

PROJECT DATA SHEET

1. TRANSACTION CODE

A = Add
 C = Change
 D = Delete

PD-MAIL-509
 Amendment Number
 3

DOCUMENT CODE
 3

2. COUNTRY/ENTITY

Yemen Arab Republic

3. PROJECT NUMBER

279-0028

ISN-13574

4. BUREAU/OFFICE

Near East

03

5. PROJECT TITLE (maximum 40 characters)

Water Supply Systems Management

6. PROJECT ASSISTANCE COMPLETION DATE (FACD)

(Revised from
 03/31/83)

MM DD YY
 1 | 2 | 3 | 1 | 8 | 6

7. ESTIMATED DATE OF OBLIGATION

(Under 'B:' below, enter 1, 2, 3, or 4)

A. Initial FY 7 7

B. Quarter 4

C. Final FY 8 2

8. COSTS (\$000 OR EQUIVALENT \$1 =)

A. FUNDING SOURCE	FIRST FY 77			LIFE OF PROJECT		
	B. FX	C. I./C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	2,241	745	2,986	4,750	1,350	6,100
(Grant)	(2,241)	(745)	(2,986)	(4,750)	(1,350)	(6,100)
(Loan)	()	()	()	()	()	()
Other						
1.						
2.						
Host Country		190	190	-	1,900	1,900
Other Donor(s)						
TOTALS	2,241	935	3,176	4,750	3,250	8,000

9. SCHEDULE OF AID FUNDING (\$000)

APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
H	501	540		5,000	-	1,100	-	6,100	
TOTALS				5,000		1,100		6,100	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

11. SECONDARY PURPOSES

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code

B. Amount

13. PROJECT PURPOSE (maximum 180 characters)

To develop the National Water and Sewerage Authority (NWSA) into an effective entity, capable of managing, planning, constructing, and operating the urban water and wastewater systems of the YAR.

14. SCHEDULED EVALUATIONS

Interim MM YY MM YY Final MM YY

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 941 Local Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of 1 page PP Amendment)

Increase AID grant support of \$5.0 million for Project 028 by \$1.1 million in grant funds. The additional grant will provide an increased level of technical assistance to meet NWSA's expanding needs and will finance an Operations and Maintenance (O&M) Training Program that will assist NWSA in meeting its long-term human resources requirements for the several water and wastewater facilities coming on line in the various branches over the next 5 years.

17. APPROVED BY

Signature

[Handwritten Signature]

Title

Acting Director, USAID/Yemen

Date Signed

MM DD YY
 0 | 6 | 1 | 5 | 8 | 2

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY
 0 | 7 | 1 | 2 | 8 | 2

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- G.1 Lang/Calbert's Evaluation of Project 028 (Reference Only)
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- G.3 Technical Assistance & Training Status (Attached)
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H. STATUTORY CHECKLIST

ANNEX H, No. 1 - Project Checklist

ANNEX H, No. 2 - Standard Item Checklist

USAID/YEMEN PROJECT COMMITTEE

CHAIRMAN: John J. Giusti, General Development Officer

MEMBERS: Zachary M. Hahn, Chief, General Development Office
James G. Cassanos, Engineering Consultant
Donald Muncy, Assistant Program Officer
Michael Hase, Budget and Accounting Officer

PROJECT PAPER
YEMEN ARAB REPUBLIC

WATER SUPPLY SYSTEMS MANAGEMENT

SUMMARY AND RECOMMENDATIONS

1. GRANTEE: The Government of the Yemen Arab Republic (YARG)
2. IMPLEMENTING AGENCY: The National Water and Sewerage Authority (NWSA), an autonomous agency under the Ministry for Electricity, Water and Sewerage, is currently implementing the project and will assume responsibility for implementing those activities financed from the proposed grant.
3. AMOUNT: U.S. \$1,100,000 (One Million One Hundred Thousand Dollars) to be authorized as a development assistance grant in FY 1982. This amount will be additional to previous AID grants for this project of \$5,000,000 authorized as follows:

August 24, 1977	\$2,986,000
August 18, 1978	347,000
April 30, 1979	<u>1,667,000</u>
Total	\$5,000,000

4. TERMS: The additional project activities are proposed for development assistance grant financing from monies appropriated for population and health activities (Section 104 of the FAA as amended). The additional grant will finance an operation and maintenance (O&M) training program that will assist NWSA in meeting its long-term human resources requirements for the several water and wastewater facilities that are coming on line in the various branches over the next 5 years.

5. TOTAL PROJECT COST: Total project costs are about \$8,000,000, of which AID's contribution totals \$6,100,000. NWSA contributes 25 percent (about \$1,900,000) for items including office space, salaries of participants, and NWSA staff assistance.

6. DESCRIPTION OF PROJECT: The project revision continues to pursue the goal and purpose of the original Project Paper and to build on the achievements of AID's efforts to date. The activities planned represent an increased level of effort to assist NWSA in meeting the needs that arise as a result of its rapid expansion and growth. This increased effort is timely since NWSA now has the institutional and absorptive capacity to both utilize and coordinate effectively AID and other donor assistance. This project revision provides technical assistance (a training advisor and short-term specialists/instructors) and training to NWSA headquarters and the branches so that NWSA can operate and maintain in the proper manner its existing and newly constructed water and wastewater facilities. Activities include in-country on-the-job/classroom training for 200 persons; electrical training for 30 persons; mid-level management/technical training for 50 persons; and long-term academic training for five persons.

7. PURPOSE: To develop NWSA into an effective entity, capable of managing, planning, constructing and operating the urban water and sewerage systems.

8. SUMMARY FINDINGS: (a) Technical Analysis: Conditions within YARG generally and NWSA specifically have improved with the result that NWSA (1) has a trained cadre that can be built upon and whose skills can be upgraded; (2) can recruit additional staff as needed; and (3) retain its trained personnel.

(b) Financial Analysis: Though considerable attention is given to financial analysis in Annex C, the focus of Project 028 is technical assistance, that is, to enable NWSA to operate and maintain effectively the new water/wastewater facilities. The analysis is included to update information provided in the original Project Paper and to provide background on NWSA's financial structure and current status. In addition, a tariff study by the French firm Roland Olivier Conseil will be presented in draft to NWSA and the donors in July 1982. This study will provide detailed data on the level and trend of expenditures and the required income to meet them. The foreseeable financial picture for NWSA gives grounds for optimism. The present situation is that total costs of operations are increasing at a slightly faster rate than total revenues with a downward trend in net revenues. However, since the new facilities make possible a considerable increase in water production, water connections, and sewer connections over the next 5 years, the potential exists to meet a substantial portion of, if not all, costs.

(c) Economic Analysis: The amount to be expended under Project 028 (\$6,100,000) is only 2 percent of the total cost (\$300,000,000) of the three new facilities coming on line mid-1982 (other facilities are in various stages of planning or implementation). The justification for this project in economic terms is the protection of a large joint investment. Viewed in another way, this small investment on AID's part will allow NWSA to operate the new facilities in an efficient manner.

(d) Social Analysis: By 1986 about 75 percent (compared with 33 percent in 1981) of the urban population of the concerned cities will benefit from NWSA's water/wastewater facilities. In addition, income distribution is much more even in Yemen than in most other developing countries, with the result that project services will be affordable to a large proportion of the populace.

9. STATUTORY REQUIREMENTS: All statutory criteria have been met (see Annex H).

10. ISSUES: (1) NWSA and USAID have explored the question as to whether or not NWSA would prefer that the technical assistance for long-term O&M training be provided by Technical Management Services, Inc. (TMSI), with whom NWSA has an existing host country contract. USAID's recommendation is that, if sole source procurement is justifiable, NWSA should continue its relationship with TMSI to carry out the activities of this Project Paper revision. NWSA will make a decision on this issue after reviewing the performance of the TMSI team in Yemen under Amendment 6 of the TMSI contract. At the advice of AID/W in State cable 111023, a sole source justification is included in Annex F.

(2) Request for extension of the PACD of March 31, 1983 to December 31, 1986.

11. MISSION VIEW: The Mission strongly supports the proposed grant to assist NWSA in meeting its operation and maintenance manpower requirements.
12. RECOMMENDATION: Approval of the proposed grant by authorization of U.S. \$1,100,000 from FY 1982 monies appropriated for population and health activities (Section 104 of the FAA as amended).

I. PROJECT BACKGROUND

A. Introduction

This Project Paper amendment justifies an increase in AID grant assistance to the Water Supply Systems Management Project of \$1.1 million to the Yemen Arab Republic's implementing Agency, the National Water and Sewerage Authority (NWSA). The increment is in addition to a total of \$5.0 million grant previously authorized for the project as follows:

<u>AMOUNT</u>	<u>DATE AUTHORIZED</u>
\$2,986,000.	August 24, 1977
347,000	August 18, 1978
<u>1,667,000</u>	April 30, 1979
\$5,000,000	Total

This amendment does not detail all aspects of the project; issues and topics not covered in this amendment are contained in the original Project Paper, approved August 24, 1977, and subsequent amendments. Further, an indepth evaluation ("Evaluation of Yemen Water Supply Systems Management Project") was prepared by Messrs. Lang and Calbert in September 1981 under Contract No. AID/DSPE-C-0080 and provides a detailed report of progress up to that time (see Annex G, No. 1).

B. Project Financial Status Report

Table I-1 below outlines the financial status of Project 028 as of May 31, 1982.

TABLE I-1
FINANCIAL STATUS REPORT

<u>Technical Assistance:</u>	<u>Amount</u>
1. TMSI Contract through Amendment No. 6	\$3,585,000
2. Miscellaneous Technical Assistance	217,000
3. Evaluation (September 1981)	<u>30,000</u>
TA Subtotal	\$3,832,000
<u>Training:</u>	
1. Long-term Training (11 Participants -- Committed/Pledged)	470,000
2. Short-term Training (11 Participants)	<u>103,000</u>
Training Subtotal	\$573,000
<u>Total Committed:</u>	<u>TOTAL</u>
	\$4,405,000
Approximate Balance: (\$5,000,000 less \$4,405,000)	\$595,000

C. National Water and Sewerage Authority, An Overview

Created in 1973 as an autonomous agency, with its chairman reporting directly to the Council of Ministers, NWSA was incorporated into the newly created Ministry of Electricity, Water and Sewerage in late 1980. Since its inception, NWSA has been active in implementing a large number of projects to provide water and sewerage services to Yemen's major cities beginning with the Sanaa Water I Project initiated in 1974. NWSA has been generally successful to date in attracting outside donor financing for its projects (refer to Annex C-I, Financial Analysis).

The major project completed during the First Five Year Plan (75/76 80/81) was Sanaa Water Phase I. The projects being implemented or planned for implementation during the Second Five Year Plan (1982 1986) are classified by NWSA as follows:

1. Projects initiated under the First Five Year Plan but to be completed in 1982 include Sanaa Water Phase II, Taiz Water and Sewerage, and Hodeidah Water and Sewerage.
2. Projects for which necessary studies and designs have been completed, loans have been committed, and construction is to commence in 1982 include Sanaa Sewerage Phase I and Ibb and Dhamar Water and Sewerage.
3. A project for which necessary studies and designs have been completed but no loan funds obtained as yet is Sanaa Sewerage Phase II.
4. Water and sewerage projects for the seven towns which will come under NWSA's auspices and for which studies will commence in 1982 include Ha'jah, Al-Baida, Zabid, Yarim, Radda, Sada, and Al-Mocha.
5. Future expansion of existing projects include Sanaa Water, Taiz Water and Sewerage, and Hodeidah Water and Sewerage.

Estimated total costs, estimated completion dates, and donor funding sources of all projects being implemented and/or planned are shown in Table I-2 below.

The requirements in staffing to meet the needs of the expansion program will increase considerably during the Second Five Year Plan. For base year 1981, NWSA staff totalled 550 for headquarters and three branches, as shown in Table I-3. By 1986 estimated manpower requirements for headquarters, the three branches and the additional branches total 1,446 (see Table I-4) almost a three fold increase.

TABLE I-2
NWSA WATER AND SEWERAGE PROJECTS

<u>CITY</u>	<u>PROJECT</u>	<u>EST DATE COMPLETION</u>	<u>EST COST (\$ MILLION)</u>	<u>OUTSIDE DONORS</u>
Sanaa	Water I	1980	25.0	IDA, Abu Dhabi Fund
Sanaa	Water II	1982	60.0	Arab Fund
Sanaa	Sewerage I	1985	70.0	IDA, Saudi Fund
Sanaa	Sewerage II	Undetermined	165.0	Undetermined
Taiz	Water & Sewerage	1982	100.0	Saudi Fund/Abu Dhabi Fund/AID
Hodeidah	Water & Sewerage	1982	80.0	IDA, Arab Fund, Islamic Bank
Ibb/Dhamar	Water & Sewerage	1985	80.0	IDA, Arab Fund, German Gov't.
Hajjah	Water & Sewerage	1985	26.0	Undetermined
Al-Baida	Water & Sewerage	1987	57.0	Undetermined
Zabid	Water & Sewerage	1987	32.0	Undetermined
Yarim	Water & Sewerage	1987	19.0	Undetermined
Radda	Water & Sewerage	1987	32.0	Undetermined
Sada	Water & Sewerage	1987	21.0	Undetermined
Al-Mocha	Water & Sewerage	1987	18.0	Undetermined

Sanaa/Taiz/Hodeidah Expansion -- Status yet to be determined

Total Estimated Costs:

785.0

TABLE I-3
NWSA STAFFING, BASE YEAR 1981

<u>Offices of:</u>	<u>Headquarters</u>	<u>Sanaa</u>	<u>Taiz</u>	<u>Hodeidah</u>	<u>Total</u>
Director General	4	-	-	-	4
Planning and Statistics	3	-	-	-	3
Branch Manager	-	2	2	1	5
Administrative Affairs	63	43	39	17	162
Financial Affairs	31	40	38	41	150
Technical Affairs (O&M)	27	59	89	51	226
<u>TOTAL</u>	<u>128</u>	<u>144</u>	<u>168</u>	<u>110</u>	<u>550</u>

SOURCE: NWSA

TABLE I-4
PROJECTED NWSA GROWTH, 1981 - 1986

<u>Location</u>	<u>Number of Personnel</u>	
	<u>1981</u>	<u>1986</u>
Headquarters	128	180
Sanaa Branch	144	222
Taiz Branch	168	259
Hodeidah Branch	110	169
Ibb/Dhamar/Hajjah	-	236
Six Remaining Branches	-	380
<u>TOTAL</u>	<u>550</u>	<u>1,446</u>

An additional staff of about 225 (skilled and unskilled) will have to be recruited over the next year for the operations and maintenance of the new facilities coming on line in Sanaa, Taiz, and Hodeidah in 1982. Sources of labor which the branches can draw on to meet the additional manpower requirements include primarily the local Yemeni employees of the construction contractors and the consulting engineers in each of the branches as follows:

TABLE I-5
YEMENI PERSONNEL EMPLOYED BY THE
CONTRACTOR AND ENGINEERING
FIRM

SANAA

Howard Humphreys	30
SOBEA	400

TAIZ

Stanley Consultants, Inc.	35
RSPL	520

HODEIDAH

GITEC	40
Sam Whan	250

TOTAL	<u>1,275</u>
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These persons, some of whom have been seconded from the branch, provide a valuable source in that they already have received basic training in administrative, financial, and technical affairs through their work during project implementation. They are fully familiar with the project and require only basic upgrading so that their skills can be applied to hands-on operations and maintenance. Other sources for additional manpower are the graduates of the local vocational technical schools and secondary schools.

