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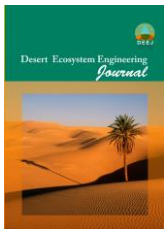

Prioritizing of South-West Hormozgan's Salt domes to nuclear Waste landfill with emphasis on watershed conservation

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Abstract

Recently, scientists are concerned about nuclear waste landfill sites. Because salt pans, salt marsh and salt domes are non-porous environment, with no stubble thickness of salt and the plant communities, less humans and animals can be found around them, so it can be used as a nuclear waste landfill. In this study, 24 environmental criteria are investigated with emphasis on hydrology, watershed management, geological structure and socio-economic situations that included: slope, drainage density, maximum instantaneous discharge, drainage class and other parameters. Then, the criteria were evaluated using questionnaire and consultation with experts. The lowest and the most important criteria were related to maximum instantaneous discharge and distance from residential areas with 0.031 and 0.052 value, respectively. In ELECTRE model, all options were evaluated by non-ranking relations and in this way, non-effective options were eliminated. At first, by calculating numerical values, all criteria were given in the form of a matrix, which is called decision matrix. Then data of the decision matrix values which are non-scaled and criteria values were entered in the matrix. Thereafter, the effective coordinated and uncoordinated matrixes and consistent matrixes were obtained and finally, final matrix is formed. According to ELECTRE model results, it could be possible to prioritize three salt domes of southwestern Hormozgan for burying nuclear waste. Gachin salt dome, with most indices (1), as the most suitable option and Angouran salt dome, a numerical index (0) and Pol salt dome, with an index number (-1), ranked second and third, respectively.

Keywords: ELECTRE models, Nuclear waste, Pol Salt Dome, Angouran Salt Dome, Gachin Salt Dome.

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