IMPACT ASSESSMENT OF THE PROPOSED WATER RESOURCES DEVELOPMENT PROJECTS IN THE BLUE NILE BASIN ON NILE FLOW AT ASWAN

By

Osama Mahrous Mossad Tarabih

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
GIZA, EGYPT
2016

IMPACT ASSESSMENT OF THE PROPOSED WATER RESOURCES DEVELOPMENT PROJECTS IN THE BLUE NILE BASIN ON NILE FLOW AT ASWAN

By
Osama Mahrous Mossad Tarabih

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

Under the Supervision of

Prof. Ahmad Wagdy Abdeldayem

.....

Professor of Hydrology
Irrigation and Hydraulics Department
Faculty of Engineering, Cairo University

Dr. Mohammed ElSayed Abou El-Haggag

.....

Assistant Professor
Irrigation and Hydraulics Department
Faculty of Engineering, Cairo University

Dr. Hany Gomaa Ahmed ElSayed Radwan

.....

Assistant Professor
Irrigation and Hydraulics Department
Faculty of Engineering, Cairo University

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
2016

IMPACT ASSESSMENT OF THE PROPOSED WATER RESOURCES DEVELOPMENT PROJECTS IN THE BLUE NILE BASIN ON NILE FLOW AT ASWAN

By
Osama Mahrous Mossad Tarabih

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

Approved by the Examining Committee:

Prof. Ahmad Wagdy Abdeldayem,
Thesis Main Advisor. Professor of Hydrology, Faculty of Engineering, Cairo University.

_____

Prof. Dr. Khaled Hussein Hamed,
Internal Examiner. Prof. of Hydraulics, Faculty of Engineering, Cairo University.

_____

Prof. Dr. Maha Mohsen Tawfik,
External Examiner. Vice President of the National Water Research Centre, Ministry of Water Resources.

_____

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
2016

Engineer's Name: Osama Mahrous Mossad Tarabih
Date of Birth: 23/11/1987
Nationality: Egyptian
E-mail: osamatarabih@eng.cu.edu.eg
Phone: 002-01022556004
Address: Hadayek Al-Ahram, Giza, Egypt

Registration Date: 01/10/2009
Awarding Date: 2016
Degree: Master of Science
Department: Irrigation and Hydraulics Engineering

Supervisors:

Prof. Ahmad Wagdy Abdeldayem
Dr. Mohammed ElSayed Abou El-Haggag
Dr. Hany Gomaa Ahmed ElSayed Radwan

Examiners:

Prof. Ahmad Wagdy Abdeldayem
Prof. Khaled Hussein Hamed
Prof. Maha Mohsen Tawfik (Vice President of the National Water Research Centre, Ministry of Water Resources)

Title of Thesis:

Impact Assessment of the proposed water resources development projects in the Blue Nile Basin on Nile flow at Aswan

Key Words:
Blue Nile, Eastern Nile, GERD, High Aswan Dam

Summary:

Nile River is considered the primary renewable source of water to Egypt. Nile Basin could be divided into two main sub-basins. Eastern Nile sub-basin is the major one that contributes with about four fifth of water inflows that arrives at Aswan. Blue Nile is a major part of the Eastern Nile sub-basin that lies in Ethiopia and Sudan. Blue Nile is a target for many water resources development projects such as hydropower projects and irrigated agriculture. These projects may have negative impacts on downstream countries. This study introduces a hydrological model for Blue Nile to generate river system flows, which is then coupled with river and reservoir simulation model to simulate current flow conditions in addition to simulate different development scenarios in order to assess their impacts on High Aswan Dam.

Table of Contents

List of Tables

List of Figures