

PID-ABG-41183312

**NATIONAL ORGANIZATION FOR POTABLE WATER
AND SANITARY DRAINAGE
(NOPWASD)**

BASIC CONTRACT COMPLETION REPORT

**WATER and WASTEWATER INSTITUTIONAL
SUPPORT PROJECT
(WWISP)**

USAID PROJECT NO. 263-0176

AUGUST 1991

**JOINT VENTURE OF
BOYLE ENGINEERING CORPORATION
AND
NATIONAL EDUCATION CORPORATION**

**IN ASSOCIATION WITH
DR. A. ABDEL WARITH / TEAM MISR,
ROBERT R. NATHAN ASSOCIATION INC., AND
ECO-RESOURCES INCORPORATED**

**WATER AND WASTEWATER INSTITUTIONAL
SUPPORT PROJECT (WWISP)**

A JOINT VENTURE OF BOYLE ENGINEERING CORP.
& NATIONAL EDUCATION CORP. IN ASSOCIATION
WITH AAW, CONSULTING ENGRS AND TEAM MISR

مشروع الدعم التنظيمي لقطاع الإمداد
بالمياه والصرف الصحي
الهيئة المشتركة من شركتي بويل انجنييرنج وناشيونال أديوكيشن
بالتعاون مع شركتي عبدالوارث وتيم مصر

Eng. Mahmoud Abdel Halim
Chairman, NOPWASD
96 Ahmed Orabi St., 15th Floor,
Mohandessin - Giza

26 August 1991
WWISP/01037/JADE/ms/LTR

SUBJECT : WWISP CONTRACT 263-0176 - COMPLETION REPORT

Dear Eng. Mahmoud Abdel Halim,

Article IIA2 of the subject Contract requires that the WWISP Consultants prepare a Completion Report.

In response to that provision, the attached report, covering the period 2 December 1988 through 30 May 1991, describes project accomplishments based on the Scope of Work contained in the original Contract, and as modified by Amendments No. 1 and No. 2. This report is submitted for your review and use.

Kindly let us know if you desire the WWISP Consultant to elaborate with you or your staff, on any aspects of this Report.

Warm personal regards.

Sincerely yours,


J. A. D'EMIDIO

RESIDENT PROJECT MANAGER

Attachment:

A - Completion Report.

cc: MHPU - Eng. A.S. Awad
USAID - Ms. S. Patton

TABLE OF CONTENTS

<u>NO.</u>	<u>PAGE</u>
I BACKGROUND	2
II NOPWASD ACCOMPLISHMENTS	4
III MHPU/NOPWASD/WWISP RECOMMENDATIONS	9
IV OTHER WWISP ACTIVITIES	10
V COMMENTS ON PROJECT PROBLEMS	11
VI APPENDICES	
- APPENDIX (A) SUBTASK REPORT COMPLETION DATES	A - 1
- APPENDIX (B) SUBTASK REPORTS WITH RECOMMENDATION AND ACTION PLANS	B - 1
- APPENDIX (C) C-1 EMPLOYMENT PERIODS AND MAN-MONTHS FOR U.S. STAFF C-2 EMPLOYMENT PERIODS AND MAN-MONTHS FOR EGYPTIAN STAFF	C - 1
- APPENDIX (D) D-1 DETAILS REGARDING DR. AHMED ABDEL WARITH - AAW SUBCONTRACTOR D-2 DETAILS REGARDING TEAM MISR SUBCONTRACTOR	D - 1
- APPENDIX (E) SUBMISSION OF WATER AND WASTEWATER SURVEY REPORTS	E - 1
- APPENDIX (F) COMPLETION REPORT DATA AND BIBLIOGRAPHY	F - 1
- APPENDIX (G) FINAL SHIPPING REPORT	G - 1

I - BACKGROUND

A - Project Objectives

The Water and Wastewater Institutional Support Project (WWISP) was conceived by the Government of Egypt (GOE) and the United States Agency for International Development (USAID) to create a more functional and effective national water/wastewater (w/ww) sector. A well developed and properly managed w/ww sector is essential to the health, well-being and productivity of the workforce and general populace.

B - Joint Venture and Associated Firms

On 31 August 1988, a Contract was signed by the National Organization for Potable Water and Sanitary Drainage (NOPWASD), referred to as the client and the Joint Venture firms of Boyle Engineering Corporation and National Education Corporation in association with Dr. Ahmed Abdel Warith, TEAM Misr, Robert R. Nathan Associates Inc. and ECO-Resources Inc., referred to as the Contractor.

C - Basic Tasks and Subtasks

The project includes a series of tasks and subtasks conducted at the Ministry of Housing and Public Utilities (MHPU) and at NOPWASD. The major task areas are detailed below:

<u>MHPU</u>	<u>NOPWASD</u>
A.1 Policy Guidance and Monitoring	B.1 Planning & Economic Analysis
A.2 Plan Review and Finance	B.2 Manpower Development and Training
A.3 Administration and Organization	B.3 Organization and Management
	B.4 Finance and Accounting
	B.5 Engineering & Environmental Controls

A list of the reports on the 37 subtasks which were performed under these eight task headings is included as Appendix (A), including submission dates to NOPWASD.

D - Project Approach

WWISP differs from the numerous studies which have been conducted for the W/WW sector in the past. WWISP is a different and new approach, as the project emphasizes the planning and implementation phases of organizational and Human

Resources Development (HRD). The objective has been to assist MHPU and NOPWASD managers in finding and implementing solutions to various sector problems. This pragmatic approach was devised to assist the MHPU and NOPWASD in bringing about beneficial changes to the sector in the most effective manner.

E - Action Plans

Key elements of WWISP are the subtask Action Plans which detail the sequence of specific steps to be followed to implement WWISP recommended solutions. These Action Plans are critical elements of the WWISP strategy and, to be successful, require a strong commitment from NOPWASD, MHPU, USAID and the Contractor to actually carry out the necessary activities.

F - Report Submittal

The Contract stipulated the preparation and delivery to the client of reports covering the 37 subtasks. Draft reports were submitted and after MHPU/NOPWASD/USAID review comments were received, the reports were finalized and submitted to the client. A summary of the subtask reports, with recommendations and Action Plans, is shown in Appendix (B).

Representatives from the World Bank have commented that the WWISP Reports are the "most useful documents on the Water and Wastewater Sector available in Egypt".

G - Reprioritization

After approximately one year into the execution of the contract, NOPWASD and USAID requested that expatriate and Egyptian expert manpower resources be shifted from the Contract schedule, to perform other more critical activities. The major activities added by this reprioritization included, but were not limited to, the following:

- o Assisted NOPWASD in the opening, start-up and operation of the Damanhour Training Center in Beheira Governorate.
- o Assisted NOPWASD in the survey of 26 wastewater treatment plants to assess facility rehabilitation, staffing and training requirements.
- o Assisted NOPWASD in the survey of several water treatment plants to assess facility rehabilitation, staffing and training requirements.

- o Assisted NOPWASD in the survey of 20 water and wastewater treatment plants at Secondary Cities, located primarily in upper Egypt.
- o Assisted NOPWASD to improve the professional quality of their w/ww treatment plant plans and specifications by assigning to the Central Department of Design three WWISP Egyptian professional engineers for 3 days per week. The WWISP engineers instructed the NOPWASD engineers in the design methods and techniques currently used in commercial practice.
- o Conducted Management Training Workshops for key NOPWASD/MHPU personnel.

All the requirements of the basic contract (less two subtasks which were cancelled by the client) were completed including the above mentioned tasks and other assignments.

H - Contract Budget Estimate

The basic Contract was for \$ 8,314,038. The work was to be performed over a period of 30 months, with an estimated level of effort of 1931 manmonths. This effort was provided by approximately 374 expatriate manmonths and 1557 Egyptian manmonths which included professional, technical, administrative and support staff. The actual manmonths provided by the WWISP Joint Venture firms and Subcontractors are shown in Appendix (C). Additional information concerning the two Egyptian Subcontractors assigned to the project, is described in Appendix (D).

In addition, two cost Amendments were added to the Contract, primarily for equipment purchases, with no time extensions. They were:

Amendment No. 1	Air Conditioners	\$ 26,925
Amendment No. 2	Clean-Up (Equipment)	\$ 897,412
Basic Contract		\$ 8,314,038

The Total Contract Amount		\$9,238,337

II - NOPWASD ACCOMPLISHMENTS

The Contract stated that the success of the WWISP Contract would not be measured by how well the Contractor performs, but by how well NOPWASD accepts and implements the Action Plans recommended in the WWISP reports. Over the course of the project period, NOPWASD implemented a number of WWISP recommendations and as a result made some organizational and management advances. The most significant NOPWASD accomplishments during the WWISP Contract period include:

A - Damanhour Training Center (DTC)

The construction of the DTC was nearing completion in August 1989. Funding for this regional training center was provided by the World Bank. Training equipment supplied by the World Bank was identified and stored in a warehouse in Beheira Governorate. NOPWASD had no budget and no staff identified to open and operate the DTC. Since then, with technical assistance provided by WWISP, the training center has been opened and NOPWASD has designed and developed fifteen courses in Arabic language which are focused on improving critical sector wide operation and maintenance skills. Since March 1990, when the decision was made to elevate the Center's importance, over 500 sector engineers and technicians have been trained at the DTC under the direction of the NOPWASD Central Department of Training (CDT).

B - NOPWASD and Contractor Office Space

During the initial phase of the WWISP technical assistance effort, NOPWASD staff were located in overcrowded, antiquated offices on the 6th floor of the Mogamma Building in central Cairo. NOPWASD was offered L.E. 10.5 Million by USAID to assist in procuring new offices in Mohandessin but owing to other sector priorities, the funds were never approved or allocated by the GOE. On their own initiative, and at their own cost, NOPWASD purchased new office space on four floors in the Mohandessin Building and relocated its staff from the Mogamma Building. Some air conditioning units were purchased for NOPWASD by WWISP under Amendment No. 2. Additional air conditioning units are still needed to further improve the environmental working conditions in some of the NOPWASD offices. WWISP also moved into the acquired NOPWASD space in Mohandessin and established environmentally acceptable space by installing air conditioners, dividing working spaces into suitable offices by constructing partitions and installing carpeting.

C - Start-up and Operation of Wastewater Treatment Plants

Before WWISP, NOPWASD designed and constructed water and wastewater treatment plants for towns and cities. When completed, the Minister of Housing and Public Utilities (MHPU) and NOPWASD would assist in plant commissioning. A ribbon would be cut and the facility would be turned over to the local governorate. Typically, NOPWASD would then end its involvement in the project. As a result, most of these plants (predominantly wastewater treatment facilities) were never operated correctly because the receiving agencies lacked an adequate O&M budget, skilled staff, training, spare parts, operating manuals and know how, etc. Implementing WWISP Action Plan recommendations, NOPWASD now operates all

4

new facilities for one year in coordination with the receiving agency. During this start-up phase, staffing is furnished, operator training is provided, calibration of plant equipment is conducted, all of which contribute to long-term sustainability.

D - Surveys of Water/Wastewater Treatment Plants

Starting in March 1990, NOPWASD, with WWISP assistance, initiated a program to survey water and wastewater treatment plants under NOPWASD jurisdiction. The main objectives were to determine the facilities operational status; to identify deficiencies; and to estimate the cost of corrections necessary to bring the facilities to acceptable operating condition. The basic long-term goals were a) to ensure that Water and Wastewater Treatment Plants meet National Standards and b) to assist in setting priorities for capital improvement programs.

NOPWASD personnel were trained by WWISP in facility survey methods and procedures. Survey questionnaires and forms were designed and a database program was developed so that results of the survey could be added to the NOPWASD Management Information System (MIS). These surveys are the first in a series of steps required to implement a "Compliance Schedule" to ensure that water and wastewater treatment plants meet national drinking water and wastewater discharge standards.

Details of these surveys concerning site location and submission dates of survey reports to NOPWASD are shown in Appendix E.

E - NOPWASD's Standing in the W/WW Sector

The Ministry of Health hosted a conference on "Environmental Training" at its Embaba facility in late 1989. Approximately 50 representatives from all sectors of the Government participated in addition to international donors. Unfortunately, NOPWASD was not invited to participate in this important seminar.

Since the seminar, and as a result of strides NOPWASD has made in more efficiently fulfilling its mission, attitudes towards NOPWASD have changed. Based on recommendations by the Minister of Health, the Chairman of NOPWASD was named as the "GOE Focal Point" for all activities related to the United Nations/World Health Organization (WHO) International Decade of Water Supply and Sanitary Drainage (IDWSSD). This is not an honorary title but requires effective leadership to develop and implement programs for safe drinking water and adequate sanitary drainage, for all the people in Egypt.

F - Internal Fellowship Programs

Through NOPWASD efforts, WHO has agreed for the first time in Egypt to sponsor

and fund six Internal Fellowships for post-graduate studies in Sanitary/ Environmental/Chemical Engineering, beginning in September 1991. These programs will be conducted at the High Institute of Public Health, University of Alexandria. In addition, WHO has funded the procurement of significant equipment for the Chemistry Laboratory at the NOPWASD Damanhour Training Center. A strong working relationship has been forged with WHO, which should help to improve coordination and achievements within the sector.

