

تقييم المواقع الملائمة للشحن الاصطناعي بمياه الصرف المعالج  
(دراسة حالة)

رسالة مقدمة من الطالب

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قسم العلوم الأساسية البيئية

معهد الدراسات والبحوث البيئية

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صفحة الموافقة على الرسالة  
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**ASSESSMENT OF SUITABLE SITES FOR AQUIFERS RECHARGE  
BY TREATED SEWAGE (CASE STUDY)**

**Submitted By**

**Adel Mohamed Yehia Morsy Mohamed**

B.Sc. (Geology), Faculty of Science, Alexandria University, 1985

Diploma of Environmental Science, Institute of Environmental Studies and Research, 2005

A thesis submitted in Partial Fulfillment  
Of  
The Requirement for the Master Degree  
In  
Environmental Science

Department of Environmental Basic Sciences  
Institute of Environmental Studies and Research  
AinShamsUniversity

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## ABSTRACT

Over the last two decades, the artificial recharge for groundwater to replenish the depleted groundwater reservoirs has been under intensive consideration worldwide.

Authorities in Egypt have recently devoted much attention to artificial recharge of various aquifers.

Egypt is facing shortage of drinking water where the percapita share in fresh water renewable water has decreased tremendously in the last two decades to less 600 m<sup>3</sup>/capita /year, so we must use sewage water after treatment for artificial recharge into aquifers, and then use the recovered water for agriculture .

Groundwater in western Nile delta area has a vital importance because it is considered the available source for different developing purposes. This water is pumped from the Quaternary aquifer. The values of transmissivity of the aquifer and permeability of the soil cover are the main effective factors responsible for pollutant transportation from the surface to the water table. The effective porosity (specific yield) of the Quaternary water bearing formation ranges from 0.16 to 0.02 and the hydraulic conductivity ranges from 102.8 m/day to 4.7 m/day.

The western Nile delta region is attended by a rapid reclamation of desert land. Large reclamation projects, supplied with surface water from the Rosetta branch, started in the fifties. These projects are implemented by the government and occupying a total area of 40.000 feddan.

New extensions with a total area of 100.000 feddan will be completed in the coming year (e.g. El Bustan extension area).



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# **CHAPTER ONE**

## **Introduction**