

Irrigation Engineering and Hydraulics Department



Reducing evaporation losses in Aswan High Dam Lake

Graduation Project

Ahmed Mohamed Elshimy, Ahmed Abdel Aziz

Project's Abstract

Our project is one of the winners in the faculty competition to support graduation Projects. In accordance with the treaty of 1959 Nile water agreement between Egypt and Sudan; Egypt's present annual share downstream Aswan High Dam is 55.5 billion m³ and Sudan shares with 18.5 billion m³ while the average annual evaporation water loss has been estimated by 10 billion m³ from the surface water of High that Egypt's Aswan Dam reservoir which represents 15%. It is worth mentioning water needs about 80 billion m³ for that Egypt is classified as one of the water-poor countries. Worse than this if we calculate our needs as Virtual Water it will be about 300 billion m³. So this project is developing new non conventional water resource.

In this project we used Remote Sensing Applications to calculate evaporation from the lake for last 13 years. We found that average evaporation rate is 16 billion m³ not 10 billion m³ as is common. After that we began studying ways to reduce this huge amount of losses. By studying the lake topography there are 85 secondary channels (wide surface area and shallow depth). We worked on the 10 biggest

secondary channels. By reducing the surface area we can reduce evaporation. We studied three methods to reduce surface area. The amount of water which prevented from being vapor is 1.9 billion m³. In addition to increasing agriculture 1 and with 150,000 feddan. Last part of our project is we used the fund presented from our faculty to establish a weather station on the roof of Preparatory Building.

It consisted of a standard evaporation pan, ultra sonic water level sensors, Arduino to convert sensor signal to readings, computer to save readings, USB modem to send data to our website and UPS as a power source.

Protection of Nweiba city south Sinai governorate from dangers of flash flood

Supervised

Prof. Dr. Hossam Eldin Mohamed Moghazy
Dr. Abdalla Elsaïd Hussien
Dr. Mohamed Reda Soliman

Prof. Dr. Farouk Abdalla Alfetiany
Dr. Osama Ragab Abdelaziz

Graduation Project

Ahmed Mohamed Mahmoud Khalifa, Tarek Mohamed Ragab Ali,
Maha Khamis Mohamed Osman, Yomna Amr Mohamed AbdEllatif

Project's Abstract

Analysis of rainfall data fifty years ago, Define of catchment basins of wadi water on Contour map approved by the Water Research Institute, Define watershed, Define paths of water, Compare all the manual results with results applied from (WMS8.1) and finally design protection structures for protecting (Nwieba city –south Sinai governorate) from danger of flash floods Editing the work shop drawings and typical details for the suggested structures.

It is worth mentioning as importance of this project and the interest of the Ministry of Irrigation on the benefit derived from it have been discussed in the previous presidential council and it's research currently underway by the Ministry of Irrigation and Water Resources.