G - Coordination of Donor/Lender Support

In response to WWISP recommendations, all donor/lender efforts in support of NOPWASD are now being coordinated. The "Chairman NOPWASD Donor/Lender Seminars" have been highly successful in helping to solve donor/lender program related problems, expedite work in progress and improve dialogue among the Donors, their consultants, and NOPWASD engineers and planners. The Seminars have included donors' representatives from the USA, Netherlands, Denmark, Germany, England, Japan, WHC, UNICEF, UNDP, World Bank and others. All donor/lender activities in support of the GOE Water/Wastewater Sector are being included in the NOPWASD Donor Management Information System (MIS).

H - NOPWASD Technical Library

The development of a NOPWASD library has been supported by WWISP through the establishment of a computerized library cataloging system and purchase of appropriate books, shelves, and furniture. Approximately \$15,000 worth of books and periodicals have been purchased for the NOPWASD library. These books and periodicals have been cataloged by NOPWASD/WWISP and delivered to the NOPWASD Technical Library located on the fourteenth floor of the NOPWASD offices at 96 Ahmed Orabi St., Mohandessin and to the DTC. Support to the NOPWASD librarian included proper use of the computerized library cataloging program with extensive training on how to organize and operate a Technical Library. Mrs Sandra Gamal, Mr. Mahfouz El Sharkawy and Mr. Sayed Abdalla provided over 100 hours at training in necessary library skills. In addition, a database was developed for the NOPWASD Water/Wastewater Survey Programs, a critical part of the NOPWASD Management Information System. Further comments and additional details are shown in Appendix F.

I - Management Training

WWISP has encouraged the training of NOPWASD's key personnel to foster the development of effective management concepts and leadership skills. In addition, middle management training, with the active and enthusiastic participation of the governorates, has been endorsed by NOPWASD. These efforts by NOPWASD are consistent with the "Top Down" approach to management, as advocated by WWISP. Twelve courses were conducted by WWISP covering a wide range of management

subjects. The participants totalled 173; 89 of whom came from 15 different departments of NOPWASD, and 84 from the governorates.

J - National Sector Planning

NOPWASD has improved its national planning and policy development skills as a result of beginning to implement the Planning and Economic Analysis recommendations of WWISP. Needs assessments were made of wastewater treatment facilities in over 26 major cities. Surveys of water treatment plants at major cities was started but the effort was redirected to survey water and wastewater treatment plants and systems in 20 secondary cities. NOPWASD professional staff participated in all surveys and are now trained in the proper procedures and techniques for assessing needs of both water and wastewater treatment facilities. NOPWASD's skills in mapping water distribution and wastewater collection systems were developed in a WWISP presented course. These training programs directly contribute to NOPWASD's ability to assess sector needs.

K - Economic Analysis

Two 6-week courses in feasibility analysis and economic evaluation were presented to NOPWASD middle management by WWISP. These courses covered four areas of economic analysis needed to manage facility capital investment and to evaluate projects including: financial analysis for engineers, engineering economics, feasibility analysis and managerial economics. This training helps NOPWASD to assess sector needs.

L - NOPWASD Computer Training

Employees from selected NOPWASD Departments are improving their professional skills in the use of computers. WWISP procured 10 specially configured computer systems with associated software packages and coordinated a series of training sessions for 25 NOPWASD personnel plus 15 observers. Software covered in the training program included the following:

DOS	AUTOCAD VER. 10
BASIC LANGUAGE	AUTOCAD DESIGN, ARAL
VIRUSCAN	IPRINT
PC TOOLS	HARVARD GRAPHICS
NORTON	AWORKS & ADOS
WORDPERFECT	PROFESSIONAL WRITE
ARABWORD	ROOM ARABIZATION
LOTUS 123	COMET 2080
D BASE III	AL-MOSSAED AL-ARABI
WINDOWS	EXCEL

M - Management Information System (MIS)

As an integral part of the WWISP effort, new skills in modern management practices have been furnished to NOPWASD. Specified in the WWISP contract was a requirement that a report be drafted addressing how NOPWASD/MHPU might design, develop, and use a modern Management Information System (MIS). A high powered Dell computer was subsequently purchased by the project to prototype appropriate software programs. The system will help NOPWASD to collect data for rapid retrieval to enable NOPWASD decision makers to make critical decisions. WWISP developed a software program to list all present or potential donors to include status of on-going w/ww funding. Emphasis was placed on eliminating duplication of effort among donors and assisting them in setting priorities as to where additional funding might be required. The "Donor Software Program" was delivered to NOPWASD and provided the beginning phases of a system that can be upgraded in the future. Appropriate software documentation was provided by WWISP.

It is obvious that NOPWASD has made progress in improving its ability to make the difficult decisions necessary to improve the water/wastewater sector in Egypt.

III - MHPU/NOPWASD/WWISP Recommendations:

During the course of the Contract, WWISP was requested to arrange for a workshop to review NOPWASD progress, to study the organizational goals and objectives, and to make recommendations for future direction and follow-on work. The workshop was held in December 1990 with WWISP input to the workshop provided in "Recommendation Synthesis Matrix (Appendix B). This matrix is summarized as follows:

A - Major Goals and Objectives

- o Overall Goal - Decentralization of Planning, Design and Construction of Water and Wastewater facilities to local agencies.
- o Overall Objective - Privatization of water and wastewater sector.

B - Action Plan

- o Establish Independent Water/Wastewater Companies (IW/WWC).
- o Define Role of NOPWASD in Providing Assistance in Establishing IW/WWC.
- o Define Role of WWISP in Providing Assistance to NOPWASD in the establishment of IW/WWC.

C - Follow-On Activities

Phase I

- o Technical Assistance for Start-up and Operation of the Damanhour Training Center and Support for the NOPWASD Central Department of Training.
- o Completion of Water/Wastewater Plant Surveys.
- o Develop Independent Water/Wastewater Company Systems and Pilot Implementation in a Selected Governorate.

Phase II

- o Establish Operations and Maintenance Pilot Plants.
- o Contract for Operations and Maintenance Services.
- o Establish Operations and Maintenance Monitoring Units.
- o Establish Luxor Training Center.

IV- Other WWISP Activities

As part of WWISP's overall assistance program to NOPWASD, a considerable amount of equipment was procured. A large part of the equipment was obtained from the United States and shipped to Egypt. The initial contract included \$330,385 for equipment procurement, including 17 vehicles for project use, as well as computers, photocopiers, office furniture and other support items. About half of the equipment budget allocation was spent in the United States and the remainder in Egypt.

The Final Shipping Report, Appendix (G), addresses the activities in shipping US-procured equipment to Egypt.

Under Amendment No. 2 of the contract, \$327,301 was added for equipment to be purchased by WWISP and delivered directly to NOPWASD. This included \$100,000 for computers, printers and software as well as training of NOPWASD staff. Much of the equipment purchase was to support the NOPWASD Central Department of Training. A relatively small amount of the Amendment No. 2 equipment was purchased in the US and shipped to Egypt. Among the items shipped were 300 engineering and other technical books, 35 mm camera, 8 mm video camera and two water and wastewater ultrasonic flowmeters.

V - Comments on Project Problems

The problems associated with WWISP contractual commitments included, but are not limited to, the following:

A - Contract Direction

The basic contract, requiring the preparation of 37 reports, was very ambitious to accomplish within the 30 month Contract period. In addition, it should be noted that the preparers and approvers of the Request for Proposal (RFP) in USAID/NOPWASD and the implementers of the WWISP contract both in USAID and NOPWASD consisted of different groups of people. The new people had other ideas as to what should be done under "WWISP Institutional Support". Notwithstanding, WWISP at the urging of USAID/NOPWASD, reprioritized its direction and effort and shifted manmonths included in the basic contract to achieve significant additional scope, as follows:

- o Assisted NOPWASD with the start-up and operation of the Damanhour Training Center (DTC).
- o Assisted NOPWASD in the survey of existing poorly functioning or not functioning, water and wastewater treatment plants.

As part of the reprioritized effort, and with NOPWASD/USAID concurrence, WWISP completed all but two of the contract required reports, plus the large additional workload.

B - Facilities

The contract required the client to provide "environmentally acceptable" working space with adequate air conditioning, telephones, intercom, etc. No office space was available for project start-up on 2 December 1988.

It took four months to obtain project office space. WWISP staff worked during the first summer of 1989 without air conditioning, intercoms, room partitions, and telephone service was limited. For over a year, WWISP spaces were "less than environmentally adequate".

Office space problems included the following:

- o Power failures for up to eight hours at a time. Effectiveness of the entire team effort, particularly the wordprocessors, was substantially reduced.

- o Elevators not working. (WWISP offices are on the 16th floor). Climbing up and down the stairs during the hot summer months reduced the productivity and could have been hazardous to the health of some of the Expatriate and Egyptian staff.
- o Less than adequate fire protection was provided on the 16th floor of the Mohandessin Building. (There was a very destructive fire which completely gutted the 10th floor). Fortunately, this occurred at 1800 hours on a Thursday, and no one was injured.
- o Lack of water for up to eight hours at a time.
- o Other facility problems.

C - Invoicing

Review Process

- o The contract requires NOPWASD to review and act on invoices within 30 days and USAID to process invoices within 15 days; for a total of 45 days.
- o During the entire Contract, these reviews always exceeded 45 days and in the later part of the Contract, extended to over 100 days.
- o USAID and NOPWASD failure to adhere to the payment provisions of the contract resulted in significant additional costs to the contractor.

Disallowances

- o Disallowances in invoices were often arbitrary. Deductions were typically made without any reason or explanation.
- o For months, significant disallowances in local travel and per diem expenses were made, even though per diem rates were paid per contract provisions and USAID guidelines.
- o Disallowances in salaries of expatriates were consistently made without any reason or justification. Salaries of expatriates exceeding mid-point amounts were systematically disallowed in spite of WWISP efforts to explain Contract provisions.

D - Loss of WWISP Egyptian Experts

WWISP is a host country contract. Many other AID contracts in the institutional support area are direct USAID contracts. The contractors under the "direct" contracts are able to pay significantly higher salaries to Egyptian staff than under the WWISP host country contract. As a result, contractors under direct USAID contracts, hired some of the best WWISP-trained employees to the detriment of WWISP efforts. While this problem area was brought to USAID's attention, nothing was done to halt the practice.

This exchange of employees by one USAID contractor from another, should only be allowed when the management of both contractors agree to the change.

VI - Appendices

- Appendix (A)
Subtask Report Completion Dates

- Appendix (B)
Subtask Reports with Recommendation and Action Plans

- Appendix (C)

C-1 Employment Periods and Man-Months for U.S. Staff
C-2 Employment Periods and Man-Months for Egyptian Staff

- Appendix (D)
D-1 Details Regarding Dr. Ahmed Abdel Warith - AAW Subcontractor
D-2 Details Regarding TEAM MISR Subcontractor

- Appendix (E)
Submission of Water and Wastewater Survey Reports

- Appendix (F)
Completion Report Data and Bibliography

- Appendix (G)
Final Shipping Report

APPENDIX A

SUBTASK REPORT COMPLETION DATES

APPENDIX (A)

SUBTASK REPORT COMPLETION DATES

1- Under the basic contract, and as noted below, three categories of subtask reports were required to be submitted to NOPWASD. The information concerning these submittals is summarized as follows:

