

## HYDROGEOCHEMICAL ASPECTS OF INLAND SALINITY IN PURNA ALLUVIAL BASIN, MAHARASHTRA

\* Prabhat Kumar Jain and \*\*Jivesh A. Tambe

*\*Central Ground Water Board, Central Region, New Secretariat Building, Civil Lines, Nagpur*

*\*\*Geological Survey of India, Central Region, Seminary Hills, Nagpur*

*\*E-mail: jivesh.tambe@gmail.com*

### Abstract

Hydrochemical investigations carried out in Purna Alluvial basin indicate that salinity in ground water is restricted to the sandy aquifers embedded in thick clay bed. The sluggish movement of ground water in the central part of the Purna basin coupled with evaporation losses, further enhance the concentration of salt. Presence of excessive amounts of clay might prevent flushing causing salinity in ground water. The study of lithology also indicates that vertical movement of ground water is retarded due to the presence of thick clay at depth thus preventing ground water recharge.

The ratios of major cations and anions of the saline tract are not comparable to those of seawater. Low  $Cl/HCO_3^-$  and high  $Na/(Ca+Mg)$  ratios indicate that the saline tract is meteoric in origin. Low  $Ca/Mg$  ratio in the central part of the basin and negative indices of base exchange indicate that the saline ground water is diagenetically altered meteoric water that had been subjected to longer residence time in the aquifer.

*Keywords:* Inland salinity, Purna alluvial basin, Thick clayey bed, Saline water, Meteoric water, Geochemical classification, Genesis of ground water