

بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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لم ترد بالأصل





Ain Shams University
Faculty of Engineering
Irrigation and Hydraulics Department

Study of Soil Loss in Main Wadis of South Sinai

A Thesis Submitted for the Partial Fulfillment of the
Master Degree
Civil Engineering – Irrigation & Hydraulics [2020]

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

The work included in this thesis was carried out by the author at the Department of Irrigation and Hydraulics, Faculty of Engineering, Ain Shams University, Cairo, Egypt.

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

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Study of Soil Loss in Main Wadis of South Sinai

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ABSTRACT

Estimation of erosion volumes is essential to many aspects related to water and land management e.g., the study of sediment transport and deposition in depressions and reservoirs. Soil erosion can be calculated using empirical equations established during the last forty years. Examples include the Universal Soil Loss Equation (USLE), the Revised Universal Soil Loss Equation (RUSLE) or the Modified Universal Soil Equation (MUSLE).

In this work, remote sensed data were used as an open source/available data to estimate the soil loss using the GIS techniques and raster algebra to facilitate the numerical computation when estimating the soil loss applying the Universal Soil Loss Equation (USLE). South Sinai region, Egypt, which suffers from flash floods causes' soil loss in the main wadis, has been selected to check the proposed algorithm results and calibrate the model. Field survey measurements were done by water resources research institute "WRRI" for sediment loss volumes accumulated upstream two dams located on a major Wadi "Wadi Watier" after a certain rainfall event. The Sediment Delivery Ratio "S.D.R" resulted ranges between 0.73 to 0.85. Thus, the proposed algorithm provides a reliable technique and can be used to build a vital database to estimate soil erosion in main wadis.

Keywords: Soil Erosion, Erodibility, Erosivity, USLE, Remote Sensing, GPCC, South Sinai.

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