



Groundwater Flow Model for a Tannery Belt in Southern India

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Author(s)

Nepal C. Mondal, V. P. Singh, S. Sankaran

ABSTRACT

The objective of this article is to develop a groundwater flow model for a tannery belt using Visual MOD-FLOW Premium 4.4 for analyzing groundwater velocity and its response to various pumping strategies in two stages, viz., steady and transient conditions. The steady state model was calibrated for April 2001, whereas the transient model was employed to forecast groundwater flow under various pumping strategies. The results showed that the total groundwater abstraction was about 80.43% of the groundwater recharge, but 10.25% was used up by evapotranspiration. The groundwater velocity, which is important for contaminant migration, varied from 0.21 to 0.52 m/d in the tannery cluster. The model was more sensitive to recharge from rainfall, hydraulic conductivity and specific yield. Finally, the model showed that the aquifer could sustain a pumping rate of 24892 m³/day without further decline in water level.

KEYWORDS

Groundwater, Flow Model, Groundwater Velocity, Tannery Belt, Southern India

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