The number of beneficiaries who are to be served by NWSA's expanding program will naturally increase as well. This issue is covered in detail in Section III.C - "Social Analysis."

D. Present Status of Project

The Water Supply Systems Management Project was authorized originally on August 24, 1977. The original grant agreement was signed on August 31, 1977. As envisioned in the Project Paper, the project would have two major elements: (a) Technical assistance from a qualified U.S. firm in the areas of water utility management and administration under which the advisors providing the technical assistance would work closely with NWSA counterparts to provide "on-the-job" training in their various areas of responsibility; (b) Long-term (academic) and short-term (practical) training for NWSA personnel in various disciplines would be required to provide NWSA staff with the full range of expertise needed to manage a large water and sewerage utility.

The project got off to a very slow start. Although efforts were begun immediately after grant agreement signature (August 1977) to contract a U.S. firm to provide the technical assistance, the contract for these services was not signed until over 1 1/2 years later (NWSA signed a contract with Technical Management Services, Inc. -- TMSI -- on May 24, 1979) and the first contractor staff member was not on board until the fall of 1979. The proximate cause for this delay was NWSA's unfamiliarity with AID host country contracting procedures, which led to a great deal of misunderstanding and a large number of false steps. Similarly, the first long-term trainee did not begin courses in the U.S. until the fall of 1979.

Underlying the immediate causes for these delays was the fact that NWSA was a relatively new organization which was experiencing difficulties in obtaining qualified staff. Although the numbers and qualifications of NWSA's staff have improved considerably through time, the organization's responsibilities have been growing simultaneously at a fast pace. The result has been a management staff -- particularly at the top levels -- which has been "spread thin" to a significant degree. This means not only that certain key staff members are regularly overburdened but also that NWSA -- like virtually all other YARG organizations -- has demonstrated a reluctance to release capable people for training.

Despite the slow start and NWSA's staffing problems, with certain aspects, the project has made fairly good progress to date toward achieving its objectives. On the technical assistance side, quantity and quality targets essentially have been met; through Amendment 5 to their contract, TMSI will have provided 175 person months of incountry advisory services of extremely well qualified personnel. The caveat here is that in certain instances, particularly with regard to overall management and administration, only limited "on-the-job" training has been imparted. NWSA's short staffing situation has forced it to look to the TMSI advisors in many instances to function essentially as staff members and not merely as advisors. There has been training imparted in the process, of course, but it has not been as intensive as could be wished.

With regard to training, long-term, academic training targets are well on the way toward being met, but short-term, practical training targets are far from being met. Of the 360 person months of planned long-term training, at least 312 will have been accomplished when the currently planned training (most of which is underway) is completed at the end of 1984. However, of the 114 person months of planned short-term training, only about 18 have been accomplished (through sending 11 participants to conferences/courses in water supply and wastewater management and treatment offered by Layton and Associates in Neosho, Missouri).

There are a number of sources for readers wishing to acquaint themselves more fully with the present status of the project. Annex G, No. 3 gives a fuller overview of the targets and accomplishments for both technical assistance and training. The project underwent a thorough outside evaluation in mid-1981 and the resulting report provides a comprehensive overview of accomplishments to that time. This report is referred to in Annex G, No. 1. Further, in early 1982 a highly qualified outside consultant came to Yemen to prepare recommendations for NWSA's operation and maintenance (O&M) training needs. While this report does concentrate on O&M training (and thus forms the basis for the recommendations of this project paper), it also provides information on the project's progress to date. This report is referred to in Annex G, No. 2. Finally, there are the regular progress reports prepared by both the contractor and the Mission. All of the referred to materials are available in NE/PD.

II. PROJECT DESCRIPTION

A. Project Goal and Purpose

The goal and the purpose have not changed from those in the original Project Paper. The project goal continues to improve the health conditions of the people of YAR and the project purpose is to develop NWSA into an effective entity, capable of managing, planning, constructing, and operating the urban water and sewerage systems. AID and other donor efforts to assist NWSA to achieve the above goal and purpose have been quite successful to date. The goal of course is ongoing; as for the purpose, NWSA's institutional capabilities have improved considerably and continue to do so.

The financial assistance justified by this paper is scaled to NWSA's institutional absorptive capacity to utilize fully and to coordinate effectively AID's assistance under this project and the assistance of other donors. The incremental funding justified in this paper represents a discrete, intensive input of technical assistance to accomplish an essential level of O&M capacity.

B. Review of O&M Training: Layton Report, Lang/Calbert Report and TMSI Amendment 6

The Layton Report (Annex G, No. 2) outlines several training alternatives. These include a "train the trainer" program embracing headquarters and the branches; use of the Sanaa Vocational Technical School, the Dhamar Electrical Training Center, and the soon-to-be-established University of Sanaa Engineering School; on-the-job training for technicians and engineers; continuation of NWSA staff's participation in O&M and technician types of short-term courses both in the United States and third country; long-term academic (graduate) training; and the establishment of a proposed Taiz Training Center at the present site of the Hanab-Stevin Pipelines Camp.

Lang and Calbert (Annex G, No. 1) offer several recommendations at the end of their September 1981 report, some of which have already been addressed under the TMSI contract through Amendment 6, others to be addressed under this PP revision, and still others that are simply beyond the limited financial resources of Project 028. The major recommendation is that a training advisor assist NWSA in its training and manpower development. This PP revision intends to do just that.

Though all the suggestions and recommendations proposed by both reports are sound and, through coordinated donor effort, hopefully will be accomplished over a period of time, the funds made available by this PP revision (\$1.1 million) and the 028 funds unearmarked so far (about \$600,000) allow sufficient contribution by AID to the total O&M effort. Further, many of the short-range recommendations are in fact now being implemented through Amendment 6 of the TMSI host country contract.

In Amendment 6, TMSI is providing 30 worker-months of services for training specialists (including a lab specialist) who will provide "hands-on" training for NWSA personnel in the skills necessary to start-up, operate and maintain water and sewerage facilities, particularly in Taiz, Sanaa, and Hodeidah. Specific tasks include (1) the preparation of basic operation and maintenance training manuals; (2) assistance in identifying immediate O&M staffing requirements and in setting up the training programs at each branch to meet those requirements; (3) coordination of training programs with instruction provided by factory representatives; (4) development and initiation of "train-the-trainer" program wherein NWSA personnel (headquarters and branches) will work as counterparts to TMSI team personnel; and (5) direction and guidelines for the formulation of long-range O&M training for NWSA.

The training and technical assistance outlined below describe an effort on AID's part to continue to build on the accomplishments achieved through TMSI's host country contract with NWSA. The training program is based on USAID's best judgment at this time of the needs; it may have to be adjusted to take into account the recommendations, directions, and guidelines to be provided by the TMSI short-term O&M team (Amendment 6) which will be in Yemen from June 1982 through January 1983.

Further, though the training program emphasizes the human resources needs of the branches actually in operation (Taiz, Sanaa, and Hodeidah), it includes as well participants (as they are identified) from branches whose facilities are still in the construction or planning stage. Also, it is hoped that whatever on-job-training required for the other branches but not provided by this revision will be provided in a timely fashion, with assistance from other donors, by NWSA itself whose institutional capabilities in training will have been enhanced considerably through this project's O&M training efforts.

Regarding this last point, it is desirable that NWSA ultimately reach a level of self-sufficiency whereby it will be able to provide on its own (in coordination with programs of other Yemen institutions) the kind of in-country, on-job training needed to meet its continually growing human resource requirements. The Layton report proposes the establishment of the Taiz Training Center, which this revision does not address directly because of funding limitations. However, if NWSA does in fact decide to pursue the establishment of such a center and, in coordination with other donors, to put the human and financial resources into it, then the

consultant should be prepared to assist NWSA in an advisory role. In addition, if funds would be available either from the 028 grant or the 039 loan/grant, perhaps they could be used to provide either additional technical assistance or equipment for the proposed Taiz Training Center.

C. Project Training Plans

With the funds available (about \$1.7 million), AID will provide three areas of training with emphasis on the first two: (1) on-job/classroom training; (2) mid-level management/technical training for supervisors; and (3) some long-term academic training as required.

On-Job/Classroom Training

At each branch of Taiz, Sanaa and Hodeidah and in conjunction with existing Vo-Tech facilities where possible, up to eight short-term courses (about 1.5 months in length) will be provided in specialties such as:

- Meter installation, repair and maintenance;
- Plumbing and pipefitting;
- Electrical/mechanical power generation; diesel maintenance and repair;
- Pump maintenance and repair;
- Wastewater collection/transport/disposal and sewer cleaning;
- Laboratory monitoring and water quality control;
- Construction methods; and
- Recordkeeping and organization.

Though staffing patterns for the technical affairs section of each branch still need to be defined, it is estimated that a minimum of 200 participants would benefit from this aspect of the program. Efforts will also be made to identify personnel from other branches that will be coming under NWSA's auspices to participate in this on-job-training program. Technical assistance required for implementation is described below.

In addition, more intensive technical training is required in the area of electrical operations and maintenance. A cadre of electrical specialists is needed for power generation and transmission in both existing and future branches. This project envisions the training of a minimum of 30 persons (i.e., 15 per each 6-month course) over a 1-year period. The participants will receive electrical training in a 6-month course jointly set up and managed by the Dhaban Electrical School and the consultant, i.e., the training advisor/team leader.

Mid-Level Management/Technical Training:

Courses leading in some cases to certification, conducted either in the U.S. or third country for a 6-9 month duration, will be arranged by the consultant, in conjunction with programs of existing institutions, for the branches' water and wastewater operators. Up to six persons from each of the branches of Sanaa, Taiz, and Hodeidah should be identified as soon as possible for this training. Subsequently, additional persons from the other branches should be selected for training in a timely fashion. Up to 50 persons will ultimately be trained for a total of 450 mm. The budget in Section E.4 uses stateside costs; however, whenever feasible, third country Arab facilities will also be identified and used for the mid-level training.

Academic (Graduate) Training:

NWSA's needs of top level management grow with its expansion into both project implementation and operations of projects coming on line. This project would hope to fund long-term training for a minimum of five NWSA graduates in various fields including engineering (structural, mechanical, electrical, or environmental), construction management, administrative/financial management, training/manpower development, and planning and statistics. Determination of the fields of study and identification of participants will be made jointly during the project implementation by the NWSA training office, the consultant, and USAID.

D. Technical Assistance

The technical assistance to be provided by the consultant is as follows:

On-Job/Classroom Training -- Three short-term O&M specialists/instructors, preferably Arabic speaking, will offer up to eight short-term courses (about 1.5 months each) at each of the three existing branches. Total person months of short-term technical assistance required are 36, i.e., eight courses at three branches for 1.5 months each.

Mid-Level Management/Technical Training -- Though no additional technical assistance incountry is required for this aspect of the O&M, home office support is needed to assist in setting up and monitoring programs in the United States. These programs will be arranged and developed by the incountry training advisor with assistance from the home office.

In accordance with the strong recommendation of the Lang/Calbert report, this project revision will provide a training advisor/team leader. Detailed descriptions of the training advisor position are provided in both the June 1978 "Invitation for Submission of Technical Proposals" and the original Project Paper (p. 45). The

duties and responsibilities remain the same. Emphasis, however, is to be placed on (1) coordinating and monitoring the activities outlined above; (2) working with the NWSA headquarters and branch training offices; (3) advising NWSA on the establishment of the Taiz Training Center, if required; and (4) coordinating other donor efforts and contributions in the area of training. This person's services would be required for an 18-month period.

E. Estimated Project Costs (Training and T.A.)

1. On-job/classroom training at 36 man months X \$12,000/month (includes salary, overhead, per diem, lodging, post differential, fixed fee, and transportation).	\$ 432,000
2. One training advisor/team leader for 18 months, including salary, overhead, post differential, fixed fee, housing and mobilization	225,000
3. Tuition of Dhaban School and books for 30 participants	50,000
4. Mid-level management/technical training for up to 50 persons at 450 mm --	
- General requirement of 27 semester units at \$75/unit X 50	(101,250)
- Room and board at 9 months X 50 students X \$600/mo	(270,000)
- Air fare at 50 X \$2,500 round trip	(125,000)
- Miscellaneous Costs at 50 X \$300	(15,000)
- Base Salaries covered by YARG	0
Subtotal	511,250
5. Academic (graduate) training for a minimum of five participants at \$50,000/each	250,000
6. Administrative and home office costs	50,000
Total cost of O&M training and T.A.	\$1,518,250
Rounded to:	(\$1,520,000)

Approximately \$180,000 remains unearmarked (\$1.7 less \$1.52 million) under Project 028 with respect to the plan and budget outlined above. This money is left unearmarked for several reasons: (1) to provide funding for O&M training, long-term academic training, and increased level of effort in addition to that outlined above, if required; (2) to provide limited additional funding if required to complete activities (particularly in the computer billing and accounting

system) being implemented by the TMSI consultant firm;
 (3) project evaluation; and (4) to provide limited funding
 for some O&M equipment.

Regarding the last item, a preliminary O&M equipment list
 (intended to meet only the minimum requirements of Taiz, Hodeidah,
 and Sanaa) has been drawn up in consultation with TMSI and the
 engineering firms at the branches (see Table II-1). The equipment
 for Taiz is broken out separately in the event that loan or grant
 funding from Project 03⁰ could be used for this purpose.

The funds to be put into the consultant's contract include:

On-job/classroom training	\$ 432,000
One training advisor	225,000
Mid-level training	511,250
Administrative/home office costs	50,000
	<hr/>
Total contract cost	\$1,218,250

Other funds will be subobligated (approximately \$480,000)
 through other documents including PIO/Ps, PIO/Cs and PILs .

