
Title: Impact of Controlled and Uncontrolled Landfills on Water Resources and Soil through Their Leachate.

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Abstract: The Djelfa Region, a prominent semi-arid area in Algeria, experiences leachate emergence due to the physico-chemical and biological dissolution of pollutants in percolating waters. The dissolution and chemical precipitation mechanisms during infiltration are closely linked to various aquifer system compartments, including soil, unsaturated zones, and saturated aquifers.

This research aims to assess environmental risks in the Djelfa Region, particularly from uncontrolled or compacted controlled landfill sites, by investigating water and soil contamination resulting from public dumping.

The primary objective is to investigate the impact of leachate from uncontrolled and controlled public landfills on water and soil resources. Physicochemical analyses, including pH, conductivity, salinity, temperature, turbidity, O₂ dissolved, Cl⁻, NO₃⁻, HCO₃⁻, SO₄²⁻, Mg²⁺, and Ca²⁺, along with the determination of certain pollutants (BOD₅, COD, NO₃⁻, NH₄⁺, NH₂) and organic matter, will be conducted on a network of wells and a leachate point. Additionally, several campaigns of piezometric measurements will be carried out as part of this study.

Keywords: Impact, Controlled Landfills, Uncontrolled Landfills, Water Resources, Soil Contamination, Leachate.