SUBTASK	REPORT NO.	OTHER SUBMITTALS (O.S.)	DRAFT SUBMITTAL DATE	NOPWASD APPROVAL OF DRAFT	FIN. SUBV. DAT
PROJ.MG. }	OS1	IMPLEMENTATION PLAN FOR FIRST YEAR	31/3/89	14/1/90	14/1/
PROJ.MG. }	OS2	IMPLEMENTATION PLAN FOR SECOND YEAR (INCLUDED IN OS1)			
A3.2	OS3	MANAGEMENT TRAINING PROGRAM	29/4/90	29/7/90	8/10
A3.3	OS4	SHORT TERM PERSONNEL NEEDS ANALYSIS	30/4/89	14/1/90	30/9
A3.4	OS5	OFFICE SPACE & EQUIPMENT REQUIREMENT	5/5/89	28/8/89	25/1
		ANALYSIS FOR CONSULTANT STAFF			
A3.4	OS6	OFFICE SPACE & EQUIPMENT REQUIREMENT	8/9/89	9/10/89	16/3
		ANALYSIS FOR MUNU & NOPWASD			
A1.1	OS7	LEGISLATIVE MANDATE REVIEW	30/12/89	10/3/90	12/7
A2.2	OS9	FIVE YEAR PLAN AND ANNUAL BUDGET PROCESSES	31/7/90	-	13/10
B1.1	OS9A	BASIS FOR PREPARATION OF NATIONAL WATER & WASTEWATER SYSTEM NEEDS ASSESSMENT	16/11/89	28/3/90	17/2
B2.2	OS9B	BASIS FOR PREPARATION OF THE MANPOWER DEVELOPMENT PROGRAM	10/12/89	25/2/90	13/9
B3.1	OS11	PUBLIC AWARENESS PROGRAM	24/10/89	25/9/90	28/7
B1.1	OS12	PRIVATE ENTERPRISES SUPPORT PROGRAMS	23/8/90	-	11/11
B2.5A	OS10	APPLIED RESEARCH SUPPORT PROGRAM	27/1/91	8/3/91	12/5
B2.5B	OS13	PUBLICATION SUPPORT PROGRAM			
B2.5C	OS14	LIBRARY SUPPORT PROGRAM			
B4.3	OS15	PILOT GRANT-IN-AID PROGRAM FOR MUNICIPALITIES	CANCELLED (16/3/91)		
B5.1	OS16	CONSTRUCTION MANAGEMENT SUPPORT PROGRAM	15/11/90	20/1/91	7/2
SUBTASK	NO.	SPECIAL REPORTS (S.R.)	DRAFT SUBMITTAL DATE	NOPWASD APPROVAL OF DRAFT	FIN. SUBV. DA
A3.1	SR1	COMPENSATION STRUCTURE ANALYSIS	25/10/89	1/2/90	7/3
B1.1	SR2	NATIONAL WATER AND WASTEWATER	10/9/89	28/3/90	3/5
(A2.1)		SYSTEM NEEDS ASSESSMENT			
A2.3	SR3	TARIFF & USER CHARGES STUDY	17/8/90	8/10/90	5/11
B2.1	SR4	MANPOWER NEEDS ASSESSMENT	29/11/89	13/1/90	9/12
B2.2	SR5	MANPOWER DEVELOPMENT PROGRAM	31/1/90	26/2/90	30/1
B2.4	SR6	CERTIFICATION PROGRAM	31/12/89	25/2/90	20/1
B3.1	SR7	INDEPENDENT WATER COMPANY CONCEPT EVALUATION	31/5/90	22/9/90	11/10
B3.2	SR8	PERFORMANCE MONITORING SYSTEM	29/3/90	18/7/90	17/9
B5.2	SR9	ENVIRONMENTAL CODE ENFORCEMENT PROGRAM	22/11/00	31/1/91	4/3
SUBTASK	NO.	CONTRACTOR GENERATED REPORTS (C.G.)	DRAFT SUBMITTAL DATE	NOPWASD APPROVAL OF DRAFT	FIN. SUBV. DAT
A1.2	CG1	INTERGOVERNMENTAL COORDINATION	15/2/90	9/5/90	23/9
A1.3	CG2	COOPERATION AND LIAISON			
A1.4	CG3	INTERNATIONAL DONOR RELATIONS	CANCELLED (17/8/90)		
A1.5	CG4	MANAGEMENT INFORMATION SYSTEM (MIS)	12/4/80	9/5/90	9/8
B1.2	CG5	INVESTMENT STRATEGIES	11/9/89	28/3/90	26/
B1.3	CG6	DEVELOPMENT OF AN ECONOMIC ANALYSIS CAPABILITY	17/4/90	30/7/90	11/
B2.3	CG7	ON-THE-JOB TRAINING SUPPORT PROGRAM	22/2/90	28/3/90	27/
B3.3	CG8	INTRA & INTERORGANIZATIONAL STRUCTURE	31/10/90	17/12/90	25/
B4.1	CG9	LOCAL REVENUE GENERATION	13/12/80	17/2/91	28/
B4.2	CG10	COST ACCOUNTING SYSTEM	16/12/89	19/4/91	23/
B5.1	CG11	ENVIRONMENTAL STANDARDS FOR POTABLE WATER & WASTEWATER DISCHARGE	19/7/90	9/10/90	11/
B5.3	CG12	DESIGN PROCEDURES, STANDARDS, & DETAILS FOR WATERWORKS & SEWAGEWORKS	23/12/90	9/3/91	21/
B6.6	CG13	MUNICIPAL O&M ASSISTANCE	26/10/90	28/12/90	31/

2- Each report contained recommendations and action plans for implementation by NOPWASD. The amount of implementation initiated was based on NOPWASD prioritization / reprioritization of work assignments during the execution of the contract

APPENDIX B

**Subtask Reports with Recommendations
& Action Plans**

APPENDIX (B)

SUBTASK REPORTS WITH
RECOMMENDATION AND ACTION PLANS

Group 1: Planning, Policy and Finance

Subject & References	Recommendation	Goal/Benefit	Action Completed or Underway	Action Required	Constraints
Independent W/W Companies WJISP Report SR-7 (Subtask B3.1) Report Summary Sheet 1-1	Existing IVC's reformed and new IVCs created. All to become financially viable & organizationally independent. Tariffs increased to sustain IVCs. Private sector participation.	Decentralize important functions for more effective operation. Increase private sector participation. W/W functions become self-supporting through increased tariffs.	-----	Implement Complete Action Plan.	Lack of funds, resistance to increased tariffs needed to become independent.
Five Year Plan and Annual Budget Process Investment Strategies Development of an Economic Analysis Capability WJISP Reports: OS-8, CG-5 CG-6 Subtasks A2.2, B1.2, B1.3) Report Summary Sheet 1-2	Establish Control Department for Capital Improvement Planning to implement Action Plans, collect studies from governorates, create data base, prioritize projects, and obtain required legislation.	Provide political, economic, and technological action to capital improvements. Establish an objective, standardized procedure for use throughout the W/W sector.	-----	Implement complete recommended Action Plans.	Requires reorganization, recruitment, and training of staff. Lack of funds for computerization and maintenance of data base.
National W/W Needs Assessment WJISP Report SR-2 (Subtask A2.1, B1.1) Report Summary Sheet 1-3	Prepare national W/W sector needs assessment. Participate in activities of the General Organization for Physical Planning (GOPP). Propose W/W projects to MHPU.	Provide a sound foundation for sector planning. Institutionalize W/W needs assessment within the GOPP. Provide the basis for MHPU Five Year Plan.	20 W/W surveyed; 24 W/W surveys underway.	Continue assessment; coordinate with investment strategies & economic analysis. Expand MOPUASD Central Department of Planning & Follow-Up. Use needs assessment data to justify and prioritize projects; develop action plan for funding programs.	Lack of trained planning staff. Requires reorganization, recruitment, and training of staff. Lack of funds for field team travel and equipment.
Management Information System Performance Monitoring System Cost Accounting System WJISP Reports CG-4, SR-8, CG-10 Report Summary Sheet 1-4	Establish Information Systems Group to follow Systems Development Life Cycle to automated systems goals. Design performance indicators with a Project Management Team & pilot program. Implement Cost Accounting System concepts.	Three interrelated systems combine in an integrated information system that provides management with the current data needed for informed decisions.	High Committee for MIS strategy has been appointed. Information Center, Payroll and Design employees have received training. Database is being created using survey information. Prototypes of some elements are in use.	Continue implementation of Action Plans. Conclude analysis of cost benefits to determine desired degree of automation.	Lack of funds for automated equipment. Scarcity of qualified professional and technical computer specialists. Need to overcome socio-cultural fear regarding automation.

Group 1: Planning, Policy and Finance

Subject & References	Recommendation	Goal/Benefit	Action Completed or Underway	Action Required	Constraints
<p>Tariff and User Charges Study</p> <p>_____</p> <p>WWISP Report SR-3 (Subtask A2.3)</p> <p>_____</p> <p>Report Summary Sheet 1-5</p>	<p>Develop acceptance of a tariff policy change strategy. Develop local financial viability through tariff revenue generation.</p>	<p>Public acceptance of realistic tariff structures to provide the revenues essential to efficient, decentralized services.</p>	<p>MHPU is promoting an initial tariff increase of 50% over the current schedule, consistent with recommendations.</p>	<p>Continue policy change strategy at MHPU and Cabinet level. Institute metering programs. Establish standardized accounting system for recording and reporting operational costs.</p>	<p>Socioeconomic resistance to increased cost of services.</p> <p>Reliance on successful implementation of Public Awareness Program and Cost Accounting System.</p>
<p>Local Revenue Generation</p> <p>_____</p> <p>WWISP Report CG-9 (Subtask B4.1)</p> <p>_____</p> <p>Report Summary Sheet 1-6</p>	<p>Decentralize/privatize W/W utilities. Develop tariff schedules to recover actual costs of independent utilities install appropriate use measuring devices. Educate consumers on importance/cost of potable water and sanitary drainage.</p>	<p>Create independent, self-supporting utilities; eliminate expanding financial deficits now requiring government subsidy.</p>	<p>-----</p>	<p>Implement complete Action Plan.</p>	<p>Socioeconomic resistance to increased cost.</p> <p>Reliance on successful implementation of related recommendations on Independent Water Companies, Tariff & User Charges, Performance Monitoring and Public Awareness.</p>
<p>Private Enterprise Support Programs</p> <p>_____</p> <p>WWISP Report OS-12 (Subtask B1.4)</p> <p>_____</p> <p>Report Summary Sheet 1-7</p>	<p>Acquaint private sector companies with W/W opportunities through informal workshops. Develop standards for use of WW sludge in agriculture; set up demonstration program for use of sludge.</p>	<p>Encourage private sector participation in W/W activities in those areas where private sector skills and capabilities exist.</p>	<p>-----</p>	<p>Implement complete Action Plan.</p>	<p>Loans of funds and expertise for recommended workshops and demonstration programs.</p>
<p>Legislative Mandates Review</p> <p>_____</p> <p>Intergovernmental Coordination, Cooperation and Liaison</p> <p>_____</p> <p>WWISP Reports: OS-7, CG-2 Subtasks A1.1, A1.2, A1.3</p> <p>_____</p> <p>Report Summary Sheet 1-8</p>	<p>Pursue changes in Law 9/1983, 577/1984 and PD 197//1981. Increase use of MHPU Coordination and Follow-Up Committee for policy input and public awareness.</p> <p>Design procedure manual should include process for resolution of conflict of interest between agencies.</p>	<p>Encourage public & governmental support for W/W sector.</p> <p>Improve liaison between agencies concerned with W/W.</p>	<p>High Policy Committee issued strategy paper.</p>	<p>Continue to implement Action Plans.</p>	<p>Political and sociocultural resistance to change.</p> <p>Lack of trained legislative liaison staff.</p>

Group 2: Standards/Engineering

Subject & References	Recommendation	Goal/Benefit	Action Completed or Underway	Action Required	Constraints
<p>Environmental Standards for Potable Water and Wastewater Discharge.</p> <p>WWISP Report CG-11 (Subtask B5.1)</p> <p>Report Summary Sheet 2-1</p>	<p>Update drinking water standards. Inventory and inspect groundwater sources. Prepare new regulations on treatment & disposal of sewage. Prepare design standards for sewage handling, treatment, and disposal facilities.</p>	<p>Update old and create new standards, incorporating current knowledge & practices of the W/W field.</p>	<p>-----</p>	<p>Implement complete Action Plan.</p> <p>Analyze and prioritize proposed actions.</p>	<p>Complexity and extent of required actions.</p> <p>Lack of long-term expert advisors and trained local staff.</p>
<p>Environmental Code Enforcement Program</p> <p>WWISP report SR-9 (Subtask B5.2)</p> <p>Report Summary Sheet 2-2</p>	<p>Survey & update W/W plants; ensure availability of funds and staff to sustain upgrade. Conduct similar upgrade of laboratories; develop laboratory certification program. Implement a Code Enforcement Program.</p>	<p>Help to meet the regulatory responsibilities of NCPWASD with mechanisms for implementation of standards and procedures to enforce compliance.</p>	<p>Plant and laboratory surveys have been initiated.</p>	<p>Continue Implementation of Action Plan.</p> <p>Consider a separate organizational component at Central Dept. level to carry out a Code Enforcement Prog.</p>	<p>Requires reorganization, recruitment, and training of staff.</p> <p>Lack of funds to support and upgrade staff and training requirements.</p>
<p>Municipal O&M Assistance</p> <p>WWISP Report CG-13 (Subtask B5.5)</p> <p>Report Summary Sheet 2-3</p>	<p>Develop a national O&M Assistance Program for utility operations, whether by governorates, municipalities, or private operators. Establish a National O&M Compliance Monitoring and Assistance Center to regulate the program.</p>	<p>Ensure efficient and effective operation and maintenance of W/W facilities, to promote high quality, low cost operations.</p>		<p>Implement Complete Action Plan.</p>	<p>Lack of trained O&M technicians at facility level</p> <p>Lack of funds for training</p>
<p>Construction Management Support Program</p> <p>WWISP Report OS-16 (Subtask B5.4)</p> <p>Report Summary Sheet 2-4</p>	<p>Plan, organize and implement a Construction Management Program. Manage currently active projects; plan for a monitoring and guidance role in independent construction management functions. Provide formal training for senior management and field staff.</p>	<p>Avoid construction delays, cost overruns, and poor quality in construction.</p>	<p>-----</p>	<p>Implement complete Action Plan.</p> <p>Consider employment of senior trained, experienced Construction Management Staff to form a Construction Management Dept.</p>	<p>Lack of trained professional personnel.</p> <p>Requires reorganization, recruitment, and training of staff.</p>
<p>Design Procedures, Standards, and Details for Waterworks and Sewageworks</p> <p>WWISP Report CG-12 (Subtask B5.3)</p> <p>Report Summary Sheet 2-5</p>	<p>Develop a comprehensive Design Manual, promote standard details and standard design packages. Focus the Design Department on standard setting and review functions.</p>	<p>Upgrade project design capabilities and procedures, and promote the Design Department's role as an office that sets design standards and reviews design by consultants.</p>	<p>Some training of NCPWASD engineers has been conducted by WWISP in design procedures and economic analysis of structural options.</p>	<p>Implement complete Action Plan, including reorganization of Central Department of Design, and definition of its role and objectives.</p>	<p>Lack of trained professional personnel.</p> <p>Requires reorganization, recruitment, and training of staff.</p>

