

## An investigation of contaminants release from the Golistan Peyvand cement factory, Iran

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Tehran University, Iran.2. Graduated student, Tehran  
University, Iran.**Corresponding author:****Hassan Darabi****ABSTRACT:**

Soil is recognized as a primary natural resource, and its quality is a measure of a country's sustainable development. Preserving soil fertility is thus considered a priority in the economic development of countries. In this regard, the cement industry is well known as an important source of environment pollutants that degrade the quality of the soil. The industry releases contaminants to the environment from the early (i.e., the extraction of raw materials) to the final stages of cement production. In particular, the rapid industrialization that has allowed the cement industry to flourish, causes heavy metal contamination and dust pollution. Motivated by these issues, this research was conducted to characterize contaminant release from Golestan Payvand cement factory and identify heavy metal concentrations and affected areas in the site. To these ends, random soil sampling was conducted at different zones (500, 100, and 1500 m) in the site, after which the data obtained were analyzed using statistical methods, such as univariate analysis of variance. The results revealed significant differences among the chrome, lead, zinc, nickel, and cadmium concentrations in the sampled zones ( $p < 0.05$ ). The significance level of the chrome, lead, zinc, and nickel concentrations is 0.000, whereas that of the cadmium concentration is 0.008 ( $p < 0.05$ ).

**Keywords:**

Heavy metals, Cement industry, Contamination, Sustainable development, Soil.