TABLE II - 1
 WATER AND SEWAGE MAINTENANCE EQUIPMENT
 REQUIRED BY MWSA

ITEM	HOD/SAN QUANTITY	TAI2	UNIT COST (\$)	HOD/SAN COSTS	COST TAI2	TOTAL COST
1. Hydraulic Sewer Cleaner	1		46,000	30,700	15,300	46,000
2. Manhole Vacuum Unit	1	1	20,000	30,000	30,000	60,000
3. Diaphragm Pump 4"	3	2	3,500	10,500	7,000	17,500
4. Hoses for Pumps	3 sets	2	300	900	600	1,500
5. Rodding Equipment (power)	3	2	4,500	13,500	9,000	22,500
6. Rodding Equipment (hand)	3	3	1,000	3,000	3,000	6,000
7. Sewer Snakes (hand)	6	6	150	900	900	1,800
8. Leak Detector	2	1	1,400	2,800	1,400	4,200
9. Pipe Locator	4	2	750	3,000	1,500	4,500
10. Valve Box Locator	6	3	430	2,580	1,290	3,870
11. Air Breathing Aparatus	6	3	1,060	6,360	3,180	9,540
12. Spare Air Tanks	6	3	250	1,500	750	2,250
13. Recharging Compressor	2	1	2,300	4,600	2,300	6,900
14. Air Filter	2	1	180	360	180	540
15. Replacement Filter Elements	24	12	23	552	276	828
16. Fume Exhauster 1/2 HP	6	3	675	4,050	2,025	6,075
17. Fume Exhauster 1 HP	4	2	860	3,440	1,720	5,160
18. Emergency Light	12	6	40	480	240	720
19. Rescue Harness	8	4	35	280	140	420
20. Ropes for Harness	12	12	25	300	300	600
21. Oxygen Deficiency Alarm	2	1	660	1,320	660	1,980
22. Rubber Boots (assorted sizes)	10	10	50	1,500	1,500	3,000
23. Extension Ladders 20 ft.	15	15	200	2,000	2,000	4,000
24. Sewer Cleaning Balls (5 sizes)	1	1	50	750	750	1,500
25. Dissolved Oxygen Probes	6	6	750	750	750	1,500
26. Hand Lantern, Explosion Proof	6	6	60	360	360	720
27. Selected Hand Tools	Lot	-	20,000	10,000	10,000	20,000
28. Lagoon Sludge Dredge	1	-	130,000	86,700	43,300	130,000
29. Brush Cutter, Gas Powered	4	4	300	1,200	1,200	2,400
30. Spare Parts				12,000	8,000	20,000
31. Miscellaneous				16,500	8,500	25,000
32. Basic Laboratory Equipment				15,000	15,000	30,000
				<u>267,882</u>	<u>173,121</u>	<u>441,003</u>

III. PROJECT ANALYSIS

A. **Technical Analysis** - This project revision continues to pursue the basic objectives of the original Project Paper. The revision focuses upon NWSA's manpower needs at three levels:

1. Technical operations/maintenance personnel -- on-the-job/classroom training.
2. Mid-level management - non-academic (short term) training.
3. Top management -- academic (graduate) training.

See Section II on 'Project Description' for additional details.

Technical feasibility of this project rests primarily on the ability of NWSA to first find and select candidates and then retain them as trained personnel. With respect to the second point, very little data is available to reach any significant conclusion. In 1981, however, 22 persons out of a total staff of 550 (4 percent) resigned from NWSA. None of these were professionals (i.e., university graduates of which there are 67 in NWSA) and no more than two or three were secondary school graduates (of which there are 80 in NWSA). Most of those resigning were primarily unskilled and partly skilled laborers. Retention rate, therefore, of professionally trained staff appears more than satisfactory on the basis of the limited data available.

Regarding the selection and availability of candidates, NWSA is demonstrating that within limits it can provide candidates for every level of training described above. NWSA's institutional capabilities in the area of providing training for its staff have grown considerably as a result of the efforts of AID and other donors over the past few years. Training plans have been developed and in part implemented so that now there is a trained cadre of staff, small though it be, that can be built upon or that can fill in during the absence of others. This could not be said 5 years ago when this project was first conceived. In addition, recognizing that additional trained staff would continually be needed to meet its expansion program (both within existing branches and for the seven new cities as well), NWSA has appointed a full time person as NWSA/Headquarters Chief of Training. Amendment 6 of TMSI contract under the "train-the-trainer" program will provide limited training for a training officer in each of the existing branches (and also Ibb/Dhamar). When feasible, a training division will be formed at NWSA headquarters with offices in each branch. Under this project revision, technical assistance will be provided by the consultant in the form of a training advisor (see Project Description) to, among other activities, assist in the further institutionalization of the NWSA Headquarters/Branches training offices.

The feasibility of doing on-the-job/classroom training particularly in Yemen has increased considerably over the past few years. In the first place, the new facilities coming on line now make it possible to provide training on site for those responsible for the operations and maintenance of the new system. Secondly, as a result of prior experience on the existing facilities, there exists in all branches a core of "hands-on" technical operators who should be able to grasp relatively easily the know-how to operate the new systems. Thirdly, the pool of technicians and semi-skilled workers has increased as a result of the large number of Yemenis employed by the construction contractors and the supervisory engineering firms during project implementation. Fourthly, since NWSA has made every effort to provide technical training to its employees in vocational technical schools both in-country and abroad, the pool of partly trained technicians, upon whose skills this project intends to build, has increased considerably. And fifthly, this aspect of the project will build upon the level of institutional development attained through the technical assistance provided by TMSI under its host country contract with NWSA through Amendment 6.

The short-term training programs for NWSA staff, including branch chiefs, technical managers, and technical operators, undoubtedly will be difficult to schedule. Coordination of the training programs is essential to assure adequate O&M coverage in each of the branches in the absence of other staff on training. Another problem, one that crops up in most of the short-term programs, is the English language requirement for U.S. training. Alternative solutions would include third country (in the Arab world) training or provision of translation services. The problem of English language training for Yemeni participants going to the United States continues to be a general one for the Mission. Therefore, in addition to training being provided at the Yemen American Language Institute (YALI), the Mission is considering setting up an extension program so that training can be made available to a greater number of Yemenis closer to their workplace.

For academic training, in addition to what is already being provided under O28 as described in Annex C, No. 3 NWSA recommends training at the graduate level of up to ten persons over the next five years primarily in engineering fields but possibly in other areas as well (finance, administration, and so on). Certainly NWSA would prefer to do more but recognizes the manpower constraints that stand in the way.

One additional factor that makes feasible at this time the training envisioned in this revised paper is the number of U.S. technical firms (including TMSI) that have gained experience in O&M training for water and wastewater treatment facilities over the past few years. This has come about in part because of the many water/sewage systems being constructed worldwide, including particularly the Middle East. Such firms have developed the know-how both to set up programs, either in the U.S. on a short-term basis or in-country, providing on-job-training, and to coordinate the programs with programs of existing technical/academic institutions.

B. Financial Analysis:

Though Annex C provides a fairly detailed financial analysis, the focus of Project 028 is technical assistance, that is, to enable NWSA to operate and maintain effectively the new water and wastewater facilities. The analysis here and in the annex serves to update the data in the original Project Paper and to provide background on NWSA's financial structure and status. A tariff study providing detailed data on the level and trend of expenditures and the required income to meet them will be submitted to NWSA and the donors in draft by the French firm Roland Olivier Conseil in July 1982.

The outlook for NWSA is fairly optimistic, though at this time there is a downward trend in net revenues. Total revenues (primarily from water sales) continue to increase substantially. Costs of operations and maintenance, however, are increasing at a slightly faster rate. This problem will be exacerbated when the branches of Sanaa, Taiz, and Hodeidah assume responsibility for the new facilities and commence operations. Two areas of expenses (namely, increased O&M and annual depreciation costs) will require that revenues be increased.

The potential exists to increase revenues sufficiently to cover most of, if not all, expenses that each of the branches will incur when they take over the facilities. Major sources of revenue include: (1) the new water and sewerage connections planned for each branch (water connections will be metered); (2) increased water production; (3) increased water usage rates in accordance with budgetary requirements; and (4) a rate structure for sewerage as well as water service. Added to this is the improvement that has been made to NWSA's billing/collections system.

C. Social Analysis:

In its Second Five Year Plan, the YARG continues to give high priority to providing safe water for the people of Yemen (in both the urban and rural sectors) and to implementing and operating sewerage facilities to safeguard the health of the Yemen population.

Estimates for 1981 indicate that about 31 percent (194,500) of the urban population of Sanaa, Taiz, Hodeidah benefited from the existing water facilities. By 1986, it is estimated that 75 percent (or 517,000) of the urban population (the three major cities and Ibb, Dhahar, Hajjah) will have access to safe water (and in most cases, wastewater) services. In addition, income distribution

is much more evenly spread in Yemen (particularly for the urban sector) than in most other developing countries, with the result that water/wastewater services will be affordable to a large proportion of the urban populace.

For a more detailed discussion of these points, refer to Annex C, Project Analyses.

D. Economic Analysis:

As indicated in the analysis of the original Project Paper, in purely economic terms the "overwhelming justification" for this project is the protection of an extremely large investment. By the end of 1983, NWSA should have in operation new facilities in the three major cities of Yemen representing a total investment of over \$300 million (with further facilities to come on line in these same and other cities in the immediately ensuing years). The amounts proposed to be expended under this project for "hands on" training in operation and maintenance and for other types of technical and management training simply represent an extremely prudent expenditure (about 2 percent of the "original" investment) to protect a large (and, if properly maintained, very productive) investment. Viewed in another way, this small investment in training and technical assistance will allow NWSA to operate the new facilities efficiently and effectively.

E. Issues

1. Sole Source Waiver (TMSI): NWSA and USAID are exploring the question as to whether or not NWSA would prefer that the technical assistance for the long range O&M training planned for the PP revision be provided by TMSI. Though USAID basically takes a neutral position on this issue, the Mission has indicated to NWSA the advantages of extending NWSA's host country contractual arrangements with TMSI if a sole source procurement is shown to be justified. The major advantages are:

- (a) The time and costs saved in mobilizing;
- (b) Continuity of the total program with previous TMSI inputs and assistance up through Amendment 6; and
- (c) The continuation of TMSI's long-term relationship (since May 1979) with NWSA.

No decision has yet been made by NWSA regarding this issue. NWSA will want to have the opportunity to review and assess the performance of the TMSI team in Yemen from June 1982 through January 1983 to implement the immediate, short range O&M program outlined in Amendment 6 of the TMSI contract. A final decision should be forthcoming at the latest by mid-August 1982.

At the advice of AID/W in State cable 111023, sole source justification for procurement of services through TMSI is included in Annex F. This is directed to the AID Administrator since procurement costs are in excess of \$500,000.

2. Extension of PACD

The present PACD is March 31, 1983. All activities planned under the PP revision (and most of the long-term training under the original project) will continue well beyond that date. Furthermore, most of the activities (except for on-the-job/classroom training and the Dhaban Electrical Training) will exceed the one year extension period that can routinely be granted by the Mission if circumstances warrant it.

Necessitating an extension through December 31, 1986, is the time required to implement both the mid-level management/technical training and the long-term academic training. Because of manpower constraints, participation of NWSA staff will have to be planned carefully over a fairly long period of time to assure adequate O&M coverage at each of the branches. With that said, however, every effort will be made to implement all aspects of the long term O&M program as quickly as feasible and, at the same time, expend earlier FY grant funding first. Participants still in academic training and requiring funding beyond December 1986 will be transferred to the Mission's General Development Training Project.

IV. PROJECT IMPLEMENTATION AND EVALUATION

A. Schedule for Training and Technical Assistance

Table IV. 1, "Schedule for Training and Technical Assistance," provides an overview of the estimated implementation period for each segment of the O&M training program proposed in this revision. The start date used here is January 1, 1983, and a completion date of December 31, 1986 (which assumes an extension of the present March 31, 1983 PACD). If a sole source waiver to procure technical assistance through TMSI's existing contract with NWSA is approved, then the start-up date could probably be moved forward. In any event, a January 1, 1983, start date permits a 1-month overlap between the consultant for this revision and the TMSI team under Amendment 6 doing the short-term O&M training program.

B. Project Implementation Schedule

Major events required for implementation of the AID project from time of submitting this Project Paper revision until project completion are set out in Table IV. 2, "Project Implementation Schedule." The schedule also indicates activities being carried out by the TMSI teams that are (1) under the original TMSI/NWSA contract through Amendment 5, and (2) under Amendment 6 for the immediate short range O&M training.

C. Evaluation

The first evaluation of Project 028 was done during the summer of 1981 (Lang/Calbert Wash. Field Report No. 22, September 1981). A second evaluation is planned for March 1983 (hopefully to be done by Mr. Martin Lang) to evaluate primarily the project's progress through Amendment 6 of the TMSI contract. A third outside evaluation will be conducted September 1984. By this time, substantial implementation (or the implementation plan for any additional future training) of the O&M training program will have been completed. The major purpose of the evaluations is to determine the project's impact upon the institutional development of NWSA and NWSA's capabilities to provide water/wastewater services efficiently, effectively, and in a way that generally improves the health conditions of the urban sector. Costs of evaluation will be covered out of project funds. A final review of the project will be conducted by the Mission, in cooperation with NWSA, upon completion of the project.