5

Group 3: Management, Organizational development and Training

Subject & References	Recommendation	Goal/Benefit	Action Completed or Underway	Action Required	Constraints
<p>Short Term Personnel Needs Analysis</p> <p>Intra & Intergovernmental Structure</p> <p>Compensation Structure Analysis</p> <p>_____</p> <p>WISP Reports OS-4, CG-8, SR-1</p> <p>Subtasks A3.3, B3.3, A3.1</p> <p>_____</p> <p>Report Summary Sheet 3-1</p>	<p>At MHPU, reorganize General Administration for Utilities to Central Department for Public Utilities (CDPU); implement staffing plans and incentives.</p> <p>At NOPWASD, recognize to a three-sector structure; implement a Planned Change Model approach.</p>	<p>Provide strong, informed leadership to the sector and its independent elements through W/W policy derived from social and economic global goals, as expressed by the national plans of the central government.</p>	<p>CAOA approval of MHPU, CDPU and NOPWASD three-sector structure has been requested.</p>	<p>At MHPU, approve incentives & implement staffing plan.</p> <p>At NOPWASD, conduct training in Planned Change Model.</p>	<p>Requires reorganization, recruitment, and training of staff.</p> <p>Legal impediments in establishing an incentive package which will attract qualified personnel.</p>
<p>Information Strategies</p> <p>_____</p> <p>WISP reports OS-10, OS-13 OS-14</p> <p>(Subtasks B2.5)</p> <p>_____</p> <p>Report Summary Sheet 3-2</p>	<p>Develop research priorities & coordinate sector research; translate and publish research results. Establish Technical Library & Information Service for the Sector.</p>	<p>Collection and distribution of information critical to the sector.</p>	<p>The beginning of a Technical Library & computerized index has been established key publications have been identified</p>	<p>Implement Action Plan.</p>	<p>Lack of trained staff.</p> <p>Lack of funding for texts and equipment.</p> <p>Requires reorganization, recruitment and training of staff.</p>
<p>Management Training Program</p> <p>_____</p> <p>WISP report OS-3</p> <p>(Subtask A3.2)</p> <p>_____</p> <p>Report Summary Sheet 3-3</p>	<p>Implement Management Training Development Model (MTDM). Assign HRD Manager and Participant Training Program Coordinator. Develop annual Management Training and Development Plan.</p>	<p>Provide Sector-wide Management Training; fulfill needs identified in Manpower Needs Assessment as first priority throughout the sector.</p>	<p>Top Management Workshop and 10 management courses conducted by WISP, funded by NOPWASD.</p>	<p>Improve NOPWASD capability to use the MTDM. Create HRD positions; assign and train personnel.</p>	<p>Lack of trained staff.</p> <p>Lack of funding for Participant Training Program and materials.</p> <p>Requires reorganization, recruitment and training of staff.</p>
<p>Manpower Needs Assessment</p> <p>Manpower Development Prog.</p> <p>On-The-Job Training Supp.</p> <p>Certification Program</p> <p>_____</p> <p>WISP Reports SR-4, SR-5, SR-6, CG-7</p> <p>Subtasks B2.1, B2.2, B2.3, B2.4</p> <p>_____</p> <p>Report Summary Sheet 3-4</p>	<p>Strengthen Central Dept. of Training (CDT). Develop a National Sector Training Sys. & O&M Certification Program. Establish a NOPWASD Training Center. Establish model utilities for OJT programs. Develop Training of Trainers (TOT) programs. Use mobile training units for OJT extension programs. Operate four regional training centers. Coordinate sector Pre-Service and Continuing Education Programs.</p>	<p>To establish a National Training System for W/W sector personnel which ensures that all aspects of W/W utility organizations function properly.</p>	<p>Effective staff changes have resulted in improved CDT. Support for NOPWASD Training Ctr has been negotiated with the Dutch. A regional training center has been opened at Damanhour, with a NOPWASD commitment of LE 1500000 for the next two years of operation. NOPWASD is represented in the Education sector, and has secured scholarships for students.</p>	<p>Implement Action Plans</p>	<p>Lack of trained staff.</p> <p>Lack of funding for training facilities, equipment and mobile units.</p> <p>Inability of other agencies to fund tuition at NOPWASD training centers.</p>

Group 3: Management, Organizational development and Training

Subject & References	Recommendation	Goal/Benefit	Action Completed or Underway	Action Required	Constraints
Public Awareness Program _____ WISP report OS-11 (Subtask B3.4) _____ Report Summary Sheet 3-5	Establish Public Relations Committee. Implement Public Awareness Model, opinion survey, media campaign.	Educate Consumers to service costs and need for conservation. Educate sector employees on need for improved services.	Internal NOPWASD information program is being conducted.	On-Job Training for Public Relations Staff. Implement Public Awareness program.	Lack of trained staff and support resources.

Report Summary Sheet 1-1

SUBTASK B3.1 INDEPENDENT WATER/WASTEWATER COMPANIES

Background:

Quality of water and wastewater services in Egypt has been a subject of study and criticism for a number of years. The most significant recent effort to improve and rationalize the services was the creation of NOPWASD and three independent water companies (IWC's). These water companies were intended to be autonomous, to generate revenues sufficient to cover operation and maintenance costs and to have flexibility in personnel actions. The three companies have not attained the intended goals. WWISP evaluated the successes and failures of the independent water companies, and concluded that they are not as independent or as decentralized as was intended, are not financially viable but that the concept is workable.

Major Recommendations:

1. Immediate action should be taken to appoint an official Chairman and Board of Directors of each IWC. The Governors should serve as Presidents of the IWC to involve the local authority in the decisions and actions of the IWC's.
2. The IWC's must become financially viable. This involves reducing operating costs and increasing revenue from tariffs and other sources.
3. The IWC's facilities must be better maintained. This would involve staff training in O&M, implementation of a comprehensive preventive maintenance program, establishment of central workshops, and establishment of mobile maintenance crews.
4. Personnel management should be along private sector lines and should aim to motivate employees, reward good performance and allow discharge for incompetence and reductions in force required for company efficiency. Profit sharing programs should be developed. Special bonuses should be provided for employees completing training programs, and attaining certification and similar development activities.
5. NOPWASD should play a role in the functioning of the IWC's principally by providing technical advice, setting standards, performing research in new technologies and monitoring compliance.
6. New IWC's for the rest of Egypt should be established and should become financially viable as soon as possible. Tariffs should be established at levels to cover costs and allow reasonable profit.
7. Private sector participation in operation and maintenance of water and wastewater systems should be encouraged.

Action:

Lack of personnel resources in NOPWASD and WWISP have prevented any real progress in this area. A strong, positive commitment by USAID and NOPWASD is essential to carryout the program to establish truly independent water companies.

Action should begin by restructuring and reforming the existing Independent Water Companies so that they become truly independent and viable.

Resources:

Significant long-term personnel resources of both WWISP and NOPWASD are required. Additional WWISP specialists on short and medium-term assignments in areas such as tariffs, accounting, and operations and maintenance should be employed.

Discussion:

Independent water companies should and can become truly independent. NOPWASD should actively strive to create companies that can sell high quality water at a profit and dispose of wastewater that meets national quality standards. True independence, the goal, is in keeping with the Egyptian government objective of decentralization and minimization of government control of activities that logically can be carried out by the private sector or by local government.

Report Summary Sheet 1-2

SUBTASK A2.2/B1.2/B1.3: FIVE YEAR PLAN AND ANNUAL BUDGET/ INVESTMENT STRATEGIES/ECONOMIC ANALYSIS CAPABILITIES

Background:

The funding for needed capital improvement projects is provided through GOA allocations, foreign assistance and user charges. Projects are usually initiated at the municipal and markaz level. They are reviewed and filtered by the Governorates and forwarded to NOPWASD and the Ministry of Planning. NOPWASD then negotiates funding with the Ministry of Planning. In practice, far more projects are included in the Five-Year Plan than can possibly be funded. This assures that the projects will be started, and probably completed someday. It also assures that most projects will be grossly under-funded and remain under construction for an extraordinary number of years.

Major Recommendations

1. NOPWASD should assume a dominant role in engineering planning and a more influential role in financial planning. It should work with ministries and local governments for a unified approach to investment strategy formulation, finance and management.
2. NOPWASD should form a Central Department for Capital Improvements Planning with sole responsibility for facility programming. NOPWASD feasibility study functions should be transferred from Central Department for Research to this New Central Department.
3. NOPWASD should concentrate on completing or updating feasibility studies, developing national planning criteria, and reconciling previous planning.
4. NOPWASD should strengthen Governorate - level, consumer - oriented planning, project development and investment strategy formulation.
5. NOPWASD should establish an Advisory Board of Governors to consult with NOPWASD concerning investment planning, finance, management and strategy.
6. MHPU should obtain legislation for apportioning Bab 3 funds, requiring each governorate to adopt master plans and should intensify efforts to get larger capital commitments from Ministries of Planning and Finance.
7. NOPWASD should strengthen its economic analysis capability by employing a research-trained economist as advisor, and continue to provide in-house training in economics for NOPWASD management. Staff professional development in economics should be encouraged through off-duty, credit and non-credit courses.

Action

Lack of personnel resources in NOPWASD, MHPU and WWISP have prevented any real progress in this area. A strong positive commitment by MHPU and NOPWASD is essential to reform the planning process.

WWISP strongly urges that the surveys of water and wastewater facilities being made under Subtask B1.1 become the basis for long-term facility development.

The planning procedures proposed in the WWISP reports Five-Year Plan and Annual Budget and Investment Strategies should be adopted.

Additional local training to enhance NOPWASD's economic analysis capability should be provided by WWISP.

Resources:

Present NOPWASD staff should provide basic staffing for the proposed Central Department for Capital Improvements Planning. A senior-level economist position should be established for this central department. Engineers and other senior staff assigned to the department should have facility planning experience.

WWISP staff should include one American and 3 Senior Egyptian experts to help create and train the Planning Staff.

Discussion:

The reform of the NOPWASD planning activities and the creation of a Central Department for Capital Investment Planning should provide for the consolidation of all facility planning - related activities into this one department. It is especially important that feasibility studies be made part of the new department.

Report Summary Sheet 1-3

SUBTASK A2.1/B1.1: NATIONAL WATER AND WASTEWATER NEEDS ASSESSMENT

Background:

NOPWASD has a major role in the establishment of criteria for assessing sector needs. Decisions to construct or expand or simply improve maintenance and repair activities must be based on proper assessment criteria. WWISP's activities under this subtask includes assisting and guiding NOPWASD in its role in updating land-use plans and Capital Improvement Programs, analyzing projections and historical data relative to demand and facility needs, developing system options and evaluating cost/benefit implications of the options.

Major recommendations:

1. NOPWASD begin preparing a national water and wastewater needs assessment.
2. NOPWASD become an active participant in the water and wastewater planning activities of the General Organization for Physical planning.
3. NOPWASD propose a list of water and wastewater projects arranged by priority and supporting justification to MHPU. The approved list would become the basis for the five-year plan.

Action:

Taken: NOPWASD has begun detailed Surveys of country-wide needs for improvements to existing wastewater treatment plants at 20 locations. The surveys consider the present and long-range needs, analyze conditions and capacity of existing facilities and study operation and maintenance activities and staffing and chemical analysis operations. the study includes recommendations for repairs, alteration, or replacement of the plants. WWISP has established survey procedures. It is directing and instructing NOPWASD teams in the conduct of the surveys. These surveys have been completed.

The NOPWASD/WWISP teams are continuing the needs assessment by surveying the remaining 24 main WWTP's. The teams will then study water treatment plants and, eventually, distribution systems.

- Develop and execute a plan of action for establishing funding programs for upgrading/replacing substandard plants and for improving systems.

- Increase participation with GOPP (General Organization for Physical Planning) to institutionalize the needs assessment activities.
- Increase staffing in Central Department for Planning and Follow-Up to allow closer coordination with GOPP and to take over NOPWASD's feasibility study function.

Resources

WWISP American and Egyptian Experts to continue assistance and guidance to NOPWASD field teams, to help NOPWASD reorganize its planning activities, and to assist in developing its participation with the GOPP. Funds for travel and equipment would be required.

Discussion:

The needs assessment activities (Subtask B1.1) that have begun with NOPWASD's surveys, must be supported by carrying out the other Planning and Economic Analysis Subtasks including B1.2 Investment Strategies, and B1.3, Economic Analysis Capabilities. The overall goal of the three subtasks is to determine what facilities are required to make the water and wastewater system work and what are their relative priorities in view of cost and need.

The assessment are the foundations for capital improvement planning covered in report OS.8, Five Year Plan and Annual Budget Process.

