

PD-ABF-494  
81400

**A.I.D. PROJECT EVALUATION SUMMARY: PART I**

A. REPORTING A.I.D. UNIT: USAID/EGYPT  
ES.#

B. WAS EVALUATION SCHEDULED CURRENT FY EVALUATION  
Yes X Delayed \_\_\_  
Ad Hoc \_\_\_

C. EVALUATION TIMING  
Interim X Final \_\_\_  
Ex Post \_\_\_ Other \_\_\_

D. ACTIVITY EVALUATED: The Alexandria Wastewater System Expansion Project (263-0100)

E.	ACTION DECISIONS APPROVED BY THE MISSION DIRECTOR	ACTION TAKEN	RESPONSIBLE PARTY	COMPLETION DATE
1	GOE should expedite completion of the wastewater network.	Contracts in progress. AGOSD contracts No 8&9	AGOSD.	12/93
2.	USAID should prepare a plan requiring the pretreatment of industrial wastes.	WWOG study in progress to determine quantity of industrial wastes.	USAID, WWOG.	12/93
3.	Environmental study of Project Implementation on Maryout Water quality.	WWOG study in progress.	USAID, WWOG.	01/94
4.	O&M Training Program for AGOSD personnel.	Ongoing. O&M training contract extended until 12/94.	USAID, WWOG.	12/94
5.	Future review of O&M program and continued emphasis on preventive maintenance.	Three annual reviews planned. WWOG O&M training contracts includes preventive maintenance for completed facilities.	USAID.	Annually
6.	Construction contracts should be completed by 1993.	All remaining contracts awarded.	WWOG, AGOSD, USAID	12/93

DVincent, UAD/DR	<u>[Signature]</u>	RParks, PDS/P	<u>[Signature]</u>
MGould, OD/UAD/DR	<u>[Signature]</u>	JGuisti, PDS/P	<u>[Signature]</u>
PIhorn, AD/UAD/DR	<u>[Signature]</u>	JMalick, OD/PDS/P	<u>[Signature]</u>
		CCrowley, AD/PDS	<u>[Signature]</u>

Approved: George Wachtenheim D/DIR 1 / 1991

#### **G. EVALUATION ABSTRACT**

Started in August 1979 with the preparation of a Master Plan, the Alexandria Wastewater System Expansion Project (263-0100) was conceived with the project goal to improve "the present and future public health and environmental situation" of the citizens of Alexandria by providing the city with sewer facilities and services. The project's purpose was to address public health problems through the elimination of raw sewage ponding in the streets, and elimination of its disposal into the bodies of waters which border the city: the Mediterranean Sea, Lake Maryout and the irrigation canals. The primary beneficiaries of the project were to be the permanent urban residents.

The first phase of a three-phase Master Plan, the project was originally designed to expand and develop the wastewater collection, treatment, and disposal facilities for major portions of the city, designated as the East and West zones. In addition to the construction defined in the Master Plan, the project finances management, design, and engineering services, and training for the system's operation and maintenance. When completed in 1994, the project will have constructed 211 kilometers of sewers, 11 pump stations, two treatment plants, one sludge facility, and numerous undercrossings besides providing operation and maintenance training for the system's sustainability.

The mid-term evaluation focused on the project's overall social/environmental impact, its physical progress, its sustainability, and corrective actions necessary to accomplish overall project objectives. It was conducted by Briley, Wild & Associates who used a five member team to conduct the evaluation. The team, experienced in wastewater systems design, construction management, operations training and maintenance, and environmental analysis, spent one month in Alexandria reviewing documents, interviewing personnel, and visiting sites. In addition, the firm contracted with an Egyptian consultant to assist with the social/environmental portion of the evaluation. The consultant surveyed representative samples of the served communities and gathered relevant public health statistics.

