

عنوان مقاله:

Municipal solid waste landfill impact on sediments and surface water quality of Amsal River : A case study of Zياما Mansouriah landfill (Northeastern Algeria)

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خلاصه مقاله:

Landfills represent possible sources of diverse contaminants that can cause human health and ecological problems. The purpose of this study is to assess the pollution caused by a leachate from Zياما Mensouriah municipal landfill (north-eastern Algeria) affecting sediments and surface water. The water quality has been evaluated using River Pollution Index (RPI). Sediment contamination assessment was carried out using the pollution indicators including: contamination factor (CF), pollution load index (PLI) and geo-accumulation index (Igeo). According to the results, the RPI of Amsal River indicates an unpolluted water at site ۱ (S۱) (RPI = ۲.۵), severely polluted water at landfill effluent discharge (S۲) (RPI = ۸.۲۵) and moderately polluted once at site (S۳) (RPI = ۵.۵). In sediments, the order of mean concentration ($\mu\text{g g}^{-1}$) of metals was Pb (۱۵۶.۲) > Cd (۱.۷۶). Furthermore, spatial distribution of both metals in sediments showed a significantly higher concentration at S۳ indicating that metal pollution is caused by leachate from the studied municipal landfill. The Igeo values reveal that Pb was significantly accumulated compared to Cd. The highest CF values (>۶) of Pb and Cd determined at S۳ promote a high Pb and Cd contamination in that specific station. The PLI results showed that all sites, except for S۱, were moderately to extremely heavy contaminated

کلمات کلیدی:

Landfill, Water, Sediments, Heavy metals, Algeria

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