## Use Of Dune Sands As A Biofilter For The Wastewater Treatment In Ouargla City (Algeria)

Fadila AMMOUR, Youcef TOUIL, Ahmed KETTAB

**Abstract:**In Algeria, nearly two thirds of the 50 wastewater treatment plants constructed are at a standstill, while the 15 operational plants encounter problems and their functioning rarely conforms the results.

These shows how serious the situation is, especially when we know that more than 700 HM<sub>3</sub> of wastewater are evacuated annually.

Like other cities of the country, the city of Ouargla (south Algeria) faces serious sanitation problems, especially after the wastewater plant standstill in 1980.

This alarming situation of the city sanitation network obliged the authorities to create many discharge points around the city. However the discharge of urban effluents without any pre-treatment has increased the recovery of groundwater table and its contamination and caused the degradation of palm groves.

This oasis faces today a catastrophic ecologic situation that can create many epidemics. To face all this sanitation and wastewater plant management problems, it has become indispensible to resort to other water treatment technologies, that are less expensive and more simple to manage, if we want to protect public health and safeguard the receiving environments. The use of a local material, such as dune sands as a biological filter is a promising technique for wastewater treatment. Among many parameters which determine the purification capacity of this natural environments, their physical and chemical characteristics, water quality and filtration rate are determining factors of this process. On the one hand, this study allowed us to determine the physical and chemical characteristics of dune sands (structure, texture, chemical composition) and to highlight the filtering power, and on the other hand to evaluate purification performances of the prototype designed for this study.