

Study on the antipollution of phreatic system in Northern Shaanxi, China

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ABSTRACT

The concept and evaluation method of the anti-polluting capacity of groundwater was assessed in this study to describe the vulnerability of groundwater system in northern Shaanxi Province of China. With a total area of 22,604 km², the study area was divided into nodes of 80,719 and triangular elements of 125,377. The values of the seven evaluation parameters at each site were identified based on data from the overburden depth, boreholes, local precipitation, groundwater quality, and hydrogeological information. An antipollution map for the area of study was prepared, which suggested that the phreatic system in Northern Shaanxi can be classified into 3 grades of antipollution zones by a comprehensive index of vulnerability. Based on such index, the loess hilly region has the highest capacity of antipollution with an area of 11,300 km², while the valley area and the area of wind-blown sand with a buried depth of less than 1.5 m have the lowest antipollution with an area of 3,391 km².

Keywords: Antipollution capacity; Groundwater; Index of vulnerability; Phreatic; Shaanxi

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