TABLE IV. 2

PROJECT IMPLEMENTATION SCHEDULE

<u>ACTION</u>	<u>DATE</u>	<u>RESPONSIBILITY</u>
1. PP revision submitted	6/15/82	USAID
2. Arrival of TMSI Team to implement the short-range O&M Training Program (Amend. 6)	6/15/82	TMSI/NWSA
3. NEAC Review/Approval of PP revision	8/01/82	AID/W
4. Congressional Notification Submitted	8/01/82	AID/W
5. ProAg Amendment for \$1.1 million approved	8/15/82	YARG/NWSA/USAID
6. Final decision reached whether to pursue sole source waiver justification for TMSI	8/15/82	NWSA/USAID/TMSI
7. Sole Source Waiver justification submitted/Approved (depending on No. 6 above)	8/20/82	USAID/AID-W
8. Amendment to TMSI contract to include long-term O&M finalized (depending on Nos. 6 and 7 above)	8/31/82	NWSA/TMSI/USAID
9. Start-up of Facilities in the three branches	7/15 - 9/30/82	NWSA Branches
10. Contract expiration for TMSI team members in Yemen under original contract through Amendment 5	9/30/82	TMSI
11. Arrival of consultant (training advisor/team leader and short-term specialists/instructors) to implement activities of PP revision	12/15/82	Consultant
12. Planning/development/implementation of mid-level training program and graduate training program	1/1/83 - 12/31/86	Consultant/NWSA/USAID
13. Planning/development/implementation of on-the-job/classroom training at each branch	1/1/83 - 12/31/83	Consultant/NWSA/USAID
14. Contract expiration for TMSI team members in Yemen under Amendment 6	1/31/83	TMSI
15. Dheban Electrical Trng. Sch.	2/1/83 - 1/31/84	Consultant/NWSA/USAID
16. 1st Eval. of Project 028	3/31/83	USAID/NWSA/Outside Consultant
17. Departure of short-term specialists/instructors	12/31/83	Consultant
18. Departure of training advisor/team leader	6/30/84	Consultant
19. 3rd Eval. of Project 028	9/30/84	USAID/NWSA/Outside Consultant
20. Revised PACD on Project	12/31/84	
21. Final review of Project 028	12/31/84	USAID/NWSA

ANNEX A
LOGICAL FRAMEWORK MATRIX

ANNEX A

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: 77 - 87
From FY 77 to FY 87
Total U.S. Funding: \$ 100,000
Date Prepared: 6/10/87

Project Title & Number: 279-G028, Water Supply Systems Management

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes:</p> <p>To improve the health of urban citizens.</p>	<p>Measures of Goal Achievement:</p> <p>A high reduction in incidence of water related diseases in Sanaa, Taiz, & Hodeidah and other branches as a result of proper operations and maintenance of the new water and wastewater facilities.</p>	<p>WHO and YARC National Health Statistics.</p>	<p>Assumptions for achieving goal targets:</p> <p>That improved high quality water supply together with a waste disposal system will in itself account for the projected decline in reported water related disease.</p>
<p>Project Purpose:</p> <p>To develop NWSA into an effective institution, capable of managing, planning, constructing, and operating the urban water and sewerage systems in the YAR.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status</p> <ol style="list-style-type: none"> 1. An increase from 33 percent (195,000 out of 600,000) of the urban population in 1981 to 75 percent (840,000 out of 1,110,000) in 1986 regularly receiving potable water from NWSA facilities. This represents nearly a four-fold increase in the amount of water produced in 1986 as compared with the amount produced in 1981. 2. Nearly a four-fold increase (for Sanaa, Taiz & Hodeidah) from 1982 (12,000) to 1986 (55,000) in the number of sewer connections. 3. NWSA will have a properly trained O&M staff capable of handling operations in the branches whose facilities will be operational by 1986. 4. Institutional capability for continued staff recruitment and training sufficient to meet NWSA's long-range requirements. 5. A comprehensive long-range development plan in use. 	<ol style="list-style-type: none"> 1-2) Head counts, meter installation, volume of water consumed and sewage treated as well as quality of water based upon routine lab analysis and reports. 3) Head counts, NWSA organizational chart. 4) Physical evidence indicating existence of an internally viable training program responsive to NWSA's present and long-run staffing needs, and adequately budgeted for. 5) Manpower development plan was utilized for formulation of the second 5-year plan, and will be followed by NWSA and updated as required. 	<p>Assumptions for achieving purpose:</p> <ol style="list-style-type: none"> 1-2) Political legislative and budgetary support forthcoming from YARC. 3) Tariff structure adequate to cover operating and expansion costs and sufficient consumer demand in the face thereof. 4) The improved managerial and technical skills of NWSA employees will in turn improve services provided. 5) The training received is applicable to the YAR environment.

**PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK**

Project Title & Number

NARRATIVE SUMMARY

OUTPUTS:

1. Improved staff skills in: engineering, personnel management, operation and maintenance fiscal administration, rate structure, legal matters as a result of academic-special training in the U.S. and third countries.

OBJECTIVELY VERIFIABLE INDICATORS

MAGNITUDE OF OUTPUTS:

1. a) On-the-job/classroom training program for 200 and electrical training for 30 to meet the immediate and mid-range staffing requirement through 1986.
- b) Mid-level management/technical training program effectively administered to 50 technical operators in supervisory roles.
- c) Long-term academic training for 17 persons in fields of engineering, financial/administrative management, manpower development and planning, filling positions commensurate with acquired skills.
- d) Short-term training in water/wastewater management for 11 persons.
- e) A computerized accounting and billing system is operational.
- f) A comprehensive operation, maintenance, and repair system is in place.
- g) A development plan encompassing NWSA's long-term human resources requirements is developed and utilized.
- h) Reasonable rate structure based on budgetary requirements (but adjusted to serve low income consumers as well) established.

MEANS OF VERIFICATION

- a) Consultant reports.
- b) Consultant reports.
- c) Headcount - organizational charts.
- d) Consultant reports.
- e) Physical observation, NWSA operational/financial records, consultant reports.
- f) NWSA records of system production vs. water sold.
- g) Consultant's final report
- h) NWSA operational/financial statements, available statistics.

Title of Project _____
 From FY _____ to FY _____
 Total U.S. Funding _____
 Date Prepared _____

IMPORTANT ASSUMPTIONS

ASSUMPTIONS FOR ACHIEVING OUTPUTS:

1. a) NWSA identifies and makes available qualified participants and trainees for the training program.
- b) Trainees will complete their training in a timely fashion and be retained by NWSA.
- c) NWSA responsive to external advice (of the AID consultant particularly) provided vis-a-vis NWSA's most critical needs.
- d) Recommendations of the 1982 tariff study be used for NWSA's rate structure.

**PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK**

Life of Project _____
 From FY _____ to FY _____
 Local U.S. Funding _____
 Date Prepared _____

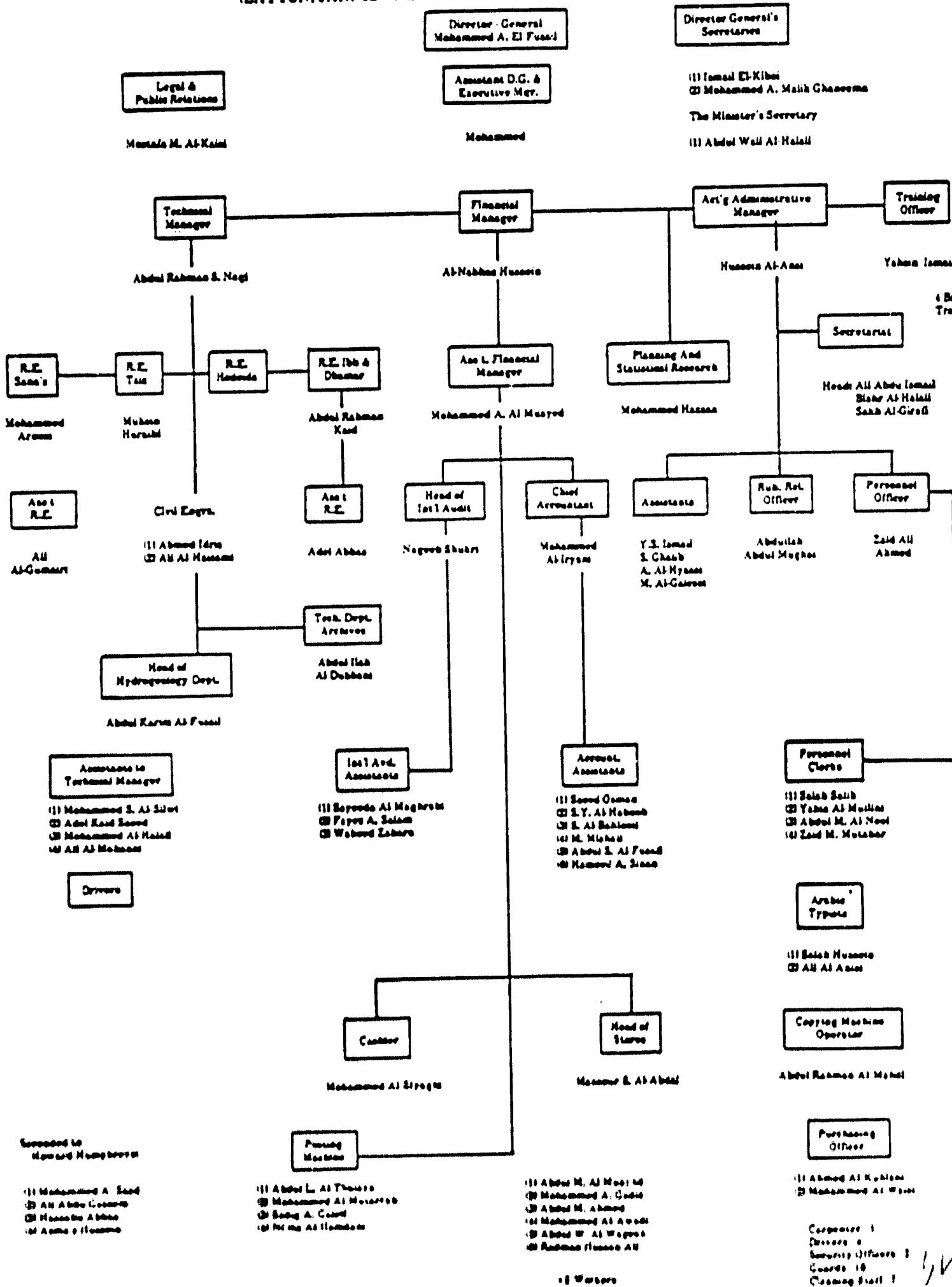
Project Title & Number: _____

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>INPUTS:</p> <p>1. <u>U.S.</u></p> <p>a. U.S. Consultants</p> <p>b. U.S. third country training facilities</p> <p>c. Commodities</p> <p>2. <u>NWSA</u></p> <p>a. Trainable NWSA employees</p> <p>b. Office, Land, Salaries, Participants airfares</p>	<p>IMPLEMENTATION TARGET:</p> <p>1.a) 10 specialists totaling 205 mm through Amendment 6 of TMSI contract and 4 specialists (4 training advisors and 3 short-term instructors) totaling 54 mm per PP revision to provide on-the-job training for up to 20 NWSA employees.</p> <p>b) 400 mm of long-term academic training for 17 employees at U.S. universities; 450 mm of short-term technical training for up to mid-level management/technical operators in U.S. or third country; and 18 mm of short-term training.</p> <p>c) Some training materials provided.</p> <p>2.a) Provision by NWSA of 1) up to 200 employees for on-the-job training; 2) 30 for electrical training; 3) 50 for mid-level management/technical training; 4) 17 for long-term academic training; 5) 11 for short-term training.</p> <p>b) NWSA contribution of \$1.9 million.</p>	<p>1.a-c) USAID financial statements, project reports, observation/monitoring, disbursement of USAID funds and training documents.</p> <p>2. Headcount, NWSA budget, observation.</p>	<p>ASSUMPTIONS FOR PROVIDING OUTPUTS:</p> <p>1.a) Competent U.S. consultants are available and will adjust to YAR environment.</p> <p>b) Facilities and participants available adequate to training needed.</p> <p>2. NWSA able to generate sufficient revenue (primarily from water sales) to finance its contribution to Project 028.</p>

ANNEX B
ORGANIZATION CHARTS

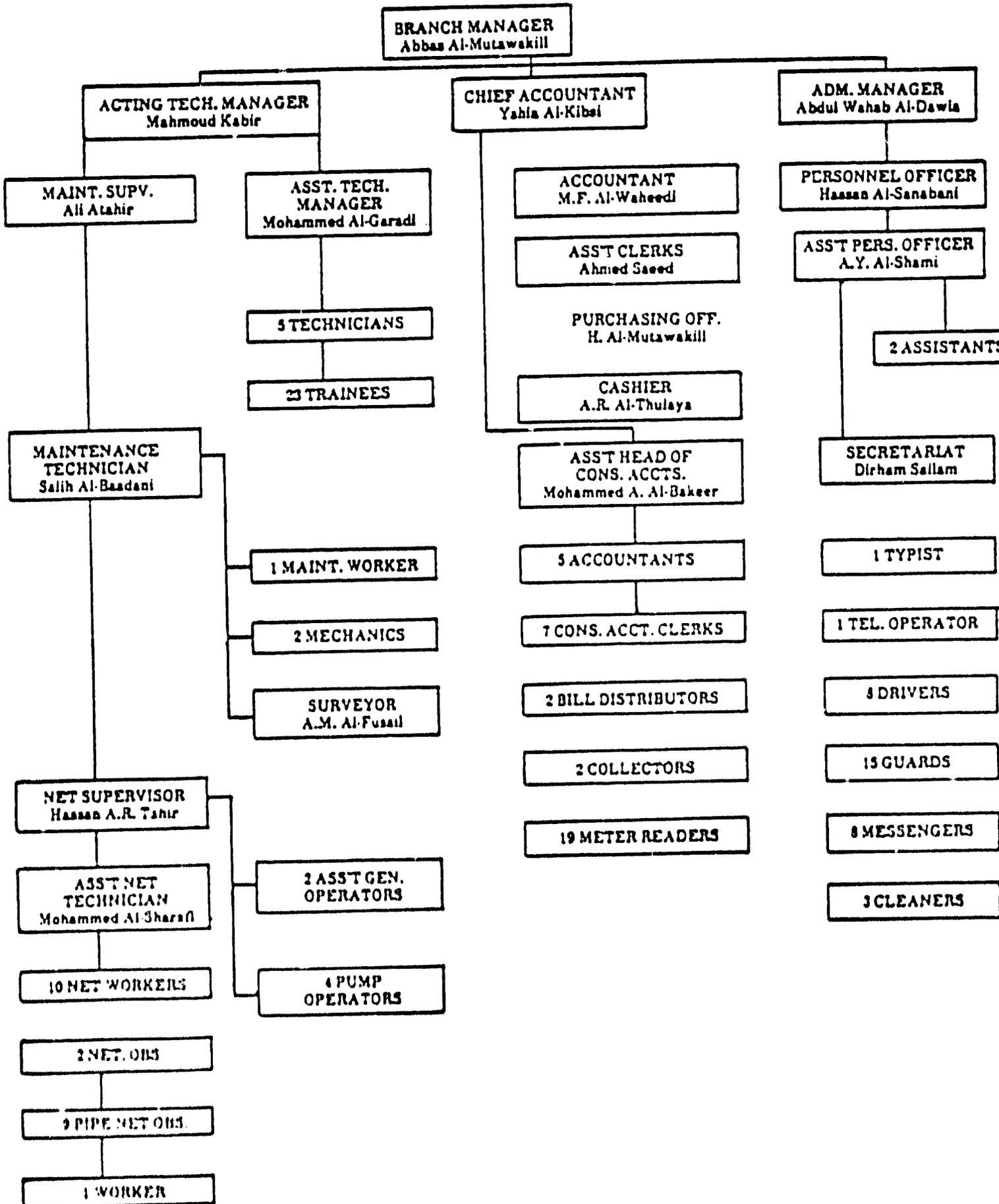
- B. 1 Headquarters
- B. 2 Sanaa Branch
- B. 3 Taiz Branch
- B. 4 Hodeidah Branch

NATIONAL WATER & SEWERAGE AUTHORITY
(LAYTON, JAN. '82 - REVISED FROM WASH REPORT)