Report Summary Sheet 1-4

SUBTASKS A1.5, MANAGEMENT INFORMATION SYSTEM, REPORT CG-4
B3.2, PERFORMANCE MONITORING SYSTEM, REPORT SR-8
B4.2, COST ACCOUNTING SYSTEMS REPORT CG-10

Background

Management decisions are made on the available facts and best predictions of future happenings based on an analysis of trends and probability of occurrence. Investigations indicated a lack of procedures for regular collection and analysis of data; inadequate routine reporting of performance data; need to comply to GOE budgetary regulations that are not appropriate to internal management needs; and lack of a planning system that was systematic, objective and based on performance. The three interrelated subtasks were combined to complete the goal of an integrated information system that provides management with the current data needed to make informed decisions.

Major Recommendations

1. A complete, contiguous and integrated development of a computer based MIS requires establishment of an Information Systems Group who can be trained to follow a Systems Development Life Cycle to the goal.
2. Use a prototype strategy to support the design level development of potential automated procedures.
3. Use a Project Management Team to design and develop the performance indicators for the monitoring system and test the application by a Pilot program at one each water and wastewater facility.
4. Implement the Cost Accounting System which integrates the data needed for budgeting, costing, financial planning, information and control through cost centers.

Action

- Taken:
- Chairman NOPWASD appointed a High Committee for MIS Strategy.
 - Training has been conducted for Information Center, Payroll, and Design employees.
 - A database is under development for the National Wastewater Facility Survey information.
 - Prototypes of various elements are being developed and used.

Needed: - Continue implementation of Action Plans.

Resources

American and Egyptian experts will be needed to develop the system and train NOPWASD personnel, but cost can not be estimated until the decision is made on degree of completeness desired and the time period given for the task.

Discussion

Management decisions are at best choices between alternatives that are incomplete in information. Information search must be organized and expanded until it is no longer economical or practical. The two major constraints to implementing a MIS are economical and sociocultural.

Computers are expensive and qualified professional and technical computer specialists are a limited resource. Management must carefully analyze the cost benefits to determine the degree of automation that will be pursued.

Sociocultural factors are the resistance to change in current process procedures, fear of technological improvements, fear of being replaced by machinery, and fear about the change of relationships among employees. A program of interventions can offset the socioculture constraints.

Report Summary Sheet 1-5

SUBTASK A2.3, TARIFF AND USER CHARGES, REPORT SR-3

Background

The current tariff structure does not provide sufficient funds to cover the operation and maintenance costs of the water and wastewater facilities and systems. All national tariff increases have met so much opposition that a public belief in free water and sanitary drainage service is indicated. The public has to be convinced that the tariff structures are realistic and can generate the needed revenues to provide the facilities plus operation and maintenance necessary for effective and efficient services. The aim of SR-3 was to gather baseline financial data needed to develop a proposed national tariff rate structure increase.

Major Recommendations

1. Acceptance of a tariff policy, change strategy for accomplishment of interim and long-term objectives to make transition from current centralization concept to a future decentralization concept.
2. To develop local financial viability through tariff revenue generation for the w/ww sector's organizations.

Action

MHPU is promoting an initial tariff incase of 50% over the current schedule. This need was supported by WWISP report.

Resources

Covered by other subtask recommendations in cost accounting and public awareness.

Discussion

Initial steps are political and involve MHPU and the cabinet. The policy change strategy closely follows the need for an accelerated growth of the establishment of independent w/ww companies, institution of metering program and establishment of a standardized accounting system for recording/reporting operational costs.

MHPU and NOPWASD liaison must coordinate the program development throughout the governorates to gain acceptance. Promote the transition towards independence in order to sustain the w/ww sector growth in achieving financial viability.

Report Summary Sheet 1-6

Subtask B4.1 - Local Revenue Generation

Background

Adequate revenue is essential for the municipal utility service to provide potable water and wastewater services to consumers. The revenue generation procedures currently used in Egypt are inadequate for developing sufficient revenue to cover the expenses of operating, maintaining, and expanding water and wastewater facilities.

The current national tariff schedule was established in 1985 for the period 1987 to 1992. Because the specified tariff levels do not produce sufficient revenues, local authorities have expanding financial deficits which must be met by government subsidies.

Major Recommendations

1. Rapidly move the sector to a decentralized and privatized system of Independent Water/Wastewater Utility.
2. Develop and implement a progressive tariff schedule for each independent utility to assure that the total actual costs of water/wastewater are paid by each consumer.
3. Install and maintain water meters or appropriate alternative measuring devices at each point of consumption for the residential, commercial, industrial and governmental sector.
4. All consumers must be informed on a regular basis of the importance and costs of potable water and sanitary drainage through an effective Public Awareness Program.

Action

NOPWASD has taken no action to date on any of the major recommendations.

Resources

The major recommendation made in the Local Revenue Generation subtask can all be found in the other related subtasks listed below. Resources required can be found in these reports:

- o Independent Water Companies
- o Tariff and User Charges
- o Performance Monitoring System
- o Public Awareness

Report Summary Sheet 1-7

SUBTASK B1.4 PRIVATE SECTOR ENTERPRISES

Background

NOPWASD responsibilities include performing studies and applied research in the fields of water supply and sanitary drainage. An area where research is needed is the disposal of sludge from wastewater treatment operations. Disposal of sludge is a major problem and will increase as treatment plants are rehabilitated and new ones constructed.

This subtask report proposed a program to demonstrate the feasibility of using sludge from wastewater treatment plants as a soil conditioner and fertilizer.

Other conclusions of the report were that there are many areas in which the private sector has the skills and capabilities to support the w/w sector. These range from chlorine gas production to training.

Major recommendations:

1. NOPWASD should establish standards for reuse of sludge for agricultural purposes.
2. A demonstration program should be funded by USAID to evaluate the use of wastewater sludge for agricultural purposes.
3. USAID should sponsor a private sector informational workshop to acquaint private sector companies with various USAID support programs.

Action:

Taken: None to date by NOPWASD. At the 16 October 1990 presentation of the Subtask report to the Chairman and other key NOPWASD staff, the Chairman expressed an interest in carrying out the demonstration program.

Resources:

A short-term American Expert with experience in sludge reuse should be assigned for 4 months to develop a demonstration program and guidelines for NOPWASD execution of the program. He should be assisted by an Egyptian Engineer from WWISP staff who would continue to assist NOPWASD in carrying out the demonstration program after the American expert departs.

Discussion:

Private sector participation in areas for which NOPWASD is responsible should be encouraged and supplied. Some major areas include operation and maintenance of plants and systems, utility mapping, water meter repair and calibration, and disinfection by zone generation on site.

Report Summary Sheet 1-8

- SUBTASKS A1.1, LEGISLATIVE MANDATES, REPORT OS-7
A1.2, INTERGOVERNMENTAL COOPERATION AND COORDINATION,
REPORT CG1
A1.3, LIAISON WITH NOPWASD, REPORT CG2

Background:

In 1981, the Government of Egypt initiated a move towards decentralization in the water and wastewater sector. A provisional unit, Central Department for Public utilities, was established in the Ministry of Reconstruction, New Communities, Housing and Utilities with the overall responsibility for planning, coordination and recommending funding priorities for the entire Water/Wastewater sector. Under the provisions of Presidential Decree 197/1981, NOPWASD was established to be the executive agency for the Water/Wastewater sector, prepare designs and supervise construction of projects at the national level, and establish standards for the sector. Progress towards decentralization has not been as much as desired. The three subtasks assessed the legal establishments of the current water/Wastewater sector structure and the present practices in liaison, cooperation and coordination are: Legislative Mandates, Intergovernmental Cooperation and Coordination and Liaison with NOPWASD.

Major Recommendations:

1. Increase the use of the MHPU coordination and Follow-Up Committee for Public Utilities in policy input and public awareness areas.
2. NOPWASD should establish procedures to resolve conflict of interest problems between agencies during the design stage.
3. Various legislative changes should be vigorous. For example, a change in Law 9/1983 would aid coordination with international donors, while a change in Law 577/1984 would expedite the process of property acquisition and speed the completion of Water/Wastewater projects.
4. MHPU/NOPWASD organizational structure changes suggested in other WWISP reports should be adopted.

Action:

- Taken: - Some organizational structure changes are being processed through CAO.
- Design procedure manual is being developed

Needed: - Continue Action Plan implementation

Resources:

Resources needed are covered under the requirements of the other WWISP subtasks.

Discussion:

From 1981 to the present day, MHPU and NOPWASD have operated in an environment of change. The Ministry of Housing and Reconstruction was split into two ministries in 1984 but a reorganization in 1987 merged the two ministries into one which the local press referred to as the Ministry of Housing, New Communities and Utilities. The Chairman of NOPWASD position was held by seven different people from 1981 to the present.

In addition to the major changes described above, MHPU/NOPWASD, as new organizations, have to compete with established functional units within the government support. The Cairo and Alexandria water organizations are older, better established authorities that serve important political constituencies who give support to Cairo or Alexandria requests. The ministerial status of housing, new communities, and reconstruction appears to be higher than the water and wastewater sector status.

The water and wastewater infrastructure is the foundation for housing, new communities, and reconstruction. A campaign to mobilize support for the sector in government agencies and throughout the country is the only solution. Under the current functional organizations, there is a tendency for MHPU/NOPWASD not to concentrate their efforts in liaison, coordination and cooperation. The various WWISP reports in organizational development, training and public awareness have recommendations that would improve the operation among government agencies.

Report Summary Sheet 2-1

SUBTASK B5.1 ENVIRONMENTAL STANDARDS

Background:

Presidential Decree No. 197, establishing NOPWASD, made NOPWASD responsible for participating in the formulation of environmental standards pertaining to water and wastewater. This role is interpreted to include drinking water standards, industrial waste pretreatment standards, and domestic and industrial waste discharge standards. Egyptian Drinking Water Standards were last updated and revised in 1975. A great deal of new knowledge regarding the presence of contaminants in drinking water has been developed since.

Major Recommendations:

1. Update Egyptian Drinking Water Standards and recommend adoption to Ministry of Health.
2. Inventory and inspect water systems supplied from groundwater sources.
3. Prepare new regulations that define acceptable methods for treatment and disposal of sewage.
4. Prepare design standards for sewage handling, treatment and disposal facilities.

Action:

Taken: No specific action has been taken on this subtask.

- Required actions are extensive and complex, and include proposals to:
 - a. Develop environmental standards.
 - b. Formulate and initiate a code enforcement program.
 - c. Standardize design procedures.
 - d. Modify water and wastewater laboratories.
 - e. Inventory and inspect water systems supplied from groundwater sources.
 - f. Revise water treatment plant design standards.

Resources:

Major long-term personnel resources of both WWISP and NOPWASD would be required to carry out the action plan in its entirety.

Discussion:

The action plan should be carried out. The first action that should be taken by WWISP and NOPWASD is to analyze and prioritize the proposal actions. Resources required should be examined, classified and prioritized and the highest priority actions included in the next phase of WWISP.

Report Summary Sheet 2-2

SUBTASK B5.2 CODE ENFORCEMENT PROGRAM

Background:

One of the most significant functions of NOPWASD is regulatory. Presidential Decree No. 197, establishing NOPWASD, assigned it responsibilities to participate in establishing standards and provide mechanisms to implement them through compliance procedures. WWISP reviewed present code enforcement laws and decrees covering, among others, pretreatment requirements, disposal of wastewater on land, and current code enforcement practices.

It was concluded that a code enforcement program is needed, a public awareness program is needed, laboratories in Egypt are not certified or regulated and present funding is insufficient to support a code enforcement program.

Major Recommendations:

1. NOPWASD should continue its program initiated by WWISP in March 1990 to survey and upgrade water and wastewater plants. NOPWASD should then insure that adequate funds and trained staff are available to sustain the upgraded plants.
2. NOPWASD should undertake a laboratory upgrading program to include facilities and staff. A training program is needed.
3. NOPWASD should seek funds and other resources to implement a Code Enforcement Program.

Action:

- Taken:
- NOPWASD has started the program to survey water and wastewater plants. The survey includes not only plant components but also laboratories, laboratory staffing needs, operation and maintenance procedures and staffing.
 - NOPWASD should now plan for laboratory and laboratory staff upgrade. It should develop a laboratory certification program, and a training program for laboratory technicians.
 - NOPWASD should establish a pretreatment enforcement program, investigate sources of industrial discharges and initiate industrial waste pretreatment programs.
 - A strong public awareness program is needed to educate and inform the public and the governorate of the threat to health resulting from continued exposure to the hazards.

Resources:

NOPWASD should have a separate organizational component, probably at Central Department Level, to establish and carry out a code enforcement program. The program should be activated as soon as possible with initial principal staff and increased as rehabilitated/new plants are in service.

WWISP staff should include one American (who can also be responsible for other, related functions) and 2 Senior Egyptian experts.

Discussion:

The proposed code enforcement program is very closely related to the upgrade of treatment plants. Action can be taken to enforce the environmental code by investigating industrial polluters and requiring corrective action.

Report Summary Sheet 2-3

SUBTASK B5.5 MUNICIPAL O&M ASSISTANCE

Background:

The primary goal of any water or wastewater treatment system is to produce an acceptable end-product, and management's responsibility is to provide this end-product at the least cost and highest quality possible. The key to fulfilling this responsibility is an efficient, effective operation and maintenance program. Personnel who operate and maintain these utilities must do so without daily dependence on outside assistance.

