AOGS 2006

Analytical Approach for Estimating Potential Groundwater Resources in Coastal Areas

NAMSIK PARK[1], SUNG-HUN HONG[1], KYUNG-SOO SEO[1], SANG-KEUN BAE[2]

[1] *Dept. of Civil Eng., Dong-A University, Busan, Korea*

[2] *Dept. of Civil Eng., Keimyung University, Daegu, Korea*

An equation is developed to estimate potential groundwater resources for coastal areas. The equation considers important parameters such as coastal groundwater discharge, aquifer characteristics, allowable length of additional seawater intrusion, and location of proposed pumping wells. Therefore, the equation can provide reliable site-specific estimates. The equation is derived from the well-known analytical solution, the Ghyben-Herzberg principle, and the concept of the radius of the influence. A new method is proposed to estimate the radius of influence as a function of the pumping rate and the aquifer characteristics. Thus, more logical estimation of the radius of influence is possible. The equation is applied to a hypothetical problem. Comparison with results from a more rigorous numerical simulation model indicates that the results obtained from the proposed equation are conservative. Hence, the proposed equation can be used safely to estimate potential groundwater resources in coastal areas. The equation can be especially useful in regional water-resources planning stages.