



DEVELOPMENT OF EXISTING DAIRY INDUSTRIAL WASTEWATER TREATMENT PLANTS

A Thesis

Submitted to the Faculty of Engineering
Ain Shams University for the Fulfillment
of the Requirement of M.Sc. Degree
In Civil Engineering

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STATEMENT

This dissertation is submitted to Ain Shams University, Faculty of Engineering for the degree of M.Sc. in Civil Engineering.

The work included in this thesis was carried out by the author in the department of Public Works, Faculty of Engineering, Ain Shams University, from November 2010 to April 2013.

No part of the thesis has been submitted for a degree or a qualification at any other University or Institution.

The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others

Date: - ----/-- /2013

Signature: - -----

Name: - *NESMA MOHAMED ELHOSSANY ELTOUKHY*

DEDICATION

I wish to dedicate this work to who suffered to educate,
prepare, build capacity and help myself to be as I am,

TO

MY FATHER

&

MY MOTHER

Special thanks to

MY HUSBAND

&

MY SISTER & MY BROTHER

For their encouragement and support to complete this work

ACKNOWLEDGMENT

First and foremost I am thankful to Allah the Almighty God for his grace and mercy.

*I am extremely grateful for **Prof. Dr. Mohamed El-Hosseiny Abdel Rahman EL-Nadi**, Professor of sanitary and Environmental Engineering, Faculty of Engineering, Ain Shams University, he has given me the chance for this research idea, his unfailing help, guidance, the very capable assistance and his sincere advices during this work.*

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*Also, I especially wish to thank all my family and I would like to dedicate this thesis especially to those whom are the real guides for me in my life my father **Prof. Dr Mohamed EL Hosseney EL Toukhy** (Vice president of Ain Shams University) and my mother for their great support.*

ABSTRACT

NAME: - NESMA MOHAMED ELHOSSSENY ELTOUKHY

Title: -“DEVELOPMENT OF EXISTING DAIRY INDUSTRIAL WASTEWATER TREATMENT PLANTS”.

Faculty : - Faculty of Engineering, Ain Shams University.

Specialty: - Civil Eng., Public Works, Sanitary Engineering.

Summary:-

The dairy industry is a major enterprise in Egypt, occupying a significant place in food supply. This industry has been identified as an important contributor to the pollution of waterways especially when large industrial establishments are involved.

This research aimed at evaluation and assessment of the existing dairy industry plant performance and solving its operation problems. This study was made for *Beyti dairy factory* which lies in Noubariya in Cairo-Alexandria road. To evaluate the existing wastewater treatment plant and identify its operation problems and solve it in order to increase the plant efficiency and overcome any environmental problem by obey the environmental law for discharge wastewater into drain.

The study was divided into two stages, stage I for evaluating the existing plant for *Beyti factory* and identify its operational problems. Stage II pilot lab scale unit was erected in the sanitary engineering laboratory at faculty of engineering with three successive units feeding tank followed by DAF unit to remove Fats & G then, SBR unit for biological treatment .

After investigation of the existing plant problems at stage I results it can be observed that the existing plant had some operation problems which affected units of the plant efficiency and increase plant effluent above law limits. After stage II it can be illustrated that all modifications made increase the plant units efficiency and all plant effluents obey environmental law.

The study recommended *Beyti factory* wastewater treatment plant to carry out the proposed modifications applied in stage II to improve the plant efficiency and overcome effluents problems.

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