

Panukorn Sarutichart 2011: Developing Method of Vulnerability Assessment of Groundwater Contamination by Fuzzy Set: Case Study of Rayong Province. Master of Science (Environmental Technology and Management), Major Field: Environmental Technology and Management, Department of Environmental Science. Thesis Advisor: Assistant Professor Jukkrit Mahujchariyawong, Ph.D. 120 pages.

This research was the application of fuzzy set for the vulnerability assessment of groundwater contamination comparing with DRASTIC model which has a limitation in reflecting influence of hydro-geological factors. Rayong province was used for study area. Seven factors; depth to water table, net recharge, aquifer media, soil media, topography, impact of vadose zone media and hydraulic conductivity of aquifer were studied. In addition, the results were checked with groundwater quality in study area. The results shown that the vulnerability of groundwater contamination at Rayong province was in the moderate low level. It covered 49.74% of study area where vadose zone media was a clay layer and water table was deep. The results checked with the contamination of nitrate in groundwater at study area indicated that the percentage of relationship between model and the groundwater quality of fuzzy set and DRASTIC were 56% and 39%, respectively. The results of vulnerability assessment by fuzzy set also showed that the highest vulnerable factor to the vulnerability index was the depth to groundwater table and the lowest vulnerable factor to the vulnerability index was the net recharge.

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