

عنوان مقاله:

Potential investigation of Reusing Ardabil Municipal Wastewater Treatment Plant Sludge Based on AHP and TOPSIS Models

محل انتشار:

فصلنامه تخصصی تحقیقات سلامت, دوره 2, شماره 2 (سال: 1392)

تعداد صفحات اصل مقاله: 11

نویسندگان:

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خلاصه مقاله:

Introduction :By ever-increasing of population, shortage of water resources and the necessity of wastewater treatment, huge volumes of sludge that is a byproduct of wastewater treatment, requires to be disposed in environmentally secure ways. The target of specifying strategic preferences of reuse of sludge has been to find the correct way of disposal or beneficial use of sludge. Material and methods: In this study, to select the best alternative for reuse of wastewater sludge two systematic methods are introduced, which four alternatives for reuse of sludge (use in agriculture, use in green space, biogas, desert combat) are introduced and they are compared by four main parameters including: ۱- physicochemical ۲-biological ۳ - economic, social and cultural, and ۴ - environmental pollution situation, that each contains some criteria. In this study, first each of the related parameters and criteria are compared by the expert groups of and through questionnaire. Then these weights are entered into Expert Choice software for the analyze of AHP model and paired comparisons and weightings have been done on the related parameters and criteria. Ultimately, the output of the software is entered into TOPSIS software for the analyze of TOPSIS model until the best alternative is selected. Results: sludge of Ardabil municipal wastewater treatment plant, according to standards and EPA regulations is eligible to class B, and due to the chemical in terms of heavy metals have special (excellent) quality and contains considerable quantities of organic substance, nutrients and micronutrients which indicates the fertilizer value of the sludge. Conclusion: The result of this comparison has shown that the application of sludge in green spaces is the most appropriate alternative and then use in agriculture, biogas alternative, and desert combat alternative are, respectively, placed in the second to fourth preference for the reuse of sludge derived from .municipal wastewater treatment plant

کلمات کلیدی:

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