

Research (6)

A Geographical Evaluation of the Sewage System in the city of El Mansoura Using the Geographic Information Systems Techniques

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Abstract

The study dealt with the origins and development of the sewage system in the city, its spatial variation, density and distribution. Analyzed also are the principal and secondary pumping stations, the treatment plants, the efficiency of the sewerage service, the spatial analysis of thesewage and the treatment plants and their associated network of pipes, the identification of the areas having sewerage services and the areas lacked the service. All analyses are conducted using GIS techniques. The study estimated the future needs and identified the problems confronting the draining of wastewater in the city, and suggested the optimal means to overcome them.

The study came to several results, including:

- The sewage system in the city of El Mansoura is of dual purpose. It collects both of the wastewater and rain water. It is of 318.4 km long, with radii ranging between 150 and 1500 mm.
- The annual rate of constructing the pumping stations was accelerated in the last two decades of the last century, being 0.57%
- The three *shiakhas* of El Hawar, Rihan and El Badamas have the most efficient parts of the system, in view of the length of the network and the built-up areas, being of more than 5%

The study recommends the following:

- The renovation of the station at the end of Abd El Salam 'Aref Street as soon as possible, as it reached 90% working capacity, to anticipate the expected growth of the volume of waste water arising from the growth of population.
- Extending the sewage system to the areas lacking of it, especially in the informal settlement on the periphery of the city.
- The accomplishment the second phase of the extension of the treatment plant, so as to be more efficient, and the necessity of designing a third phase encompassing triple treatment instead of dual, so as to make the treated water more usable.

- The continual monitoring of the sewage system to identify to what extent it works efficiently.