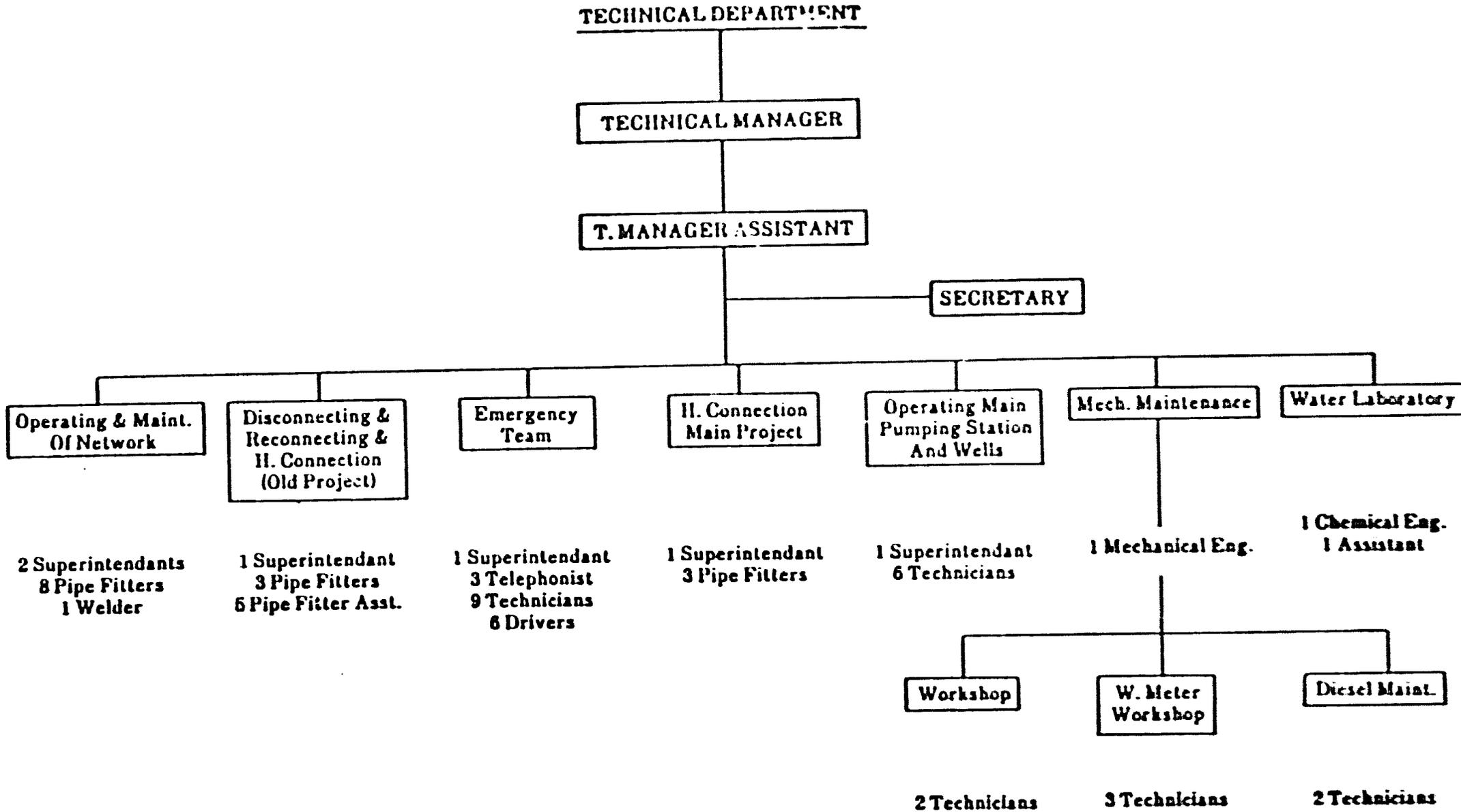


ANNEX B. 2

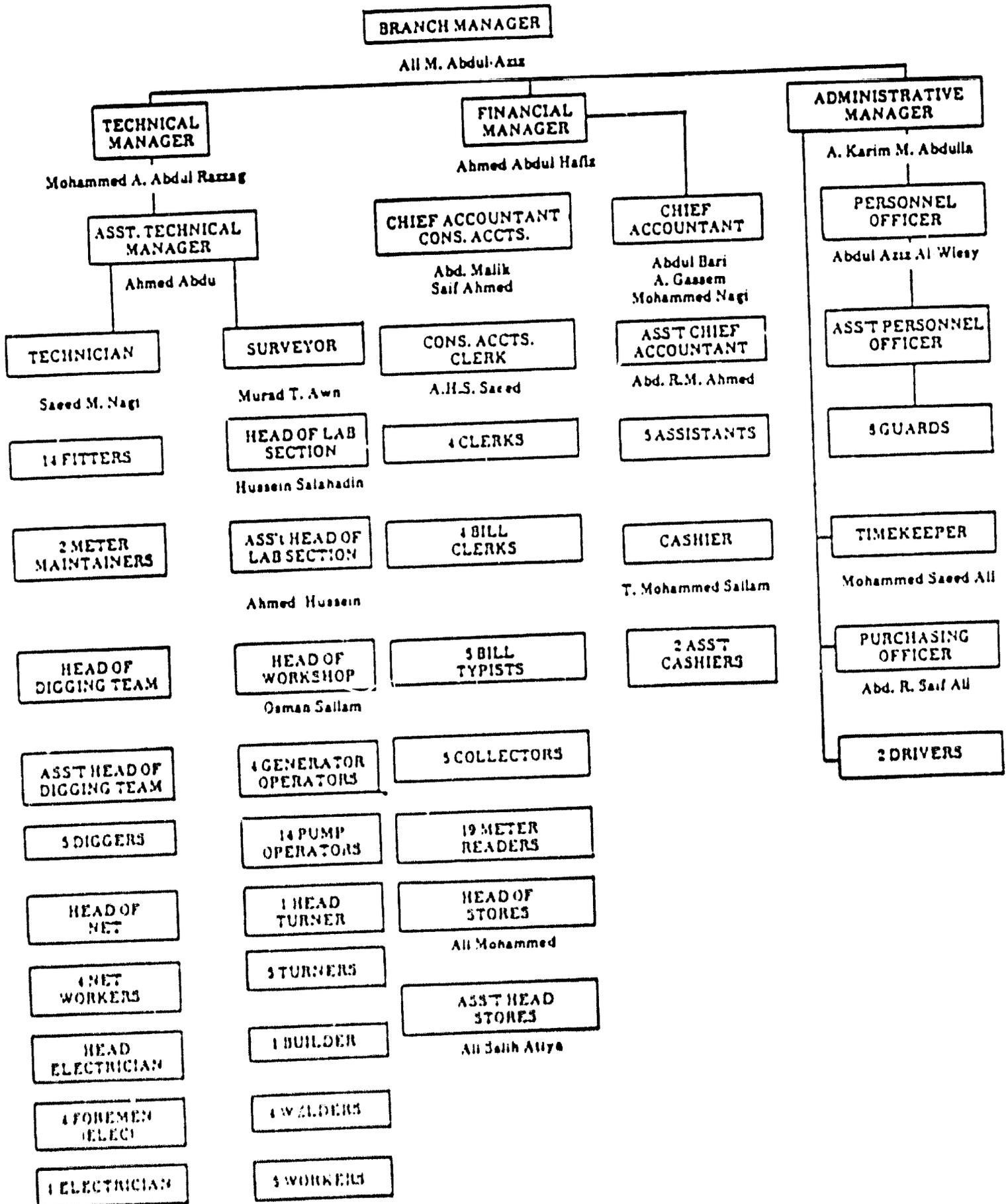
SANA'S BRANCH ORGANIZATION
(AFTER WASH REPORT, SEPT. '81)



SANA'S BRANCH - TECHNICAL DEPARTMENT
(LAYTON, JAN. '82)

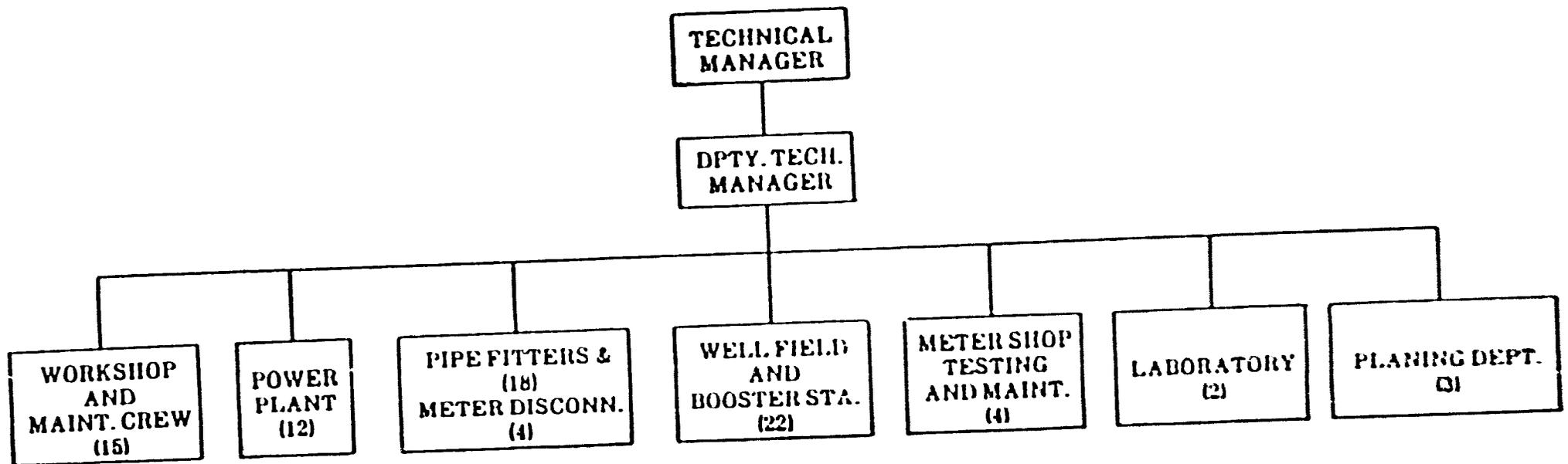


TAIZ BRANCH ORGANIZATION
(LAYTON, JAN. '32 - AFTER WASH REPORT)

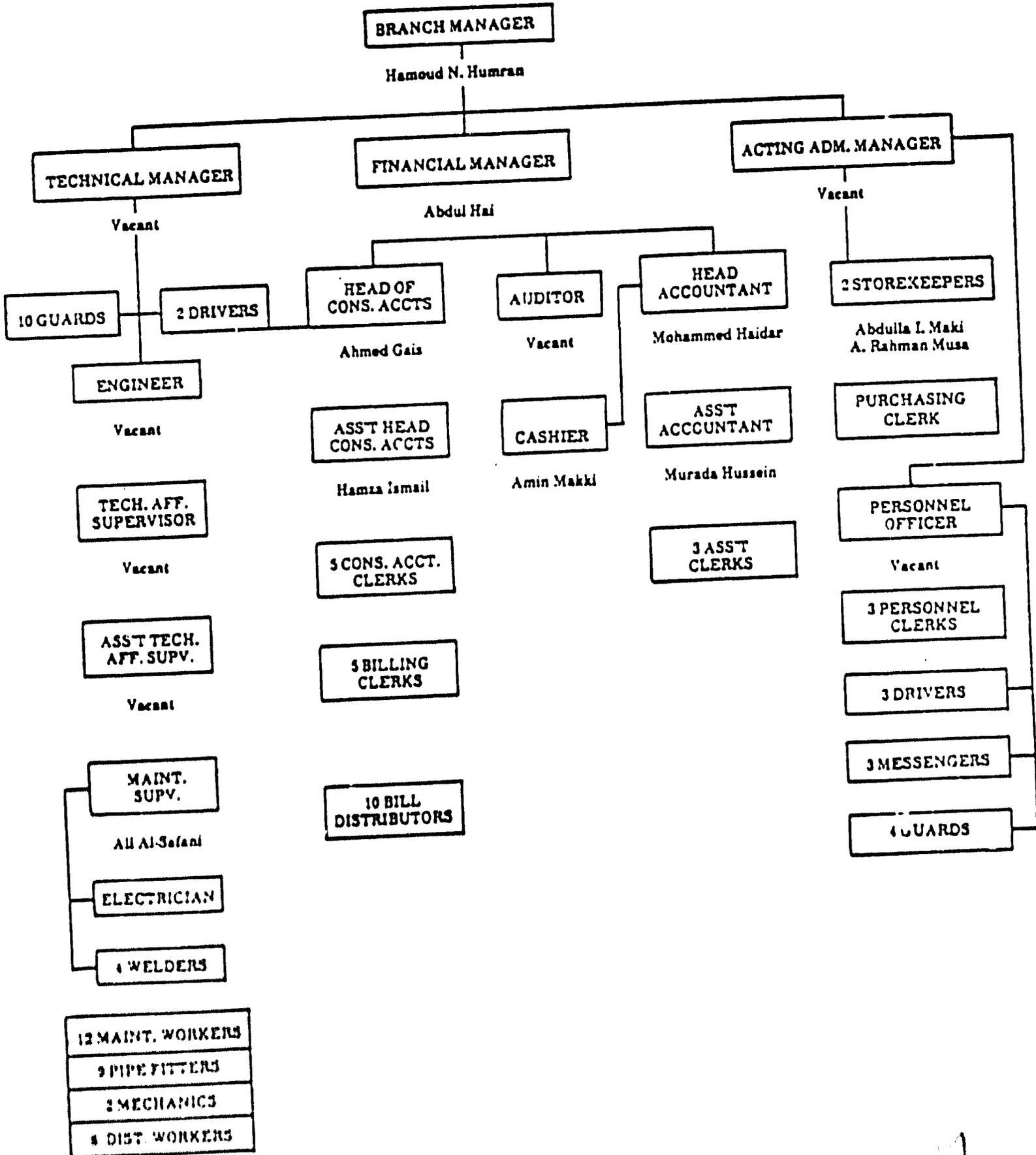


ANNEX B. 3 cont'd

TAIZ - TECHNICAL BRANCH (SOURCE: NWSA)
(LAYTON, JAN. '82)



HODEIDA BRANCH ORGANIZATION
(LAYTON, JAN. '82 - REVISED FROM WASH REPORT)



ANNEX C

PROJECT ANALYSES

C. I. Financial Analysis

C. II. Social Analysis

ANNEX C
PROJECT ANALYSES

C.I. FINANCIAL ANALYSIS:

This detailed analysis is included to update the information of the original Project Paper and to provide background on NWSA's current financial status.

Income statements for NWSA and its branches have been finalized through December 31, 1980. The income statement for FY81, still under review by NWSA, has not yet been officially released, and therefore, is not included in this paper. It should be noted also that an interim 6-month period, July 1, 1980 through December 31, 1980, was used as a transition period to change the fiscal year from the previous July 1 through June 30 time frame to one coinciding with the calendar year. Therefore, the FY81 income statement will cover the period of January 1 through December 31, 1981.