Once water and wastewater facilities are constructed, the governorate assume ownership and responsibility for operation and maintenance of the facility. If, at some date in the future, independent water companies are established, the responsibilities for O&M would be the independent water companies. The WWISP report focused on the development of a comprehensive, uniform plan for operation and maintenance assistance for the sector.

Administrative and management aspects of the O&M processes were addressed.

The WWISP report also provided two model contracts for private sector operation and maintenance of the systems.

Major Recommendations:

1. A comprehensive National/Municipal O&M Assistance Program should be developed by NOPWASD.
2. A national O&M compliance monitoring and assistance center should be established and operated by NOPWASD to regulate the program.

Action:

Taken: None taken to date.

- NOPWASD needs to form a committee to coordinate the municipal O&M program.
- Existing substandard water and wastewater treatment plants should be rehabilitated or replaced.
- National Performance Standards and Plant Performance Standards should be developed and implemented.
- Training should be provided in both formal courses and on-the-job. Plant operation personnel should be certified.

Resources:

WWISP American and Egyptian experts to help NOPWASD establish National Operation and Maintenance Compliance Monitoring and Assistance Center. WWISP training programs at the Damanhour Training Center would be used to train O&M staffs to sustain the newly constructed or renovated plants.

Discussion:

As water and wastewater treatment plants are rehabilitated and upgraded as a result of the NOPWASD/WWISP Surveys, staff should be trained and operators certified so that there is a greater chance of continued viability of the operation of the plant.

Contract O&M of the plants would be cost effective and would function according to directives and criteria of the Compliance Monitoring and Assistance Center.

Report Summary Sheet 2-4

SUBTASK B5.4 CONSTRUCTION MANAGEMENT SUPPORT PROGRAM

Background:

NOPWASD is presently involved in construction management as a direct participant because it selects contractors through a tendering process or by direct order to a designated contractor. The report of Subtask B5.4 is mainly oriented toward this NOPWASD role. Decentralization of some of NOPWASD's functions or creation of independent water companies should shift the direct construction management function to others. However, the subtask report is equally applicable to other organizations which might become responsible. NOPWASD should continue to have a monitoring and guidance role for construction management of water and wastewater plants/systems no matter who is the construction manager.

The lack of effective construction management usually results in unusual delays in completion, excessive and unnecessary cost overruns and poor control of quality of materials and job-site activities.

NOPWASD's present construction management practices are generally inadequate.

Major Recommendation:

1. NOPWASD should plan, organize, coordinate and implement a construction management program.
2. Capable persons are available in NOPWASD to start a construction management program. These persons should be employed initially to provide construction management of active NOPWASD construction contracts, but in keeping with the concept that NOPWASD become principally a national-level monitoring/regulatory body, NOPWASD long-range activities should focus on implementing acceptable construction management procedures in the eventual independent water companies.
3. Formal training courses at local institutions or abroad should be provided to both senior management staff and field staff. In the future, the training should be provided to the staff of the independent water companies.

Action:

Taken: Lack of personnel resources in NOPWASD and WWISP have prevented any real progress in this area.

Resources:

WWISP urges that NOPWASD seek senior staff who have had professional training in construction management to form the nucleus of a construction management department.

WWISP should assist in the creation and organization of the construction management department. WWISP should also advise on training and qualification requirements.

WWISP could provide construction management experts to broadly apply the Report's concepts of construction management activities of NOPWASD.

Discussion:

Construction management is now performed in a generally inadequate manner. This is obvious from the poor quality of construction obtained from a majority of the contractors as well as the relatively common excessive delays in construction completion.

Training of staff and use of modern construction methods will significantly improve NOPWASD's capability. In a decentralized environment, NOPWASD's function would mainly be setting construction management standards and insuring compliance. This function requires a high degree of understanding of construction management principles and practices.

Report Summary Sheet 2-5

SUBTASK B5.3 DESIGN PROCEDURES

Background:

NOPWASD is authorized by law to design or retain consultants to design the water and wastewater projects of the Five-Year Plan. For a fee, it also designs projects that are funded by other means when requested to do so. Design procedures in NOPWASD are deficient in some areas; in some areas they do not exist. As built drawings and O&M manuals are not routinely requested by NOPWASD to be submitted by Construction Contractors. Designs are incomplete. Standard details are not routinely used.

Major Recommendations:

1. Guidelines and design criteria in the report should be used by NOPWASD as a starting point for developing a complete and comprehensive design manual.
2. NOPWASD should develop and publish its own design procedures for both in-house design and design consultants.
3. NOPWASD should direct its efforts toward review of design by consultants rather than to in-house design.
4. NOPWASD should promote standard details and standard design packages.

Action:

Taken: Beginning in mid-June 1990, three WWISP design engineers were assigned to the NOPWASD Central Department of Design to train NOPWASD engineers in procedures for receiving mechanical - electrical parts of projects, to provide technical assistance on procedures for alternatives and economic analysis of structural options. The activities are technical advisory services in a number of specialties.

- Other actions proposed in the action plan include:

- a. Reorganize Central Department of Design and define roles and objectives.
- b. Review wastewater and water system design criteria (Annex 1 and 2 to the report).
- c. Assess appropriate technologies.
- d. Prepare standard design document checklist.
- e. Prepare standard specifications and details.
- f. Prepare guidelines for estimating cost.
- g. Develop design manual.

Resources:

A medium-term American design engineer, assisted by WWISP Egyptian experts should work with the Design Department.

Discussion:

Improved design is the overall objective of this subtask, but an important aspect of meeting the objective is to transform the Design Department from being a routine design office into a Department that sets standards for design and reviews design by consultants.

Report Summary Sheet 3-1

SUBTASKS A3.1, COMPENSATION STRUCTURE, REPORT SR-1.
A3.3, PERSONNEL NEEDS, REPORT OS-4.
B3.3, INTRA AND INTERORGANIZATIONAL STRUCTURE, REPORT
CG-8.

Background

During the last ten years the institutional framework of the water/wastewater sector has been in a state of change. As progress is made toward the goal of decentralization, the roles of the central government, the national organizations of the sector, and local utilities must be evaluated, redefined, and reoriented. The reports from the three related subtasks described the organizational development process needed at the central government (MHPU), the national organization (NOPWASD), and local utility (IWC) at this stage of progress towards decentralization. The report on compensation structure supports the organizational development process as high quality management, professional, and technical staff are recruited and retained by proper compensation.

Major Recommendations

1. At MHPU, reorganize General Administration for Utilities (GAU) to Central Department for Public Utilities (CDPU) and implement incentives and staffing plans.
2. At NOPWASD, reorganize to a three sector structure and implement a Planned Change Model Approach to meet future changes in requirements.
3. At Local Utilities, recommendations are made to increase independence and improve the financial viability, operations and maintenance, and personnel management of the current independent water companies. The changing role of NOPWASD and establishment of future IWCs are also covered.
4. On compensation, 13 suggested means of compensation are made.

Action

- Taken:
- At MHPU, Minister El Kafrawi requested CAO A to approve CDPU structure.
 - At NOPWASD, Chairman has submitted request for a three sector structure to CAO A.
 - At Local Utilities, No Action started.
 - On Compensation, No Action started.

- Needed: - At MHPU, incentive approval process must be completed. Staffing plan must be initiated.
- At NOPWASD, training in the Planned Change Model must be conducted. Results from training will modify structure, improve process, and change employee behavior.
 - At Local Utilities, implement Action Plan.
 - On Compensation, implement Action Plan.

Resources

The cost of organizational/personnel development advisor time is estimated at 24 American man months to do MHPU and NOPWASD and 18 American man months for IWCs.

Discussion

The move from centralized to decentralized operations is a complicated activity that encounters obstacles from political, economical, social, and technological aspects plus the natural human being's resistance to change. Two obvious examples are the shortages of qualified people from the central government unit (CDPU) to the local utility and the seven changes of NOPWASD Chairman assignments in nine years. Obstacles can be overcome. For instance, the manpower shortage can be reduced by extensive training and redeployment of existing staff. Stability of Chairman assignment is within control of the Minister. A planned process of employee participation can improve the chances of success in decentralization efforts.

Organizational development requires the willingness to accept and promote changes. There is no easy, cheap, quick solution to the organizational problems being encountered in the water/wastewater sector. NOPWASD Chairman has expressed a desire for an organization that is more coordinated and flexible than the current structure. The organizational development process presented in the reports will improve the efficiency and effectiveness of operations within the sector, but only if there is commitment of resources to complete the process.

SUBTASK B2.5 INFORMATION STRATEGIES

Background

The Information Strategies subtask has three interrelated support programs - Research, Publication, and Library. The primary focus of this set of programs is the collection and distribution of information critical to the Water/Wastewater Sector in the Arabic language.

Currently, the capabilities to provide the sector with information is severely limited. No publisher is specializing in support of the sector and translations of up-to-date documents are not available.

Although various agencies are conducting research for the Water/Wastewater Sector, no central coordination is taking place to set priorities and distribute findings.

Major Recommendations

1. NOPWASD develop and coordinate research priorities for sector.
2. NOPWASD expand the role of the General Department of Information to provide translation and publication of local and international research results.
3. Establish a Technical Library and National Water/Wastewater Information Service for use by all sector agencies.

Action

NOPWASD has established the beginning of a technical library and has set-up a computerized index. NOPWASD has also identified a list of key publications needed to expand the existing library collection.

Resources

Requirements for implementing Information Strategies recommendations are primarily funding for texts and equipment. Programs can be established with 6 man-months of US advisor participation and a long term Egyptian Expert.

Report Summary Sheet 3-3

SUBTASK OS-3, MANAGEMENT TRAINING PROGRAM

Recommendation:

1. Adopt and implement the Management Training and Development Model (MTDM).
2. Establish the HRD Manager and Participant Training Program (PTP) Coordinator.
3. Design and implement Annual Management Training and Development Plan.

Action:

Taken: Pilot programs conducted by WWISP included Top Management Workshop and ten Management Courses that had participants from NOPWASD and 17 Governorates. LE 100,000 contributed by NOPWASD to cover materials, facilities and participants meals and lodging.

Needed: Improve NOPWASD capability to use the MTDP.

Resources:

1. American Advisor and Egyptian Expert to conduct courses and develop staff capabilities.
2. Funds for Participant Training Program.
3. Funds for materials.

Discussion:

Manpower Needs Assessment (SR-4) identified management training as first priority of needs in entire sector.

Report Summary Sheet 3-4

- SUBTASK - B2.1 MANPOWER NEEDS ASSESSMENT
- B2.2 MANPOWER DEVELOPMENT PROGRAM
- B2.3 ON-THE-JOB TRAINING SUPPORT PROGRAM
- B2.4 CERTIFICATION PROGRAM

Background

In 1989 WWISP conducted a Manpower Needs Assessment for the Water/Wastewater Sector. It was estimated that the number of employees working in the Water/Wastewater Utilities could reach 24,500 by the year 2000. (This estimate does not include Cairo and Alexandria). A representative sample of sector employees was tested and results indicated that knowledge and skills are generally below acceptable levels.

The presidential Decree which established NOPWASD charges NOPWASD with the responsibility of providing training throughout the sector. NOPWASD has been unable to fully accomplish this responsibility due to inadequate funding for training, staffing levels and expertise, and, courses, equipment and facilities.

The major conclusion of the WWISP studies is that NOPWASD must develop and implement a structural National Training System which provides for manpower development at the Management, Administration, Engineer/Supervisor, and O&M Technician levels.

Major Recommendations:

1. Strengthen the CDT so that it is capable of fulfilling its mission.
2. Develop and Implement a National Water/Wastewater Training System and O&M Certification Program.
3. Establish a NOPWASD Training Center (Mogamma) for the in-house development of NOPWASD and Sector Management, Administration and Professional Staff.
4. Establish a Model Water and a Model Wastewater Utility to serve as sites for OJT programs.
5. Develop and implement Training of Trainers (TOT) Programs for CDT, Model Utility and Training Center personnel.
6. Establish an OJT extension program utilizing Mobile Training Units equipped for instruction in specific technical disciplines.
7. Plan and operate 4 regional training centers. The first in Damanshour.

8. Coordinate Water/Wastewater Pre-Service Training at the Vocational High School level and Continuing Education Programs in Sanitary Engineering at the University level.

Action

NOPWASD has demonstrated a strong commitment to the WWISP Recommendations for Manpower Development. Effective staff changes have resulted in an improved CDT. NOPWASD has held successful negotiations with the Dutch for support of the Mogamma Training Center. An expenditure of LE 100,000 was authorized to conduct Management Training Programs. The Damanhour Training Center (DTC) has been opened on a provisional basis and NOPWASD has committed LE 1.5 million as a contribution to a 24 month WWISP contract amendment for assistance to DTC. The CDT now has a representative on a Ministry of Education committee investigating a Water/Wastewater track in the high schools. Through the Ministry of Health, NOPWASD has secured scholarships for studies in Environmental Engineering at local universities.

Resources

Full implementation of all Major Recommendations will require concerted effort through the remainder of this decade. A minimum US advisor level of effort of 200 man-months is anticipated. In addition, equipment for new training facilities, mobile training vans and participation from Egyptian Experts will be required.

