

عنوان مقاله:

Evaluating environmental effects in construction and demolition waste recycling plant with the Iranian Leopold Matrix method

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خلاصه مقاله:

BACKGROUND AND OBJECTIVES: Recycling and reusing construction and demolition debris is a productive step toward solving this problem. Still, the recycling process also leaves industrial effluents, which is evident in producing recycled sand. The present research has investigated the environmental effects of recycling construction debris at sand recycling plants. Considering the negative impacts of sand washing mud produced at the plant in the Aab'Ali Landfill of Tehran in Iran, the material's physicochemical characteristics and environmental impact have also been investigated to regulate practices.

METHODS: The Environmental Impact Assessment has been carried out in physicochemical, biological, socio-cultural, and economic-technical areas. Due to the large dispersion of the studied soil and the composition diversity in each sampling, 30 samples of the sand washing mud and the material mixed with the surrounding soil have been collected. The exploitation phase during the factory construction plan's implementation stage was considered the current research's main phase. Hence, 13 micro activities and 23 environmental parameters were identified, and the results were analyzed in the Environmental Impact Assessment Plus Software using the Iranian Leopold Matrix method and discussed based on the results of the experiments.

FINDINGS: According to the results of the matrix calculation, the three micro-activities included washing the sand through a sand-washing machine, fine sand washing through the EvoWash machine with a score of -3.6, converting concrete pieces and large boulders into smaller pieces by jackhammers, transferring to the jaw crusher machine with a score of -2.8, and transferring the remaining sand washing mud produced by the EvoWash machine to the storage pond with a score of -2.7 had the most negative effects. The three micro-activities of waste processing for green space irrigation (+2.2), selling products (+0.9), and hiring employees with a score of +0.5 have the most positive effects on the environment.

As ranking smaller than -۳۱ forming ۵۰% of the total average of rows and columns, the activity of the plant and the sand extraction process in this landfill is approved by providing modification alternatives. CONCLUSION: Considering the positive impact on the economy, increasing green spaces in the region, job creation, and also reducing the amount of increasing debris accumulated in the landfill is evaluated positively and can be done considering the reforms; ... including the prevention of releasing remnant sand washing mud free

کلمات کلیدی:

Aab'Ali Landfill, Environmental impact assessment, EIA+ software, Sand recycling plant, Sand washing mud

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