contour map or water table trend map for both the pre monsoon and post monsoon period is prepared. Statistical analysis of water table trend depicts that the major part of the basin suffers declining trend of water table but the same shows a general rising trend in post monsoon period. Composite plotting of such pre monsoon and post monsoon water table trend map yields the resultant trend of the basin, which shows mostly positive trend during post monsoon but negative trend during pre monsoon. Since seasonal rain fall is the prime source of replenishment of aquifer, a correlation of yearly rainfall trend has been done which deciphers a negligible negative trend. Summing up the above studies it is inferred that the influx of water within aquifer is adequate in spite of increasing groundwater withdrawal in lean period. Fluctuation gradient contour map also shows the positive trend almost every part of the basin. Thus the basin is not in a critical condition till date as there exists equilibrium between input – output balance of ground water.