Report Summary Sheet 3-5

SUBTASK B3.4, REPORT OS-11, PUBLIC AWARENESS PROGRAM

Background

During the last decade a great effort has been made to improve the water and wastewater services throughout Egypt. Yet there remains much to be done to reach the standards of quality water desired and a level of effective and regular delivery of water/wastewater services. The story of the water/wastewater sector is not well known in Egypt. A proactive public awareness program dedicated to educating customers and water/wastewater employees on how their actions can contribute to improved service is needed. A well informed public is much more likely to accept and support tariff increase or water conservation programs.

Major Recommendations

1. Adopt the Public Awareness Model for organizing a media campaign,
2. Appoint a Public Relations Committee from top level management to guide the public awareness campaign,
3. Conduct a opinion survey to determine the level of public knowledge about NOPWASD and the water/wastewater sector; plus identify the most effective communication paths for various target groups,
4. Hire a long term American advisor and an Egyptian expert to conduct On-the-Job-Training (OJT) and give guidance to Public Relations Department employees,
5. Secure USAID assistance for financial support for the increased requirements of personnel and material resources for a nationwide, three stage public awareness campaign, and
6. Approve the Action Plan which describes the objectives, organization, Action Agent and time period needed for program implementation to achieve public awareness.

Action

Taken: An internal information program is being conducted, but it is constrained by NOPWASD staff capabilities and support resources.

Needed: Simultaneous launching of public awareness program and on-job-training for Public Relations Staff.

Resources

The combination of American advisor and Egyptian expert time, equipment, opinion survey cost, and administration support is estimated at the cost of 24 American advisor man months.

Discussion

Normally, government organizations do not stress public relation activities to the same degree that private sector firms do. However, the NOPWASD Chairman recognized the need to inform the public about his organization's activities and increased the responsibilities of the Public Relations Department. The populace needs to know more about what the sector does, as well as what it needs to continue giving quality service. A well informed public is more likely to give financial and political support to water conservation programs or increased tariff policies. Water is free but to purify and deliver potable water or dispose of unsanitary water is costly and the public must understand and accept their shared responsibilities.

APPENDIX C

**Employment Periods and Man-Months for
US and Egyptian Staff**

APPENDIX (C)

C-1 EMPLOYMENT PERIODS AND MAN-MONTHS FOR U.S. STAFF

a - BOYLE ENGINEERING CO.

Name	Title	Task/Subtask	FDW *	LDW **	Man-Month ***
J. D'Emidio	Proj. Manager	PM	03/12/88	30/05/91	28.88
D. Scollon	Dep.Proj.Mgr. Senior Advisor	DPH/(MHPU) A1	03/12/88	13/09/90	20.54
G. Butler	Advisor	A3.4	16/02/89	20/04/89	2.57
R. Galloway	Senior Advisor/ Resident Fin/Adm Mgr	B1/W/WWTP SURVEYS	06/03/89	30/05/91	25.66
A. Gelsler	Senior Advisor	A2/B5	06/03/89	15/11/90	19.43
L. Volse	Advisor	B1.1	20/03/89	08/06/89	2.95
R. Weaver	Advisor	A2.1, A2.2, B3.3, B5.3/ W/WWTP SURVEYS	21/03/89	27/06/90	14.86
C. Zielaskowski	Team Leader	B1.1	27/03/89	15/06/89) 4.82
C. Zielaskowski	Advisor	B5.3	09/11/89	04/01/90	
J. Blumgart	Advisor	A1.1	23/05/89	30/07/89	2.45
R. Hansen	Advisor	A1.2	07/06/89	26/07/89	1.94
J. Currie	Advisor	B3.2	04/07/89	10/08/89	1.51
G. Redlin	Advisor	B5.1	10/08/89	09/11/89) 7.24
G. Redlin	Senior Advisor	B5/SURVEYS	08/01/91	17/04/91	
S. Dhillon	Advisor	B5.1, B5.2	10/09/89	06/02/90	5.20
M. Abd-El-Bary	Advisor	B5.3	26/09/89	21/11/89	2.31
C. McElroy	Advisor	B1.4, B3.1/W/ WWTP, SURVEYS	16/02/90	25/10/90	8.52
H. Jackson	Advisor	B5.4	01/03/90	14/06/90	3.60
W. West	Advisor	DTC	25/03/90	21/06/90	3.00
R. Smedley	Advisor	SURVEYS	09/11/90	06/03/91	4.13

Total 159.61
Per Contract **** 158.00

LEGEND : * FDW : Date of arrival in Egypt
 ** LDW : Last Day of Work in Egypt
 *** Man-months include time spent on pre- and post-assignment activities in the USA, but excludes non-billable time on vacation, sick leave or non-billable holidays.
 **** Excludes long-term staff vacations. See Amendment No. 2, Page 6.

52

b - NATIONAL EDUCATION CORPORATION

Name	Title	Task/Subtask	FDW *	LDW **	Man-Month ***
R. Cunningham	Dep. Proj. Mgr	OPM/NOPWASD	03/12/88	13/07/90	19.00
V. Klemeyer	Senior Task Leader	B2/DTC	04/03/89	30/05/91	26.00
H. Henrikson	Senior Task Leader	A3/B3	06/03/89	31/01/91	22.00
M. Chorness	Advisor	A2.1, B1.1, B2.1, B2.4	20/03/89	02/02/90	10.00
C. Thompson	Advisor	B1.1	20/03/89	13/06/89	3.00
H. Sokoloff	Advisor	B2.1, DTC, A3.3	04/03/89	15/05/91	26.00
F. Brauer	Advisor	B3.4	08/04/89	29/06/89	3.00
S. Mokhtari	H.O. Coord.	A1.3	13/04/89	23/06/89	1.75
C. Chow	Advisor	B2.2	23/05/89	17/08/89	3.00
R. Sansom	Advisor	B2.2	16/06/89	10/09/89	3.00
C. Keidt	Advisor	A3.1	17/06/89	18/08/89	2.50
R. Milanovich	Advisor	B3.2	30/06/89	24/08/89	2.00
C. Hall	Advisor	A1.5	30/06/89	23/10/89	4.00
C. Makinnon	Advisor	B2.3	04/08/89	25/10/89	3.00
R. O'Hare	Advisor	B2.3/B2.5	04/08/89	13/12/89	5.00
J. Dorsey	Advisor	B1.3	14/08/89	17/10/89	2.00
R. O'Hare	Advisor	A3.2	07/01/90	16/02/90	2.00
C. Makinnon	Advisor	DTC	20/03/90	13/09/90	6.00
V. Thebus	Advisor	DTC	14/10/90	11/03/91	5.00
M. Kleinosky	Advisor	A1.5	04/11/90	22/01/91	2.00
J. Jewett	Advisor	DTC	05/11/90	03/01/91	3.70
C. Makinnon	Advisor	DTC	09/04/91	30/05/91	2.00
S. Gamal	Advisor	B2.5 c	29/04/90	30/05/91	2.75

Total 158.70

Per Contract **** 154.30

LEGEND :
 * FDW : Date of arrival in Egypt
 ** LDW : Last Day of Work in Egypt
 *** Man-months include time spent on pre- and post-assignment activities in the USA, but excludes non-billable time on vacation, sick leave or non-billable holidays.
 **** Excludes long-term staff vacations. See Amendment No. 2, Page 6.

c - NATHAN

Name	Title	Task/Subtask	FDW *	LDW **	Man-Month ***
J. Dalton	Advisor	81.2	18/05/89	12/07/89	2.00
B. Steekley	Advisor	A2.3,84.2	30/06/89	22/12/89	6.50
H. Coffen	Advisor	84.1	19/05/90	29/06/90	2.00

Total 10.50
Per Contract **** 12.50

d - ECO

Name	Title	Task/Subtask	FDW *	LDW **	Man-Month ***
R. McDowell	Advisor	82.4	25/08/89 03/05/90	07/11/89 28/06/90)) 1.74
J. Woodward	Advisor	85.4	03/05/90	28/06/90	1.97

Total 6.71
Per Contract **** 8.00

e - TAMS

Name	Title	Task/Subtask	FDW *	LDW **	Man-Month ***
T. Selim	Workshop Facilitator	Workshop & Report	30/11/90	10/12/90	0.85

Total 0.85
Per Contract 2.00

LEGEND :
* FDW : Date of arrival in Egypt
** LDW : Last Day of Work in Egypt
*** Man-months include time spent on pre- and post-assignment activities in the USA, but excludes non-billable time on vacation, sick leave or non-billable holidays.
**** Excludes long-term staff vacations. See Amendment No. 2, Page 6.

C-2 EMPLOYMENT PERIODS AND MAN-MONTHS FOR EGYPTIAN STAFF

a - AAW SUBCONTRACTOR STAFF

Name	Title	Task/Subtask	FDW *	LDW **	Man-Month
A. Warith	Partner	H08	04/12/88	30/05/91	0.99
H. Moral	HOC	H0C	04/12/88	30/05/91	1.48
M. Awad	Ass. D.M.	A1	04/12/88	22/05/89	5.35
Y. El Refle	Ass. D.M.	A1	21/05/89	16/11/89	5.90
Dr. M. Ezz	Ass. D.M.	A1	19/11/89	30/03/90	6.58
A. El Damaty	Expert	A1.1	09/04/89	23/08/89	4.52
A. Khamis	Expert	A1.2	17/06/90	16/07/90	1.02
H. Awad	Expert	A1.3	02/04/89	04/01/90	3.97
Dr. A. Ghanam	Expert	A1.5	10/07/90	10/12/90	5.20
M. Hakim	Expert	A2.1	01/02/89	31/07/89	5.90
S. Saied	Expert	A3.4	24/01/89	12/06/89	4.68
M. Nazmy	Ass. D.M.	B1	04/12/88	21/01/89	2.40
H. Talast	Ass. D.M.	B1	21/01/89	30/05/91	25.52
A. Shauky	Specialist	B1.1	15/03/89	23/06/89	3.00
S. Abdel-Ghany	Specialist	B1.1	19/03/89	23/06/89	2.63
Dr. F. Ghobrial	Expert	B1.1	15/03/89	21/07/89	6.23
Dr. A. Aly	Expert	B1.3	24/07/89	01/09/90	13.48
Dr. R. El Edel	Expert	B1.3	18/11/90	09/12/90	0.46
S. Armanious	Expert	B2	15/07/90	30/08/90	1.38
F. Awad	Expert	B2	29/07/90	15/09/90	1.38
A. Soliman	Expert	B2	12/08/90	25/11/90	2.08
M. Yacoub	Expert	B2	23/02/90	22/12/90	7.98
A. Osman	Expert	B2	02/05/90	30/05/91	4.98
S. Ahmad	Expert	B2.1	09/04/89	30/05/91	24.74
Y. Hensein	Specialist	B2.3	01/07/89	04/01/90	5.03
H. Awad	Expert	B2.4	01/08/89	04/08/90	5.12
Y. Naguib	Expert	B3.1	18/02/90	14/07/90	3.46
Y. Naguib	Expert	B3.2	09/05/89	30/09/89	7.29
M. Zakaria	Specialist	B4.2	22/06/89	30/09/89	3.00
M. Nazmy	Ass. S. A.	B5	02/04/89	28/02/91	21.00
M. Housseiny	Specialist	B5.1	01/05/89	08/07/89	1.34
M. Gahr	Specialist	B5.1	01/08/89	14/12/89	5.30
M. Gahr	Specialist	B5.2	16/12/89	30/04/90	4.38
Y. Naguib	Expert	B5.3	01/10/89	15/01/90	5.86
R. El Deeb	Expert	B5.3	04/12/89	25/03/90	1.29
Dr. F. Ghobrial	Expert	B5.3	01/10/89	30/05/90	5.90
H. Kishk	Expert	B5.4	04/02/90	31/07/90	11.03
H. Awad	Expert	B5.5	01/03/90	31/08/90	5.12
Y. Naguib	Expert	B5.5	15/07/90	30/05/91	7.75
R. El Deeb	Expert	Design Dept.	05/08/90	30/05/91	4.48
M. Atta	Expert	Design Dept.	10/06/90	30/05/91	6.28
Y. Rayan	Expert	Design Dept.	05/08/90	30/12/90	3.05
Dr. F. Ghobrial	Expert	Survey	09/09/90	28/02/91	5.45
O. Afifi	Expert	Survey	03/06/90	30/05/91	11.63
Secret.	TSS	Support	04/12/88	30/05/91	35.07
Service	TSS	Support	21/02/89	30/05/91	105.08
Financial Assistant	TSS	Support	20/03/89	30/05/91	26.22
V.P. Supervisor	TSS	Support	01/10/89	30/05/91	20.00
W. Processor	TSS	Support	29/04/89	30/05/91	141.48
Driver Supervisor	TSS	Support	17/09/89	30/05/91	22.64
Driver	TSS	Support	24/07/89	30/05/91	200.89
Draftsman	TSS	Tech. Staff	10/07/89	30/05/91	4.78
Translator	TSS	Tech. Staff	10/04/89	30/05/91	43.52
Tech. Trainer	TSS	Tech. Staff	08/04/90	30/05/91	13.75
Technician	TSS	Tech. Staff	29/01/89	30/05/91	7.12

Total FS = 265.58
 TSS = 620.55
 Per Contract FS = 291.28
 TSS = 664.08

LEGEND : * FDW : First Day of Work
 ** LDW : Last Day of Work

55

APPENDIX D
Details Regarding The Egyptian
Subcontractors
(AAW & TEAM MISA)

APPENDIX (D)

D-1 Details Regarding Dr. Abdel Warith - AAW Subcontractor

The Consulting Firm of AAW was established in 1957. It is managed by its founder and director Dr. Ahmed Abdel Warith. AAW is considered as one of the highly qualified firms, not only in A.R.E., but also through out the Middle East, due to its high standard of professional technique and up-to-date scientific.