The collection system has been expanded to all targeted areas, and facilities completed have virtually eliminated sewage flooding of served residential streets. The evaluation team concluded that USAID is providing the direction necessary to successfully complete the project. USAID's project management, combined with the professional efforts of the consultant, Wastewater Consultants Group (WWOG), have resulted in project facilities which are well-designed, functional and well-constructed. Delays in project implementation have been beyond the control of USAID or WWOG. They have resulted from a protracted, national controversy surrounding effluent discharge location (sea outfall or land), complex soils and groundwater conditions, and inefficient project management procedures of the host country implementing agency, Alexandria General Organization for Sanitary Drainage (AGOSD).

Preliminary analysis of project impact is positive. While it is difficult to attribute these improvements solely to the project, the substantial elimination of sewage flooding/ponding in the streets of the served areas have improved the quality of life and decreased the incidence of water-borne diseases.

#### H. EVALUATION COSTS

<u>Evaluation Team</u>	<u>Contract No.</u>	<u>Contract Cost</u>	<u>Source of Funds</u>
Briley, Wild & Assoc. J. R. Sloane (Team Leader) David W. Porter John Leavanger Raymond Hanson John Schoch	263-0100-C-00-6051	\$212,000	263-0100 Project

## **A.I.D. EVALUATION SUMMARY: PART II**

### **I. SUMMARY OF EVALUATION FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

#### **PROJECT DESCRIPTION:**

Based upon the 1979 Master Plan, the Alexandria Wastewater System Expansion Project (263-0100), was conceived with the project goal to improve "the present and future public health and environmental situation" by providing sewer facilities and services to the inhabitants of Alexandria. The project's purpose was to address public health problems through the elimination of raw sewage ponding in the streets, and elimination of its disposal into the bodies of waters which border the city: the Mediterranean Sea, Lake Maryout and the irrigation canals. The primary beneficiaries of the project were to be the permanent urban residents.

The recommendations of the 1978 Master Plan resulted in public controversy between the Government of Egypt (GOE) ministries, the Alexandria Governorate, and certain academics from the University of Alexandria. The controversy revolved around the plan's disposal options (sea outfall disposal or land application disposal). The GOE was unable to decide on either option, but called for an update of the 1978 Master Plan. This update, completed by WCOG in 1982, proposed a three-phase approach to providing the city of Alexandria with a modern sewage system.

The Alexandria Wastewater System Expansion Project represents the first phase of the "Phased Implementation Plan." The project area encompasses most of Alexandria's developed area, from the Noubaria Canal on the southwest to Abu Qir Bay on the northeast, and from the Mediterranean Sea on the west and north to Lake Maryout, the Hydrodome, a portion of the Mahmoudia Canal, and a segment of the Montazah Canal on the east and south side. (See Map 1 of Alexandria which depicts the project areas.)

The first phase of a three-phase master plan completed in 1978, the project was originally designed to expand and develop the wastewater collection, treatment, and disposal facilities for major portions of the city, designated as the east and west zones. In addition to the master plan, the project finances management advisory services, design, engineering services, construction and training for operation and maintenance. When completed in 1994, the project will have constructed 211 kilometers of sewers, 11 pump stations, two treatment plants, one sludge facility, and numerous undercrossings besides providing operation and maintenance training for the system's sustainability.

#### **EVALUATION PURPOSE:**

The mid-term evaluation focused on the project's physical progress, its overall social/environmental impact, its sustainability, and corrective actions necessary to accomplish overall project objectives. The evaluation's primary objective was to analyze and assess the project's physical progress and recommend corrective actions necessary to attain project objectives. Another principal objective was to study the sustainability of project-constructed facilities by AGOSD after the project's completion and recommend appropriate action.

#### METHODOLOGY:

The evaluation was conducted by Briley, Wild & Associates who used a five member team to conduct the evaluation. The team, experienced in wastewater systems design, construction management, operations training and maintenance, and environmental analysis, spent one month in Alexandria reviewing documents, interviewing personnel, and visiting sites. In addition, the firm contracted with an Egyptian consultant to assist with the social/environmental portion of the evaluation. Using rapid, low-cost studies, the consultant surveyed representative samples of the served communities and gathered relevant public health statistics. All this information was then compiled, reviewed and evaluated by Briley, Wild & Associates who summarized the findings in the evaluation report.

