COMPARISON OF SPATIAL INTERPOLATION METHODS FOR THE ESTIMATION

OF WATER QUALITY INDEX

B. SANTHAVEERANA GOUD[1] & BASAVARAJ PARUTI[2]

[1]Professor and Former Chairman, Department of Civil Engineering, University Visvesvaraya College of Engineering,
Bangalore University, Bangalore, Karnataka, India

[2]Associate Professor & Head, Department of Civil Engineering, T John Institute of Technology, Bannerghatta Road,
Bangalore, Karnataka, India

ABSTRACT

This paper focuses on comparison of three spatial interpolation methods in terms of their accuracy in the assessment of groundwater quality for Peenya Industrial Area of Bangalore City. Groundwater samples were collected from thirty wells in the Peenya Industrial Area during pre-monsoon and post-monsoon season in the year 2010. Physico-chemical analysis and water quality indices estimated for all 30 samples, both for the pre-monsoon and post-monsoon season was carried out. ArcGIS was used to produce the spatially distributed Water Quality Index (WQI) values by using three methods namely Inverse Distance Weighting (IDW), KRIGING and SPLINE. A statistical assessment of the resultant continuous surfaces indicates that there is substantial difference in the estimating ability of the three interpolation methods. IDW method performed better compared to other method. Hence it was concluded that the IDW method may be preferred in developing the WQI thematic maps, with areas similar to Peenya Industrial area.

KEYWORDS: Arcgis, Groundwater Quality, Water Quality Index (WQI), Inverse Distance Weighting (IDW), KRIGING And SPLINE