The firm's board of directors, headed by Dr. Ahmed Abdel Warith, directs the project activities in EGYPT and other Arabian & African countries. Currently, the firm employs more than 430 qualified engineers and specialists with extensive practical and technical experience.

The firm includes some members who also work at different universities, thus combining academic knowledge and practical experience.

AAW is largely structured and established to meet the specific needs of specialization in the fields of:

- o Water Supply Storage and Distribution
- o Ground Water Development
- o Sanitary Sewerage, Sanitary and Disposal
- o Industrial Waste Collection and Treatment
- o Storm Water Drainage
- o Roads, Bridges and Transportation Engineering
- o Regional Development and Urban Planning
- o Housing Colonies and Tourism Villages
- o Public Buildings
- o Power Transmission and Distribution.
- o Irrigation and Drainage

AAW has provided engineering services of planning, study, design and construction supervision for over 470 major projects in their areas of specialization. The total cost of these is approximately U.S. \$17 Billions.

Water & Wastewater Institutional Support Project (WWISP)

To enhance the capability of the Ministry of Housing and Public Utilities (MHPU) and its executive agency, the National Organization for Potable Water and Sanitary Drainage (NOPWASD), in meeting municipal water wastewater needs throughout Egypt.

The project consists of three main components:

- o Technical assistance to the MHPU and NOPWASD through long-term and short-term advisors to improve management, planning, budgeting, training and regulation of the water and wastewater sector.
- o Assistance to NOPWASD and several municipalities in training personnel for the start-up operations of the water and wastewater treatment plants.
- o General sector support through provision of training aids and publications, spare parts, microcomputer hardware and software and applied research academic institutions.

The primary Egyptian implementing agents are MHPU and NOPWASD.

The project with the purpose of developing the system and helping it reach a performance level to satisfy the needs of the nation and the people had include the following:

- o An estimation of additional "Hardware" capabilities together with the necessary engineering and management "Software" technologies.
- o A plan and effort to establish a better management style with an accompanying information system.
- o A philosophy, methodology and practice for updating, modernizing and increasing the effectiveness of the work force.
- o A solution to the institutional problem, in term of shape, size, and relationship of various institutions working within the sector and those which have an effect on the sector.
- o An enhancement of economic capabilities, financial management and funding sources for the development of the sectors.
- o An effort to inform the public to improve their attitudes towards the vital services, facilities and products of the sector.

AAW has provided a significant number of professional, technical and office support for the completion of the work. Their level of involvement in the project tasks were:

- | | |
|---------------------------------------|-----------------------------|
| o Policy Guidance and Monitoring | Sustained, Full Involvement |
| o Planning and Economic Analysis | Sustained, Full Involvement |
| o Manpower Development & Training | Sustained, Full Involvement |
| o Engineering & Environmental Control | Sustained, Full Involvement |
| o Plan, Review and Finance | Considerable Involvement |
| o Organization and Management | Considerable Involvement |
| o Finance and Accounting | Some Involvement |

D-2 Details regarding TEAM MISR Subcontractor

TEAM MISR was established in 1980. It is an engineering and management consulting firm with specialized departments offering these services.

- o Management Consulting
- o Management Training
- o Engineering Design
- o Design and Management of Vocational Training Establishments
- o Design and Installment of Management Information Systems and Computer Services
- o Computer Services
- o Research and Development in these area

The firm currently employs some 300 full time professional staff, a similar number of part timers, plus support services work force. It occupies a seven-story building in Heliopolis, Cairo and several other locations of extension. It serves a long list of clients in Egypt, the Arab World and elsewhere and conducts work in collaboration with numerous other world organizations in the U.S., Far East and Europe.

TEAM has supplied experts of numerous task and subtasks of WWISP and provided training space, equipment besides renting computers and providing advice.

Among tasks and subtasks manned by staff from TEAM:

- o Finance and Accounting
- o Financial Systems
- o Revenue Generaticn
- o Investment Strategies
- o Private Sector Enterprise
- o Environmental Standards
- o Code Enforcement
- o Manpower Needs Assessment
- o Personnel Needs Assessment
- o Information Systems
- o Tariff and User Charges
- o Manpower Development
- o On-The-Job Training
- o Certification and Licencing
- o Management Training
- o Library Facillites
- o Public Awareness
- o Publication Programs

Team provided Management Training with a long list of instructors to cover the wide range of subjects involved in 12 courses and workshops and provide all material means and administration in its quarters.

Team also provided typists and clerks for the project.

APPENDIX E

Submission of Water & Wastewater

Survey Reports

APPENDIX (E)

a - SUBMISSION OF WATER AND WASTEWATER SURVEY REPORTS

- In March 1990, NOPWASD requested WWISP assistance in conducting surveys of (26) Wastewater Treatment Plants. WWISP developed a replicable program and started training a selected NOPWASD team on survey procedures. The elements of this training included classroom and field data collection, flow measurements, analysis of system deficiencies, and ultimately, estimating the rehabilitation or upgrading costs of existing plants.

The following tabulates the locations and report submittal dates for the Wastewater Treatment Plants, surveyed by the NOPWASD/WWISP Team.

GOVERNORATE	CITY	DRAFT REPORT	FINAL REPORT
GHARBIA	1 TANTA	19/11/90	3 / 8/91
	2 MAHALA EL-KOBRA	8 /10/90	3 / 8/91
	3 KAFR EL-ZAYAT	13/11/90	18/ 6/91
	4 SAMANQUD	30/12/90	24/ 7/91
MINUFIYA	5 MINUF	20/ 8/90	9 / 4/91
	6 SHIBIN EL-KOM	MAY 1990	27/ 8/91
DAKAHLIA	7 MANSOURA	5 / 9/90	16/ 5/91
DAHietta RAS EL-BAR	8 DAHietta	11/ 9/90	12/ 5/91
	9 RAS EL-BAR	18/ 9/90	28/ 4/91
QALUBIYA	10 BENHA	27/ 9/90	30/ 5/91
BEHEIRA	11 SHOUBRA KHIT	7 / 2/91	21/ 7/91
	12 DAMANHOOR	27/ 9/90	26/ 7/91
	13 EL-MAHMOUDIA	31/ 1/91	12/ 5/91
PORT SAID	14 PORT SAID	24/ 9/90	10/ 6/91
ISMAILIA	15 ISMAILIA	30/ 8/90	28/ 5/91
SUEZ	16 SUEZ	28/ 8/90	26/ 5/91
KAFR EL-SHEIKH	17 KAFR EL-SHEIKH	15/11/90	19/ 5/91
SHARKIA	18 ZAGAZIG	28/ 2/91	28/ 4/91
FAYOUM	19 FAYOUM	24/10/90	28/ 4/91
BENI SUEF	20 BENI SUEF	27/11/90	24/ 7/91
MINYA	21 MINYA	28/11/90	23/ 5/91
ASSUIT	22 ASSUIT	6 / 3/91	13/ 5/91
SOHAG	23 SOHAG	6 / 3/91	16/ 6/91
QENA	24 QENA	4 / 3/91	28/ 7/91
	25 LUXOR	10/ 3/91	4 / 8/91
ASWAN	26 ASWAN	6 / 3/91	18/ 7/91

- b - In October 1990, NOPWASD requested that WWISP provide assistance in surveying the condition of Water Treatment Plants for selected cities. A survey program was developed in response to this request.

The following tabulates the location and report submittal dates for the Water Treatment Plants surveyed by the NOPWASD/WWISP Team.

GOVERNORATE	CITY	FINAL REPORT
QALUBIA	1 BENHA	7/ 4/91
MINUFIA	2 MENOUF	9/ 5/91

- c - On 31 January 1991, NOPWASD redirected the survey program. They requested WWISP to establish a training program for the survey of Water/Wastewater Treatment Systems in 20 secondary cities located in Upper Egypt. WWISP responded and modified its program to survey these cities, which were selected by NOPWASD. The following tabulates the locations and report submittal dates for the secondary cities Water/Wastewater Treatment Plants surveyed and reported by the NOPWASD/WWISP Team under a follow-on amendment. The final reports for these surveys were submitted after the closing date of this reporting period (through May 30,1991).

GOVERNORATE	CITY	GOVERNORATE	CITY
ISHAILIA	1 KASSASIN	QENA	9 KOUS
			10 ARMENT
GIZA	2 AL SAF		11 ESNA
			12 DESHNA
GARBA	3 ZEFTA		13 HACH HAMMADE
			14 ABO TESHT
ASSUIT	4 ABO TEEG	SOHAG	15 EL BELYANA
	5 ABHOUB		16 GERGA
	6 MANFALOT		17 EL MARAGHA
	7 EL KOSEIA		18 GOHAINA
	8 DAIROUT		19 AWLAD HANZA
			20 TEMA
			21 TANTA

APPENDIX F

Completion Report Data and Bibliography

APPENDIX (F)

COMPLETION REPORT DATA AND BIBLIOGRAPHY

Each of the WWISP reports (SR,OS,CG) was prepared in accordance with a standardized format. This format required that each WWISP report include sources of data and information, interview contacts and a Bibliography of References (texts, publications, reports, etc.) used during the sub-task activities. Taken as a whole, the combination of these individual report listings is considered the WWISP Bibliography of References.

In addition to the list which appears in each report, a number of other reference items have been collected during the term of WWISP. In some cases these are documents which were requested by Advisors during their sub-task activities, while in other cases, they represent publications which were collected locally or donated to NOPWASD by other agencies or projects working in Egypt. These documents are included in the WWISP inventory for turnover to the NOPWASD library.

As a procurement under WWISP Contract Amendment No. 2, the consultant specified a large number of texts for delivery to the NOPWASD library. These titles were reviewed and approved by NOPWASD and are also included in the WWISP inventory for turnover to the NOPWASD library.

APPENDIX G

Final Shipping Report

66

APPENDIX (G)

Final Shipping Report

During the WWISP project, various items of equipment, vehicles, books, etc., were shipped from the United States to Egypt. Major items were:

- Computers
 - Vehicles
 - Books
 - Flow meters
 - Miscellaneous repair parts for project vehicles.
-
- a. 6 Kaypro 286 - 12 MHz, 1 MB RAM, 1.2 MB 2 serial/I parallel ports, keyboard 72 MB hard drive, 6 EGA Monitors with EGA card (Mitsubi 710E), 2 Kaypro 286-12 MHz, 1 MB Ram, 1,2 floppy 2 serial/I parallel ports, keyboard, 40 MB hard drive, 2 Monochrome Monitors with card (Mitsube 710A), 1 Fujitsu Laser Printer and 2 Everex Laser Printers were purchased in April 1989 and shipped to Cairo where they arrived late April. They were cleared by customs authorities on 4 May.
 - b. A Dell 325 computer was purchased in September 1989 to support the NOPWASD MIS. The computer was shipped from Los Angeles, California to Cairo, Egypt on 12 September 1989. It was cleared through customs at Cairo Airport on 25 September 1989.
 - c. Twelve Jeep Cherokees were purchased from Banner Industries, Inc. by Boyle Engineering Corporation on 1 June 1989. They were shipped by Farrell lines on Argonaut V.87 ships, from Baltimors, MD on 7 June 89. Memphis Shipping Agency & Worms Alex Cargo Services Co. handled vehicles in Alexandria, Egypt. The vehicles were through Egyptian customs on 8 July 89 and licenced through Alexandria Port Traffic Section on 9 July 89. Pre-delivery inspection was by A.A.V. (Arab American Vehicles) representatives at the Alexandria Port on July 1989.
 - d. Five Chevrolet Sport Vans, purchased from Banner Industries by Boyle Engineering Corporation, were received in Alexandria on 23 December 1989. The vehicles cleared customs and were licensed in January 1990. The vehicles were driven from Alexandria to Cairo by WWISP personnel.
 - e. Several shipments from the US of books were made over the life of the project. Two significant shipments were made in 1991 of books purchased under Amendment No. 2 to the WWISP Contract. 300 engineering and engineering-related books, costing \$10,000, were purchased under the Equipment line item in Amendment No. 2 by Boyle and NEC and shipped to Cairo. The Boyle - purchased books were received and cleared by Egyptian authorities on 14 May 1991. The NEC purchased books were cleared on 28 May 1990.

- f. Two flow meters were purchased for the project. The first was an ultrasonic doppler-type flowmeter purchased on 13 August 1990 from Arab Consulting Engineers, Osman Azam & Co., Maadi, Cairo. This meter, although purchased locally, was ordered by Osman Azam & Co. from Baird Controls, Inc in Illinois, USA and air shipped to the WWISP. It was received on 16 October 1990. A second flowmeter, a transit time meter for measuring flow of clean water, was ordered by Boyle Engineering Corporation and air shipped to WWISP where it was received on 21 January 1991.
- g. Since early 1990, occasional shipments of vehicles repair parts that are not available locally, have been purchased by the Boyle and airshipped to Cairo.