EFFICIENCY AND HYDRAULIC PERFORMANCE OF CANALS EXPOSED TO UNCONTROLLED MAINTENANCE PROGRAMS AND DREDGING

By

Ahmed Younis Elsayed Abdel Salam

A Thesis Submitted to the
Faculty of Engineering at Cairo University
In Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
In
Irrigation and Hydraulics Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

Efficiency and hydraulic performance of canals exposed to uncontrolled maintenance programs and dredging

Key Words:

Canal Performance; Water Distribution Efficiency; Dredging; Channel Maintenance.

Summary:
As a result of implementation of uncontrolled maintenance programs and oppressive dredging to irrigation canals, these cross sections became deeper and wider. The main objective of the study is to identify the effects of regular and irregular changes in canal cross sections which may be occurred during improper maintenance. The research included the study of increasing canal width, lowering canal bed and increasing side slopes. El-gharaq canal was selected as a case study to illustrate the effect of irregular changes in cross sections in hydraulic characteristics. All scenarios were developed numerically using SOBEK 1D. For all scenarios water levels, velocities, section factor, conveyance efficiency and water distribution efficiency were compared with the corresponding designed values.

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