

# بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ



HOSSAM MAGHRABY



# شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



HOSSAM MAGHRABY

# جامعة عين شمس

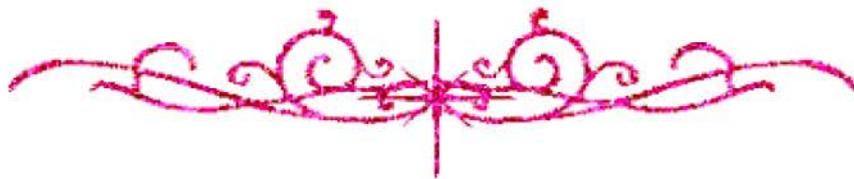
التوثيق الإلكتروني والميكروفيلم  
قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأقراص المدمجة قد أعدت دون أية تغييرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



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بعض الوثائق

الأصلية تالفة



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بالرسالة صفحات

لم ترد بالأصل



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*A. Barakat*

# HYDRAULIC BEHAVIOR OF AN ALLUVIAL RIVER FLOWING INTO A RESERVOIR

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Ahmad Mohammad Helmy

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  
Civil Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY  
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Under the Supervision of

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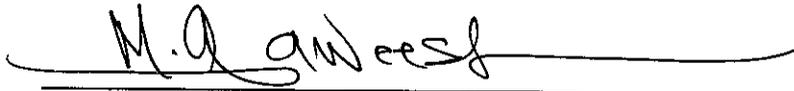


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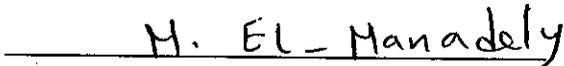
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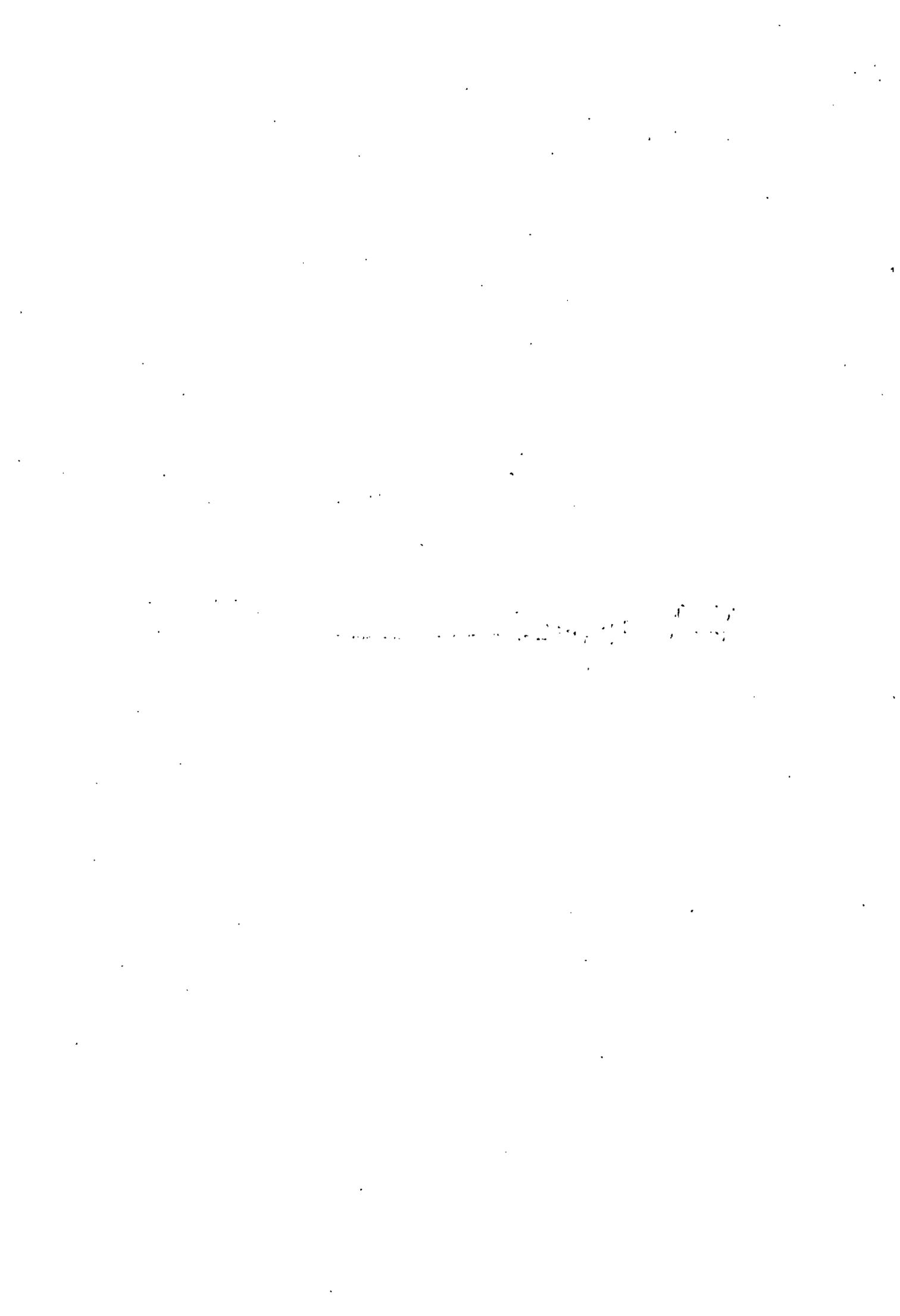
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## ABSTRACT

River flows are usually laden with a considerable amount of sediment. When a river enters a reservoir, the water depth increases and the flow velocity decreases. Due to the decrease of velocity, the flow loses its turbulence and ability to carry sediment. The coarser sediment deposits at the reservoir upstream zone, forming a delta topset, and the deposition of finer particles forms a delta foreset. The finer sediment moves towards the reservoir downstream zone by the density current, which starts when the flow begins to plunge under the reservoir clear water, due to its larger density.

In the present study, the hydraulic behavior of an alluvial river flowing into a reservoir is studied in the first region upstream the plunging point. The divergence of the flow and the corresponding vertical and horizontal velocity distributions are investigated. Studying the variations of the concerned hydraulic parameters longitudinally along the reservoir length, the vertical and horizontal velocity distributions are investigated. Consequently, the partial percentage of discharge passing through each vertical segment of the cross section could be determined. Each segmental discharge will determine how much sediment is going to be deposited or scoured from the river bed of each segment. This means that each river cross section will be subjected to a nonuniform variation due to uneven deposition and scour.

The hydraulic procedure is conducted assuming a hypothetical reservoir. When the reached results were found to be satisfactory, the procedure was then extended and applied to a natural reservoir as a case study, namely, the Aswan High Dam Reservoir (AHDR). The results of the case study agreed with the field measured data.

It is concluded that the hydraulic procedure conducted in this study could be applied to other natural reservoirs, to investigate the vertical and horizontal velocity distributions, and the changes in the reservoir cross sections due to deposition or scour, as the river flows through the reservoir.