Table C.I.1 below is the "NWSA Consolidated Income Statement -- FY78 through FY81," which covers through June 30, 1981. The period from January 1, through June 30, 1981, is constructed (not actual) on the basis of the data in the interim period.

A review of the table gives no clearcut indication of the trend in net revenues. Though there was a substantial net revenue loss in FY79/80, there appears to be a rebound during the transition period (June 30 to December 31, 1980). However, FY81 preliminary figures indicate that, though total revenues continue to increase substantially, costs are increasing at an even higher rate, resulting in a decline in net revenue.

One major cause for the downtrend in net revenue, which has long term financial implications, is the increasing costs related to operation and maintenance of the facilities. A review of Table C.I.1 and the preliminary FY81 income statement show a considerable increase in categories such as salaries, employee expense allowances, energy costs, and maintenance/spare parts costs.

It is clear that with existing facilities, revenues (mainly from water sales) are not adequately covering expenses. The problem will be exacerbated when the three branches assume responsibility of the water/sewerage facilities coming on line mid-1982. Two factors in particular will necessitate increased revenues: (1) higher costs of operation and maintenance and (2) tremendous increases in annual depreciation.

Costs of O&M: as noted above, labor is a very high cost; total manpower for NWSA headquarters and the three branches was about 550 (for base year 1981). To meet the manpower requirements of the new

water/sewerage facilities coming on line in 1982, it is estimated that an additional 225 staff will ultimately be needed. This increase along with other O&M costs will necessitate an increase in revenues.

Depreciation: Assuming responsibility for the new facilities will put considerable pressure on the branches' revenues with respect to annual depreciation costs. The effect of depreciation is evident in a comparison of the consolidated income statements for FY79 and FY80 (see Table C.I.1). Depreciation costs increased from YR1.2 million in 1979 to YR5.2 million in 1980 (a 338 percent increase). Although total revenues increased 52 percent, net revenues decreased by 54 percent from YR3.7 million in 1979 to YR1.7 million in 1980. The reason for this is that the Sanaa Project I (cost of YR114.0 million) was completed and turned over to the branch in 1980. Depreciation costs for Sanaa Branch increased almost 12-fold from YR313,000 in 1979 to YR4.0 million in 1980. Water sales naturally increased, and this compensated for some of the increased costs in depreciation and O&M. Net revenues, nevertheless, decreased by 108 percent from YR632,294 in 1979 to a net loss of YR47,440 in 1980.

Another factor that normally puts pressure on tariffs and revenues is the repayment of loans. All three projects being completed this year, the Sanaa Water Project I (1980 completion), and planned future projects are financed partly by loans from various countries. Since NWSA is an autonomous agency, even grants to the YARG are normally "loaned" to NWSA, as in the case of AID's \$10.0 million grant for Project 039. The terms of many of these loans require that NWSA make annual interest payments. Some loans already require repayment; and the rest will have such requirements in the next few years. At present the Government itself is meeting the debt service requirements for NWSA loans and probably will continue to do so. But if at some time NWSA will have to make these payments, the impact on tariffs will be significant. Table C.I.2, "Repayment Schedule on NWSA Loans," indicates that loans up to YR639,655,000 (\$140,000,000) have been made to the three branches to date. This schedule shows the due date for the first payment and annual payments due through 1986. Total repayment from 1982-86 (the Second Five Year Plan) amounts to YR89.3 million (\$19.5 million). Loans up to YR212.6 million (\$46.5 million) have also already been committed to the construction of water/sewerage facilities in D-b and Dhamar (total estimated costs are YR435.0 million or \$95.2 million) but these are not taken into account in this analysis since (1) Ibb and Dhamar have only recently been taken over by NWSA and (2) financial statements and data are available only for the three major branches at this time.

Regarding the question of loans, Table C.I.3, "YARG's Initial Contribution to Total Project Costs," demonstrates the high costs assumed by the YARG for constructing the new facilities. Column one gives the total loan amounts; column two - estimated total project costs; and column three - the difference or the costs of the project covered by the YARG initially, which amounts to \$180.3 million or 55 percent of total project costs of \$329.6 million.

Attached as Table C.I.4 for general information is NWSA's consolidated comparative balance sheet covering the period June 30, 1979 to December 31, 1980.

This Project Paper revision is not able to analyze in detail the revenue requirements to cover increased O&M costs, depreciation, and, if required, debt service. The tariff study, being prepared by Roland Olivier Conseil (a French firm with a good "track record" in preparing such studies) will be available in draft by July 1982 and should provide a detailed cost analysis of both NWSA expenses and the revenues required, (based upon recommended user rates to be charged and the connections needed to cover expenses). The study is being done under the auspices of the World Bank, which normally requires that the revenues/tariffs of IBRD funded projects cover annual depreciation, all O&M costs, portions of debt service, and even a rate of return on the investment (5 percent in 1984 and 7.5 percent in 1987). Whether World Bank will insist on following this practice with respect to the YARG is yet to be seen.

The picture outlined above is not as bleak as it would appear. In fact, there is a good reason for being optimistic since the potential exists to increase considerably NWSA's revenues. Revenues could be, and in some cases are being, increased in three ways: namely by (a) revising the user charges (tariffs) for existing and future consumers in accordance with budgetary requirements; (b) increasing production of water and the number of sewer service connections; and (c) charging a rate for sewerage as well as water.

User charges at NWSA: There are two types of tariffs at NWSA -- one for metered accounts and the other for nonmetered or flat rate accounts. Generally, in comparing flat rates with average metered accounts, it is clear that the average flat rate charged is too low. Further, total revenues for nonmetered consumers is considerably below what it should be based on actual water usage, even though the rates charged are a function of the classification of the consumer. Nonmetered accounts exist in both Sanaa (about 2/3 or 11,000 connections) and Hodeidah (all connections, i.e., about 6,000). There are plans to remedy this situation by installing meters at the presently nonmetered locations.

All of Taiz (about 12,500 connections) and 1/3 (or about 6,000 connections) of Sanaa are metered. The present monthly tariff schedule for both branches is as follows:

0 - 7m ³	—	25 YR (flat rate)
8 - 20m ³	--	4 YR per m ³
over 20m ³	—	8 YR per m ³

Though previous tariff studies have been done, there is no evidence that the present tariffs (for either metered or flat rate accounts) are cost based. One recommendation of the tariff study presently underway certainly will be that tariffs be reviewed annually against annual budgets and revised accordingly.

Water Production and Sewerage Service Connections: NWSA's 5-year plan calls for an increase in annual water production (excluding loss) for the three branches from 7,200,000m³ in 1981 to 34,272,000m³ in 1986. For planning purposes, the plan uses a unit price per m³ of YR5 through the 5-year period. Thus, water sales in base year 1981 total YR36,000,000 and in 1986 total YR171,360,000. For year-by-year increase for each branch in water production and corresponding revenue from water sales, refer to Table C.I.5, "Projected Water Production and Water Sales, 1981 - 1986."

Table C.I.6, "Sewer Connections Per Year and Related Potential Revenues, 1982 - 1986," provides information on the scheduling of sewer connections per branch over the 5-year period and estimated revenues based on YR75 per month per connection. In the three branches, a total of 55,000 sewer connections (in both single family and multi-family dwellings) will be operative at the end of 1986, providing a total revenue of YR49,500,000. This is in contrast to the 12,000 connections planned in 1982, providing a potential revenue of YR10,800,000.

User Charge for Sewerage Service: At the present time tariffs cover only water consumption. Consultants have recommended (and this will very likely be a recommendation of the tariff study) that a single tariff be used to recover costs of both water and sewerage service. When the new sewerage systems now under construction go into service, tariffs will have to be adjusted accordingly.

In conclusion, the above analysis does not attempt to relate directly, over the long term, total actual costs to actual revenues required to cover the costs. It serves primarily to point out on one hand that actual costs (O&M, depreciation, and debt service) will increase considerably and on the other hand that the potential to cover a substantial portion, if not all, of the costs exists. The determining factors are both political and technical.

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TABLE C.1.1
MUSA CONSOLIDATED INCOME STATEMENT
FY78 THROUGH FY81

	FY78 Ending 6/30/78	FY79 Ending 6/30/79	Increase (Decrease)	% Change	FY80 Ending 6/30/80	Increase (Decrease) Over FY79	% Change	Interest FY/6 Mth 7/1/80 12/31/80	FY81 Ending 6/30/81 1/ (Constructed)	Increase (Decrease) Over FY80
Revenue and Income										
Water Sales	8896546	17274208	8377662	94	26137453	8863245	51	17653556	35303112	9165659
Other Income	2162318	2073044	(89274)	(4)	3194281	1121237	54	991142	1582284	(1211977)
TOTAL	11058864	19347252	8288388	75	29331734	9984482	52	18642698	37285396	7953642
Operating/Admin. Expenses										
Directors Remuneration	118982	123813	4831	4	56302	(67511)	(54)	24192	48348	(7954)
Salaries/Gratuities	6533609	10636622	4103013	62	14749848	4113246	39	9870976	19740152	4996284
Elect/Fuel/Oil/Chemicals	1709882	3012944	1303062	76	6230462	3217718	106	4067592	8935184	2767522
Maintenance/Spare Parts	1595536	967393	(628143)	(39)	706900	(260493)	(27)	387018	774036	67136
Stationery/Printing/Off Exp	121368	314087	192719	159	251567	(62520)	(20)	136392	272784	21217
Building Rentals	225500	230500	5000	2	368101	86304	31	110000	270000	(148101)
Employ Exp. Allowances	148207	281797	133590	90	111583	(118917)	(52)	267352	534704	423121
Provision for Bad Debts	120523	537673	417150	346	-	(537673)	-	511234	1022448	1022448
Provision for End of Serv.	2200000*	994949	(1205051)	(546)	3439351	2444402	246	1138791	2277582	(1161769)
Other Expenses	568266	721892	153626	14	86279	144218	26	758780	1517540	849760
Depreciation	1374542	1179833	(194709)	(14)	5163373	3983542	338	2951764	5923528	740153
TOTAL EXPENSES	14716415	19001503	4285088	29	31945819	12944316	68	20233191	40464382	8520563
Less: 80% of Mqtr Exp. Allocated to work-in- progress	2176896	3399706	1222810	56	4351098	951392	28	2665713	5331426	280328
Exp. Allocated to Revenues	12539519	15601797	3062278	24	27594721	11992924	77	17567478	35134956	7540235
Net Revenue (Loss)	(1480655)	3745455	5226110	-	1737013	(2008442)	(54)	1075220	2150440	413427

* Estimated

1/ Constructed by USAID by doubling interim (half year) amounts.

SOURCE: MUSA

TABLE C.I.2

REPAYMENT SCHEDULE ON NWSA LOANS (YR 000's)

<u>FUNDING SOURCE/ DATE OF LOAN</u>	<u>SANAA</u>	<u>TAIZ</u>	<u>HODEIDAH</u>	<u>TOTAL</u>
USAID (YR4.55/\$1.00)				
7/75 (\$1,350,000)	-	6,142	-	6,142
1st Payment (1986)		101		
Total Payment thru 1986		101		
8/77 (\$10,000,000)	-	45,500	-	45,500
1st Payment (1984)		931		
Total Payment Thru 1986		2,793		
6/81 (\$5,000,000)	-	22,750	-	22,750
1st Payment (1991)		-		
Total Payment Thru 1986		-		
TOTAL LOAN - AID	-	<u>74,392</u>	-	<u>74,392</u>
IDA (YR4.55/\$1.00)				
3/74 (\$6,250,000)	28,437	-	-	28,437
1st Payment (1982)	1,062			
Total Payment Thru 1986	5,310			
1/77 (\$10,000,000)	45,500	-	-	45,500
1st Payment (1982)	944			
Total Payment Thru 1986	8,496			
6/75 (\$8,100,000)	-	-	36,855	36,855
1st Payment (1983)			1,645	
Total Payment Thru 1986			6,580	
TOTAL LOAN - IDA	<u>73,937</u>	-	<u>36,855</u>	<u>110,792</u>
ABU DHABI FUND (YR1.2/Dirham 1.00)				
10/74 (ED 4,000,000)	4,818	-	-	4,818
1st Payment (1982)	482			
Total Payment Thru 1986	2,410			
7/78 (ED 40,000,000)	-	48,000	-	48,000
1st Payment (1984)		2,215		
Total Payment Thru 1986		6,645		
TOTAL LOAN - ABU DHABI	<u>4,818</u>	<u>48,000</u>	-	<u>52,818</u>
ISLAMIC BANK (YR5.687/Islamic Dinar 1.00)				
2/81 (ID5,000,000)	-	-	28,437	28,437
1st Payment (1986)			514	
Total Payment Thru 1986			514	
TOTAL LOAN - ISLAMIC BANK	-	-	<u>28,437</u>	<u>28,437</u>
SUBTOTAL	<u>78,755</u>	<u>122,392</u>	<u>65,292</u>	<u>266,439</u>

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TABLE C.I.2

REPAYMENT SCHEDULE ON NWSA LOANS (YR 000's)

<u>FUNDING SOURCE/ DATE OF LOAN</u>	<u>SANAA</u>	<u>TAIZ</u>	<u>HODEIDAH</u>	<u>TOTAL</u>
Saudi Fund (YR1.33/SR1.00)				
7/77 (SR51,290,000)	68,216	-	-	68,216
1st Payment (1982)	1,243			
Total Payment Thru 1986	11,191			
12/78 (SR100,000,000)	-	133,000	-	133,000
1st Payment (1984)		5,118		
Total Payment Thru 1986		15,354		
TOTAL LOAN - SAUDI FUND	<u>68,216</u>	<u>133,000</u>	-	<u>201,216</u>
ARAB FUND (Kuwaiti Dinar)				
4/77 (KDS,000,000 -- YR16/KD1.00)	80,000	-	-	80,000
1st Payment (1982)	1,713			
Total Payment Thru 1986	14,533			
12/75 (KD6,000,000 -- YR15.3/KD1.00)		-	92,000	92,000
1st Payment (1983)			3,836	
Total Payment Thru 1986			15,344	
TOTAL LOAN - ARAB FUND	<u>80,000</u>	-	<u>92,000</u>	<u>172,000</u>
SUBTOTAL	<u>148,216</u>	<u>133,000</u>	<u>92,000</u>	<u>373,216</u>
TOTAL LOANS:	<u>226,971</u>	<u>255,392</u>	<u>157,292</u>	<u>639,655</u>
(5000's)	49,884	56,130	34,570	140,584
<u>PAYMENT DUE PER YEAR</u>				
1982	5,444	-	-	5,444
1983	9,124	-	5,481	14,605
1984	9,124	8,264	5,481	22,869
1985	9,124	8,264	5,481	22,869
1986	9,124	8,365	5,995	23,484
TOTAL PAYMENT DUE THRU 1986	<u>41,940</u>	<u>24,893</u>	<u>22,438</u>	<u>89,271</u>
<u>PAYMENT DUE PER YEAR (IN EQUIVALENT U.S. \$)* 1/</u>				
1982	1,196	-	-	1,196
1983	2,005	-	1,205	3,210
1984	2,005	1,816	1,205	5,026
1985	2,005	1,816	1,205	5,026
1986	2,005	1,838	1,318	5,161
THROUGH 1986	<u>9,216</u>	<u>5,472</u>	<u>4,933</u>	<u>19,619</u>

* Converted at YR4.55 = \$1.00.