#### FINDINGS, CONCLUSIONS AND PRINCIPAL RECOMMENDATIONS:

The evaluation report was organized around three assessments of the project: social/environmental, physical progress, and project sustainability. Following the evaluation report's structure, this summary presents findings, conclusions and recommendations on these three elements of the project.

#### Social/Environmental Element

**Findings**--Sewage collection has been expanded to serve all the targeted areas, including 90 percent of the previously unsewered areas. This expansion has virtually eliminated sewage flooding/ponding in the project area. In addition, the incidence of water-borne diseases has decreased in the project areas, and the report concludes, that "to a significant extent this can be attributed to the project." Sewage discharges to the Mediterranean are reduced during the summer because of the project. However, enhanced water quality in the Mediterranean and Lake Maryout remains an elusive goal and ultimate protection can not be assured until the Government of Egypt (GOE) carries out the whole Master Plan. (USAID has informed the GOE on numerous occasions that it should seek funding from other donors to complete Alexandria's Master Plan.) Several factors further complicate the situation in Lake Maryout: the discharge of untreated industrial waste into the lake continues to be a major source of pollution, and the two primary-treatment plants are still under construction and not yet in operation. Surveys of families living in the project area showed that 75 percent of the families noted improvements in sewage disposal. (It is important to note that these improvements are obvious before the project's completion.)

**Recommendations**--The recommendations centered around required actions by the GOE to complete the project: expediting the completion of missing elements in the wastewater collection, determining the site of permanent effluent disposal (land or sea), and requiring pretreatment of industrial wastes. The team also recommended that more formal testing be implemented for water quality in Lake Maryout and the Mediterranean.

#### Physical Progress Element

**Findings**--The project is now scheduled for completion on 12/31/94, putting it six years behind schedule. This delay is due to the intense national debate surrounding the site and method of the disposal of the system's effluent, administrative delays caused by the host country implementing agency (AGOSD), and the complex soil and groundwater conditions in Alexandria. Project delays have

been for the most part beyond the control of USAID and WCOG. The delay has resulted in increased project costs, postponement of its use and potential degradation of the system's completed elements. Currently, the project is progressing well and the quality of construction work is excellent. The contractors involved have dealt the difficult -to-manage soils and groundwater conditions by properly redesigning components of the system and adopting innovative, yet time-consuming, construction methods. Of the six sub-project construction contracts, three are completed and the remaining three are scheduled for completion by December 1993.

**Recommendations**--USAID, in coordination with AGOSD, should continue its efforts to complete project construction by 1993 and then provide Operations and Maintenance (O&M) assistance for an additional year. USAID and WCOG should continue efforts to influence AGOSD to adopt and practice effective project management procedures. A preventive maintenance program should be continued and expanded to include a schedule for exercising all idle project equipment until full operations begin.

#### Project Sustainability

**Findings**--The project's success hinges on the ability of WCOG's O&M group, in concert with AGOSD, to achieve the goals and objectives regarding sustainability. Based on preliminary undertakings rather than observed results, the evaluation report found that the O&M team appears to be moving towards the goal in a timely fashion. The report warns that the complex task involves the future training and motivation of the AGOSD staff, the reorganization of AGOSD's financial and management structure, and serious reforms to AGOSD's authority to levy and collect tariffs to meet operating expenses.

**Recommendations**--The recommendations centered around critical reforms and restructuring for AGOSD. These recommendations involved staff size, fiscal management, and the ability to levy and collect tariffs. The evaluation report recommended that USAID ensure that the O&M assistance program continue for at least a year beyond the completion of construction and that the O&M program be reviewed at least one more time.

#### MISSION COMMENTS:

It is significant to comment that although the project is not yet fully operational, the completion and operation of the collection system above results - or indicates in the report in significant improvement in the health condition of the population within the area caused by the project.

#### LESSONS LEARNED:

It is important to plan for a final evaluation at approximately one year after the completion of the facilities and beginning of the operation to assess the impact on the health condition of the population and sustainability of the project.