بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%

بعض الوثائق الأصلية تالفه

بالرسالة صفحات
لم ترد بالاصل

Ain Shams University
Faculty of Engineering
Irrigation and Hydraulics Department

REUSE OF TREATED WASTEWATER IN RURAL AREAS

By

Aiman Mohamed Khalil El Saadi
B.Sc. of Civil Engineering 1993
Faculty of Engineering at Shobra
Zagazig University

**A Thesis Submitted for the Fulfillment of the Requirements for
The Degree of Master of Science in
Civil Engineering**

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Cairo, Egypt
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STATEMENT

This thesis is submitted to Ain Shams University, Faculty of Engineering for the degree of Master of Science in Civil Engineering.

The work included in this thesis was carried out by the author in the Department of Irrigation and Hydraulics, Faculty of Engineering, Ain Shams University from 1995 to 2000.

No part of this thesis has been submitted for the degree or qualification at any other university of institution.

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Name: Aiman Mohamed Khalil El Saadi
Title: Reuse of Treated Wastewater in Rural Areas

Registration Date: October 1995 Exam Date: December 2000

ABSTRACT

Shortage of irrigation water sources in arid and semi-arid regions brings out the issue of using the domestic wastewater to meet the demand for agriculture sector.

The objective of this study is to propose and investigate the most appropriate natural treatment systems that can be used in rural areas of Egypt taking into account the land requirement, initial and operational cost and effluent efficiency. In addition, the reuse potential of the effluent of such wastewater treatment systems is investigated.

Pilot scales that have populations ranged from 1,000 to 20,000 are studied with respect to natural treatment systems. The selected pilot areas are in eastern delta (Sharkeya Governorate), western delta (Behira Governorate) and average of Egypt.

Mathematical and cost analysis of several treatment systems are conducted. In addition, the effluents of the treatment systems are evaluated for reuse purposes.

The effluent of the treatment systems are evaluated and compared. The BOD, TSS, Nitrogen and Fecal Coliform Bacteria parameters were compared and evaluated with respect to the Egyptian, FAO and WHO guidelines setup for reuse in agriculture purpose.

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The results of the study show that the effluents of the natural treatment systems are appropriate for reuse for irrigation under the marginal environmental factors of the arid climates. The main conclusion of the study this is that the natural treatment systems can be used under Egyptian conditions with good efficiency and reasonable cost.

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