1/ Figures do not convert precisely because of rounding.

SOURCE: NWSA

TABLE C.I.3

YARG INITIAL CONTRIBUTIONS TO NWSA PROJECTS (YR 000's and \$ 000's)

<u>PROJECTS</u>	<u>ESTIMATED TOTAL COST</u>	<u>DONOR CONTRI- BUTIONS LOANS</u>	<u>YARG CONTRI- BUTIONS A - B</u>	<u>YARG AS PERCENT OF TOTAL</u>
SANAA WATER I	YR114,000 (\$ 24,945)	YR 33,200 (\$7,264)	YR 80,800 (\$17,681)	71
SANAA WATER II	274,000 (59,956)	80,000 (17,505)	194,000 (42,451)	71
SANAA SEWERAGE I	321,300 (70,306)	113,700 (27,879)	207,600 (45,427)	65
TAIZ WATER& SEWERAGE <u>1/</u>	457,000 100,000	298,000 65,207	159,000 34,793	35
HODEIDAH WATER & SEWERAGE	340,000 74,398	157,300 34,420	182,700 39,978	54
TOTAL	YR1,506,300 \$ (\$329,605)	YR682,200 (\$149,275)	YR 824,100 (\$180,330)	55

1/ Donor contribution amount includes \$6.2 million from Abu Dhabi Fund and \$8.8 million from Saudi Fund Representing pledges not yet committed.

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National Water and Sewerage Authority
 TABLE C-14
 Comparative Balance Sheet - Consolidated

ANNEX C
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(YR 000)

Assets	30-6-79	30-6-80	Increase or (Decrease)	
			Amount	%
Utility Plant				
Structures, Buildings & Equipment	12,312	121,111	107,799	810
Less: Reserve for Depreciation	<u>6,106</u>	<u>11,581</u>	<u>5,175</u>	<u>81</u>
	6,906	109,530	102,624	1487
Land	3,612	5,263	1,651	46
Work in Progress Projects	185,656	321,371	135,715	73
Other	<u>1,016</u>	<u>1,602</u>	<u>586</u>	<u>53</u>
	<u>116,702</u>	<u>122,973</u>	<u>116,271</u>	<u>73</u>
Total Utility Plant	<u>197,220</u>	<u>437,766</u>	<u>240,546</u>	<u>122</u>
Investments	75	75		
Preliminary Studies & Research	1,032	1,032		
Preliminary & Formation Expense	97	78	(19)	(21)
Current Assets				
Cash on Hand & In Banks	<u>12,714</u>	<u>19,650</u>	<u>6,936</u>	<u>55</u>
Accounts Receivable - Consumers	5,110	7,936	2,826	56
Accounts Receivable - Other	<u>6,212</u>	<u>1,338</u>	<u>(4,874)</u>	<u>(78)</u>
	11,322	9,274	(2,048)	(18)
Less: Provision for Doubtful Accts.	<u>1,217</u>	<u>1,103</u>	<u>(114)</u>	<u>(2)</u>
	10,105	8,171	(1,934)	(20)
Advance Payments (Suppliers & Contractors)	29,513	68,152	38,639	131
Staff loans, deposits & other debit balances	516	401	(115)	(21)
Materials & Supplies in Stores	<u>3,620</u>	<u>3,761</u>	<u>1,141</u>	<u>142</u>
Total Current Assets	<u>56,168</u>	<u>105,053</u>	<u>48,885</u>	<u>87</u>
Total Assets	<u>253,892</u>	<u>542,819</u>	<u>289,112</u>	<u>113</u>
Contributions, Retained Earnings and Liabilities				
Capital				
Government Direct Contributions	117,612	177,437	59,795	51
Government Contributions from Foreign Loans	37,055	76,739	39,684	107
Branches Contributed Capital	7,699	7,686	(13)	
Consumers Payments for Installations	2,811	6,226	3,415	122
Retained Earnings	<u>(341)</u>	<u>2,321</u>	<u>2,662</u>	
Total	<u>165,236</u>	<u>270,419</u>	<u>105,509</u>	<u>64</u>
Long Term Loans - Principal	51,665	140,308	88,643	159
Long Term Loans - Accrued Interest	<u>1,137</u>	<u>8,131</u>	<u>7,004</u>	<u>89</u>
	<u>52,802</u>	<u>148,439</u>	<u>95,647</u>	<u>153</u>
Reserve for End of Service Benefits	3,194	6,378	3,184	100
Consumer Deposits	2,890	4,380	1,490	52
Other Reserves and Deposits	720	684	(36)	(5)
Current Liabilities				
Accounts Payable	16,121	97,533	81,412	517
Loan Payments Due in One Year	489	489		
Accrued Interest Payable	160	160		
Withheld from Contractors	6,813	12,414	5,601	82
Accrued Expenses & Other Credit Balances	<u>500</u>	<u>260</u>	<u>(240)</u>	<u>(18)</u>
Total	<u>24,183</u>	<u>112,866</u>	<u>88,778</u>	<u>369</u>
Total Contributions, Retained Earnings, and Liabilities	<u>253,892</u>	<u>542,819</u>	<u>289,112</u>	<u>113</u>

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Assets	at	at	Increase or (Decrease)	
	11-6-80	11-11-80	Amount	%
Utility Plant				
Structures, Buildings & Equipment	121,111	140,471	19,360	15
Less: Reserve for Depreciation	<u>11,581</u>	<u>13,176</u>	<u>1,595</u>	<u>14</u>
	109,530	127,295	17,765	16
Land	5,263	5,411	281	5
Work in Progress				
Projects	321,371	420,536	99,165	31
Other	<u>1,602</u>	<u>5,728</u>	<u>4,126</u>	<u>258</u>
	322,973	426,264	103,291	32
Total Utility Plant	<u>437,766</u>	<u>559,103</u>	<u>121,337</u>	<u>28</u>
Investments	75	75		
Preliminary Studies & Research	1,072	929	(103)	(10)
Preliminary & Formation Expense	78	70	(8)	(10)
Current Assets				
Cash on Hand & in Banks	<u>19,648</u>	<u>17,735</u>	<u>28,117</u>	<u>143</u>
Accounts Receivable - Consumers	7,936	9,105	1,169	14
Accounts Receivable - Other	<u>1,338</u>	<u>1,660</u>	<u>322</u>	<u>24</u>
	9,274	11,065	1,791	19
Less: Provision for Doubtful Acctn.	<u>1,191</u>	<u>1,391</u>	<u>200</u>	<u>17</u>
	8,081	9,672	1,591	20
Advance Payments (Suppliers & Contractors)	68,152	78,770	10,618	16
Staff loans, deposits & other debit balances	401	711	(87)	(27)
Materials & Supplies in Stores	<u>8,761</u>	<u>9,645</u>	<u>884</u>	<u>10</u>
Total Current Assets	<u>105,051</u>	<u>116,196</u>	<u>11,145</u>	<u>11</u>
Total Assets	<u>542,817</u>	<u>706,373</u>	<u>163,556</u>	<u>30</u>
Contributions, Retained Earnings and Liabilities				
Capital				
Government Direct Contributions	177,437	251,876	74,439	42
Government Contributions from Foreign Loans	76,739	98,962	22,223	29
Branches Contributed Capital	7,686	7,622		
Consumers Payments for Installations	6,226	7,578	1,352	22
Retained Earnings	<u>2,321</u>	<u>3,278</u>	<u>957</u>	<u>41</u>
Total	270,412	369,316	98,902	37
Long Term Loans - Principal	110,808	166,529	55,721	50
Long Term Loans - Accrued Interest	<u>8,481</u>	<u>7,587</u>	<u>(894)</u>	<u>(11)</u>
	119,289	174,116	54,827	46
Reserve for End of Service Benefits	6,374	6,818	440	7
Consumer Deposits	1,310	5,015	3,705	28
Other Reserves and Deposits	604	997	393	65
Current Liabilities				
Accounts Payable	79,538	110,172	30,634	39
Loan Payments Due in One Year	100	15,220	15,120	15
Accrued Interest Payable	160	1,112	952	59
Withheld from Contractors	12,111	18,663	6,552	54
Accrued Expenses & Other Credit Balances	<u>260</u>	<u>1,270</u>	<u>1,010</u>	<u>38</u>
Total	112,069	156,437	44,368	39
Total Contributions, Retained Earnings and Liabilities	<u>542,817</u>	<u>706,373</u>	<u>163,556</u>	<u>30</u>

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TABLE C.I.5
PROJECTED WATER PRODUCTION AND WATER SALES 1981 - 1986
(m³ 000's and YR 000's)

	<u>SANAA</u>	<u>TAIZ</u>	<u>HODEIDAH</u>	<u>TOTAL</u>
1981 (Base Year)				
Water Production (m ³)	3,744	1,728	1,728	7,200
Water Sales (YR5/1 m ³)	18,720	8,640	8,640	36,000
1982				
Water Production	10,080	4,608	4,608	19,296
Water Sales	50,400	23,040	23,040	96,480
1983				
Water Production	14,400	5,760	5,760	25,920
Water Sales	72,000	28,800	28,800	129,600
1984				
Water Production	15,840	6,336	6,912	29,088
Water Sales	79,200	31,680	34,560	145,440
1985				
Water Production	15,840	6,336	6,912	29,088
Water Sales	79,200	31,680	34,560	145,440
1986				
Water Production	18,720	7,488	8,064	34,272
Water Sales	93,600	37,440	40,320	171,160
TOTAL WATER PRODUCTION	<u>78,624</u>	<u>32,256</u>	<u>33,984</u>	<u>144,864</u>
TOTAL WATER SALES	<u>393,120</u>	<u>161,280</u>	<u>169,920</u>	<u>724,320</u>

SOURCE: NWSA

TABLE C.I.6
PROJECTED SEWER CONNECTIONS PER YEAR AND RELATED POTENTIAL REVENUES
1982 - 1986
(At YR75/MTH X 12 MONTHS)

	SANAA	TAIZ	HODEIDAH	TOTAL
1982				
Sewer Connections	-	6,000	6,000	12,000
Revenues (YR75/mth X 6 mths partial year)	-	2,700,000	2,700,000	5,400,000
1983				
Existing Connections	-	6,000	6,000	12,000
Revenues		2,700,000	2,700,000	5,400,000
New Connections	-	6,000	6,000	12,000
Revenues		2,700,000	2,700,000	5,400,000
1984				
Existing Connections	-	12,000	12,000	24,000
Revenues		10,800,000	10,800,000	21,600,000
New Connections	-	1,500	1,500	3,000
Revenues		1,350,000	1,350,000	2,700,000
1985				
Existing Connections	-	13,500	13,500	27,000
Revenues		12,150,000	12,150,000	24,300,000
New Connections	15,000	1,500	2,000	18,500
Revenues	13,500,000	1,350,000	1,800,000	16,650,000
1986				
Existing Connections	15,000	15,000	15,500	45,500
Revenues	13,500,000	13,500,000	13,950,000	40,950,000
New Connections	5,000	2,000	2,500	9,500
Revenues	4,500,000	1,800,000	2,250,000	8,550,000
TOTAL CONNECTIONS BY 1986	<u>20,000</u>	<u>17,000</u>	<u>18,000</u>	<u>55,000</u>
TOTAL POTENTIAL REVENUES EARNED THROUGH 1986	<u>31,500,000</u>	<u>29,050,000</u>	<u>30,400,000</u>	<u>90,950,000</u>
REVENUES PER ANNUM SUBSEQUENT TO 1986	<u>18,000,000</u>	<u>15,300,000</u>	<u>16,200,000</u>	<u>49,500,000</u>

SOURCE: NWSA

C.II SOCIAL ANALYSIS:

INTRODUCTION: High social value has been and continues to be placed on clean water (and on sanitary disposal of wastewater) in Yemen. This is clearly reflected in the fact that a significant proportion of the total development resources available to the government are being budgeted for water supplies in general and for sanitary waste disposal in the major cities. It is interesting to note that the water and electricity sector (combined under one ministry) achieved its planned growth target of the First Five Year Plan with an average annual rate of 20.4 percent. The country's Second Five Year Plan (1982-1986) calls for a 25 percent annual growth rate and states clearly major objectives in the water sector:

- To provide safe water for the highest number of persons possible;
- To implement and operate sewerage projects to safeguard the health of the Yemen population; and
- To carry out comprehensive water resources surveys so that the use of water resources can be properly controlled.

BENEFICIARIES: NWSA's expanded programs into Yemen's urban sector will provide water and wastewater facilities to a high number of Yemenis over the next 5 years. Table CII-1 below compares 1981 beneficiaries with those of 1986. Figures at this time are available only for the six branches that will have had water/wastewater facilities in operation by 1986. One other point that should be noted is that not everyone is served directly by NWSA since many persons receive an adequate and clean water supply from private underground sources and also have their own underground sewage disposal facilities. Therefore, the percent of people in the noted cities in both 1981 (33 percent) and 1985 (75 percent) having access to water/wastewater services should be increased somewhat to reflect the services provided on a private basis.

TABLE C.II-1
ESTIMATED BENEFICIARIES, 1981-1986

<u>Branch</u>	<u>Estimated Popula- tion 1981</u>	<u>Estimated Benefici- aries 1981</u>	<u>% Of Pop. Benefici- aries</u>	<u>Estimated Popula- tion 1986</u>	<u>Estimated Benefici- aries 1986</u>	<u>% Of Pop. Benefici- aries</u>
Sanaa	277,000	130,000	47	543,000	420,000	77
Taiz	119,000	43,000	36	193,000	142,000	74
Hodeidah	126,000	21,500	17	210,000	150,000	72
Ibb	34,000	-	-	54,000	45,000	83
Dhamar	39,000	-	-	69,000	50,000	73
Hajjah	2,000	-	-	41,000	30,000	73
TOTAL	<u>597,000</u>	<u>194,500</u>	33	<u>1,110,000</u>	<u>837,000</u>	75

Cost Assessment for Beneficiaries: This section attempts to provide a cursory assessment of the impact of costs of water and wastewater services upon the consumer's income. This assessment cannot be very analytical since hard data is not available. However, from what is known, the following estimates can be made regarding water usage.

