

Assessment of the National Water Quality Monitoring Program of Egypt

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Biographical Sketches of Authors

Dr. Rasha is a water quality specialist with a civil/environmental engineering background. She has 10 years experience working a researcher in the National Water Research Center, Egypt. She is the assistant manager of the National Water Quality Monitoring Program, a part of a bilateral national project with Canada. She was nominated by the Ministry of Water Resources and Irrigation MWRI as the ideal engineer of year 1997. She is experienced in water quality management including: data analysis and interpretation, modeling, information systems and networks development. She has a various range of published papers in Canada, Spain, Portugal, Australia and Egypt.

Eng. Bahaa is an assistant researcher in the National Water Research Center, Egypt. He has over 8 years of experience in the areas of water management, drainage systems for heavy clay soils, controlled drainage, water quality, monitoring network assessment and re-design and statistical analysis. Bahaa is participating in the Egyptian Civil Engineers Syndicate, Egyptian Society of Civil Engineers, Egyptian Society of Irrigation Engineers, American Society of Civil Engineer (Student), and Wafaa El-Nile Society (NGO).

Dr. Shaden is the Vice-Chairperson of the National Water Research Center, Ministry of Water Resources and Irrigation, Egypt. She is also the Manager of National Water Quality Monitoring Program. She has over 25 years experience in water quality management and environmental protection. She has supervised and managed several foreign funded projects as well as local programs in the field of water quality monitoring, modeling and assessment. She has organized and implemented several training programs in her fields of specialty. She has more than 100 technical papers published in scientific journals in addition to chapters in international books and many technical reports.

Abstract

The first step towards water quality management is the establishment of a monitoring network. Monitoring in the logical sense, implies watching the ongoing water characteristics and activities in order to ensure the laws and regulations are properly enforced besides detecting trends for modeling and prediction processes. The design of a network must clearly define the monitoring objectives, and accordingly the necessary simplifying assumptions have to be established. Based on the assumptions made, there are many levels of design that could be applied. The supreme aspiration of the national water quality monitoring program in Egypt is to bridge the gap between simple water quality monitoring and trustworthy decision making.

This research presents the process of redesigning the water quality monitoring network of Egypt to produce the national water quality-monitoring network using the statistical approach proposed by Sanders and Adrian (1978) of the expected confidence interval for the mean value. An evaluation of the network is implemented using the additional data produced after the design phase as well as a verification of the considered assumptions within the scope of work. Through the assessment, some reduction was perceived in the percentage of error associated with the design phase.