Single Family Household: 6 members

Daily Water Consumption: 75 liters per capita per day (lcd)

Monthly Consumption Per Household: (50 liters X30 X6) = 9,000 liters or 9m³

Cost per month per household per current tariffs (see Section III.B. - Financial Analysis) --

o - 7 m ³	YR 25
2 m ³ X YR4	YR 8
Sewerage service per month	<u>YR 75</u>
Total per month	YR108

Regarding salaries for the urban sector, an average monthly salary of YR2,500 per household is used in this paper. This figure was derived from some facts that are known about some members of the urban work force. For example, a daily laborer earns about YR100 a day and works 6 days a week for a monthly wage of YR2,400. Employees of engineering and construction firms such as SCI and HSPL earn an average of YR3,500 per month. Average income of WWSA employees is around YR3,500, including benefits; and that of government employees is probably

around YR3,000. Incomes of a wide range of urban occupations such as shopkeepers artisans, mechanics and so on, simply are not known; nor can one determine the number of wage earners per household. The effect on income of remittances from abroad is also an unknown factor. The average user's income here, therefore, is intentionally kept low to show that the cost of water and sewerage services provided by NWSA in the major cities should not present too heavy of a burden on the majority of consumers. As is indicated by the above estimates, only 4.3 percent (108 + 2,500) of a household's monthly income will go toward the cost of water and sewerage services.

The above example is based on a per capita water use of 50 lcd. This figure was taken from a recent survey of household water use in Taiz, which currently is in a situation of highly constrained water supply. If it is assumed that completion of the Taiz Water and Sewerage Project largely removes the supply constraint and that average water use then increases to 150 lcd, then the total average household water use per month will be (150 litres X 30 X 6) = 27,000 litres, or 27m³. At this rate of usage, the average monthly tariff would be:

0 - 7m ³	YR 25
13m ³ (8 - 20m ³) X 4	YR 52
7m ³ (20 - 27m ³) X 8	YR 56
Sewerage tariff	<u>YR 75</u>
TOTAL MONTHLY CHARGE =	YR208

This would represent an amount of 8.3 percent (208/2,500) of an average family's monthly income, an amount which still can be considered as reasonable within the Yemeni context for clean water and sanitary waste disposal.

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ANNEX D

GRANT APPLICATION

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

EMEN ARAB REPUBLIC

PRIME MINISTER'S OFFICE

CENTRAL PLANNING ORGANISATION

P. O. Box : 175 - SANA'A

Teleg. : CENPLAN

Phone : 2992-3

71521-10



الجمهورية العربية اليمنية
رئاسة مجلس الوزراء
المركز المركزي للتخطيط

صندوق بريد : ١٧٥ - صنعاء

تلفونياً : صنعاء

تلكسون : ٢٩٩٢.٣

٧٣٥٠٦٠١٠

Dept : -----

Our Ref : ٢٦٤٩

Date : 8/6/1982

Subject : -----

: دارة

: رقم الصادر

: التاريخ

توضيح

Mr. Robert W. Beckman
Acting Director
United States AID Mission
to Yemen Arab Republic
P. O. Box 1088
Sana'a, Yemen Arab Republic

Dear Mr. Beckman,

Reference is made to USAID's letter of June 2, 1982, which informed our Government of a proposal to consider increasing the grant funds available under AID Project No. 279-0028, Water Supply System Management, by up to \$1,100,000 to implement an operations and maintenance training program for NWSA personnel under terms and conditions as mutually agreed by our two governments.

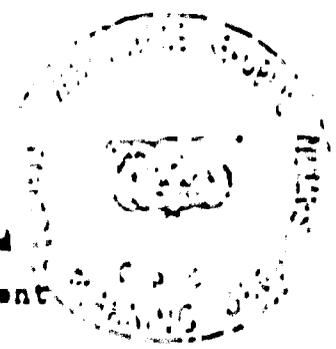
We hereby concur in the proposal as presented in the referenced letter.

Sincerely yours

Fuad Kaed Mohanned

Minister of Development
and Chairman

Central Planning Organization



cc: Ministry of Electricity and Water
National Water and Sewerage Authority

ANNEX E

Cables related to the preparation of a project paper revision to include long-term O&M training (reference)

STATE	111023	Dated April 24, 1982
SANAA	2322	Dated April 13, 1982
SANAA	1776	Dated March 20, 1982
SANAA	1703	Dated March 17, 1982

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ANNEX F
SOLE SOURCE WAIVER
(draft)

ANNEX F

SOLE SOURCE WAIVER

(DRAFT)

In the event that NWSA would prefer to extend/amend TMSI's (Technical Management Services, Inc.) host country contract to provide the technical assistance for the O&M training program described above, the following sole source waiver justification is submitted (per State Cable 111023) for the review and approval of the Administrator. NWSA is expected to make a decision on this issue after it has had the opportunity to review TMSI's performance of the O&M training outlined in Amendment 6 of the TMSI host country contract.

Problem: A waiver of competition in the procurement of services is requested under the Water Supply Systems Management Project (279-0028) to permit the procurement through Technical Management Services, Inc. (TMSI) of a technical assistance team to provide operations and maintenance (O&M) training to personnel of the National Water and Sewerage Authority (NWSA).

Discussion: From the period June through September 1982, water and/or sewerage systems in Taiz, Hodeidah, and Sanaa will become operational. Other facilities (in Ibb, Dhamar, and Hajjah) are planned for start up in 1984-85. Additional facilities in other branches and expansion of existing facilities are also planned within the next 5 years. The types of persons needed to operate and maintain effectively these systems (but not presently available) should be highly qualified technicians capable of handling the fairly sophisticated power generating equipment, pumps, motors, valves, storage tanks, water meters, laboratories, and wastewater collection/treatment facilities being installed. Without a trained cadre of O&M personnel, the systems cannot properly be started nor adequately operated and maintained. Total costs of all facilities (those coming on line immediately and those being planned) are about \$800,000,000. Thus, the potential costs -- economic, social, and political -- for not being prepared could be very high.

Fortunately, some short-range training to meet at least the immediate needs of start up and basic O&M in Sanaa, Taiz, and Hodeidah is being provided under Amendment 6 of the TMSI host country contract. Though this should be regarded as only an interim measure, nevertheless, it is an effort that the technical assistance and training envisioned in the PP revision can build on. Totalling 30 person months (through January 1983), the technical assistance in Amendment 6 will provide "hands-on" training for NWSA operators. The TMSI team will perform tasks including (1) preparation of basic operation and maintenance training manuals; (2) identification of immediate O&M staffing requirements and development of training programs at each branch to meet those needs; (3) coordination of training programs with instruction provided by factory representatives; (4) development and initiation of a "train-the-trainer" program; and (5) direction to NWSA and USAID on the implementation of the long-range O&M training program.

Though the planned inputs/outputs of the PP revision represent in part an increased level of effort, the objectives of the original Project Paper, the Request for Technical Proposals, and the TMSI contract remain the same in the revision. O&M training was an essential component of the original documents but circumstances prevented the full realization of all aspects of the O&M program within the time frame of the existing TMSI contract (and amendments). The major reason for non-fulfillment of some of the O&M objectives is to be found in the delays of project implementation in Sanaa, Hodeidah, and Taiz which projects were to have been completed in 1979, 1980, and 1981, respectively, and not simultaneously as is the actual situation. Had this schedule been realized, TMSI would have been able to prepare and implement an orderly comprehensive O&M training program, instead of being forced to reassess its goals and objectives, particularly with respect to O&M training called for in the contract. Conditions are right now to proceed with a proper long-range O&M program, one that will build upon previous TMSI efforts through Amendment 6.

Technical Management Services, Inc., a U.S. firm that has extensive experience in and a good track record in O&M training, is providing technical assistance to NWSA under a host country contract arrangement. The contract was signed May 1979 and TMSI personnel arrived in the fall of the same year. Working with NWSA over the past 2 years, TMSI has established credibility and a good working professional relationship with NWSA headquarters and branches. Further, TMSI has implemented a program that has resulted in strengthening the institutional capabilities of NWSA. In addition, the effort being made by TMSI under its original contract through Amendment 6 lays the foundations for a long-range O&M training program that ultimately will result in NWSA's self-sufficiency in meeting its manpower staffing requirements.

The situations that justify a sole source waiver to procure the services of and to continue with TMSI for the long-range O&M training are fairly evident. It is essential that the O&M training required beyond that provided in Amendment 6 be implemented as soon as possible (for continuity's sake) in conjunction with the current training program. Delays (due to competitive procurement processes) will result in a critical shortage of qualified manpower over the next few years to operate and maintain effectively the water/wastewater facilities.

Having assessed the performance of the O&M TMSI team, NWSA has expressed its preference to utilize TMSI for the additional effort required since the firm has developed a highly professional relationship with NWSA; is fully cognizant of NWSA requirements; is familiar with the project and has special capability by virtue of its experience with the project; and has established its facilities both in the field and at home office.

Continuity of the program is an important factor. The Mission and NWSA believe that greater benefits would be gained and NWSA's O&M requirements better served if the entire O&M training program, short and long range, were implemented under a single contract. Such an approach would be in the best interests of the United States and would further more effectively the objectives

of the United States Foreign Assistance Program.

Pursuant to AID Handbook 11, 2.4.2, competition in the procurement of services may be waived on the basis of the situations described above and a single source negotiated contract authorized by you in consultation with the AA/SER, if the estimated value of the procurement exceeds \$500,000.

Recommendation: That you waive competition in the procurement of the above described services and authorize a single source negotiated contract.

ANNEX G

This Annex incorporates into the Project Paper the following documents by reference:

1. Messers Martin Lang and C. E. Calbert's "Evaluation of Yemen Water Supply Systems Management Project," Wash. Field Report No. 22, dated September 1981 (reference only).
2. Dr. Ronald F. Layton's "Operation and Maintenance Evaluation for NWSA Activities - Yemen Arab Republic," dated January 1982 (reference only).
3. Technical Assistance and Training Status (attached).
4. NWSA's Second Development Plan, 1982-1986 (reference only)

ANNEX G, No. 3

STATUS OF TECHNICAL ASSISTANCE AND TRAINING ACTIVITIES

Training:

The project called for a total of 474 person months of long-and short-term training, i.e., 360 person months of academic training (10 graduate and 2 undergraduate) and 114 person months of nonacademic training. (See pages 2 and 51 of the Project Paper for details.)

To date, 11 NWSA participants (10 graduate and 1 undergraduate) have been identified and either approved or are being considered for approval for 028 funding; and one NWSA participant completed his program under Project 040, the Mission's general training program. Total estimated months of long-term academic training completed/planned under Project 028 funding to date total 312, assuming 24 months per graduate program. (A more accurate average for Yemen participants is 30 months for a graduate program.) The following chart details current status of 028 long-term academic training.

<u>Field of Study</u>	<u>Dates</u>	<u>Comple-</u>	<u>Total</u>	<u>Comments</u>
<u>Graduate (G)</u>	<u>Start</u>	<u>tion</u>	<u>Months</u>	
<u>Undergraduate (UG)</u>				
1. Sanitary Eng. (G)	9/79	12/91	27	Prog terminated -- no degree
2. Sanitary Eng. (G)	9/82	8/84	24	Estimated
3. Sanitary Eng. (G)	1/83	12/84	24	Estimated
4. Structural Eng. (G)	9/79	5/82	32	M.S. degree conferred
5. Mechanical Eng. (G)	1/82	12/84	24	English top-off/some academic
6. Civil Eng. (G)	9/82	8/84	24	Estimated
7. Construction Mgmt (G)	-	-	24	Status undetermined
8. Public Admin. (G)	2/82	1/84	24	English top-off/some academic
9. Business Admin. (G)	2/82	1/84	24	Estimated
10. Financial Mgmt. (G)	9/82	8/84	24	Estimated
11. Financial Mgmt. (G)	4/80	5/82	25	M.A. (040 funding)
12. Civil Eng. (UG)	11/80	10/83	36	Pick up

A comparison with the planned outputs of the original Project Paper would indicate that, apart from a few variations in fields of study and the delay in initiating the training program, Project 028 will achieve most of the long-term training originally envisioned.

The short-term, nonacademic training program unfortunately never got underway. Only about 18 months of training for 11 participants have been provided for attendance at conferences/courses run by Layton and Associates International, Inc., Neosho, Missouri.

Technical Assistance:

The person months of technical assistance that are being provided by TMSI through Amendment 5 total 175. The core of the present TMSI team through August/September 1982 consists of the Technical and Operations Advisor/Team Leader; Financial Advisor/headquarters; Financial Advisor/branches; Data Processing Advisor; and Electrical Maintenance Advisor. Amendment 6, approved May 1982, provides an additional 30-person months for technical services for a short-term O&M training program. Team members include a training team leader (8 mm); O&M specialists/three persons (20 mm); and a laboratory specialist (2 mm).

The September 1981 Lang/Calbert evaluation adequately reviews the shortcomings and the achievements of the TMSI team and the constraints under which it worked. Certain activities and accomplishments, however, of the TMSI team deserve to be noted here.

- Served in engineering advisory role to NWSA headquarters and branches on technical subjects and contractual issues between employee and contractors.
- Provided assistance in the preparation and review of (1) cost estimates for future projects; (2) tender documents; and (3) designs during a heavy period of project planning and implementation.
- Provided assistance to the accounting department (headquarters and branches) and training in the preparation of financial statements, vouchers, and so on.
- Assisted in the development of, and provided instruction on, the Utility Code of Accounts (a system generally used by utilities) which is required by donor agencies.
- Developed and placed into operation computer programs for the Utility Code along with the YARC's Government Code of Accounts, which is currently being used in NWSA.
- Set up proper accounting procedures in both headquarters and the branches and provided appropriate instruction to NWSA staff on usage of the procedures.
- Prepared billing forms and computer billing programs for NWSA.
- Conducted training programs for computer programmers and data input machine operations.
- Compiled a dictionary of all customers for each branch.

- Supervised operation and maintenance for Sanaa Branch (Sanaa Water Project - Phase I) since start-up and handled electrical problems at Hodeidah and Taiz Branches as required.
- Conducted on job training program for graduates/trainees from the German Vocational Technical School, assigned to Sanaa Branch.
- Assisted in the preparation of the tariff study (to be presented in draft in July 1982) being done by the French firm Roland Olivier Conseil. (This study is a requirement of other donor agencies.)

The above inputs (both training and technical assistance) have complemented the international donor assistance effort "to develop the National Water and Sewerage Authority into an effective entity capable of managing, planning, constructing, and operating the urban water and sewerage systems of the Yemen Arab Republic" (pages 3 and 19 of the Project Paper). Though considerable progress clearly is being made toward achieving the outputs listed on pages 4 and 19 of the Project Paper, not all outputs originally planned under the project and the TMSI contract could be fully achieved by this time for two major reasons: (1) NWSA top-level management's view of the priorities for the TMSI team, which were frequently not synonymous with USAID and TMSI views (see Lang/Calbert evaluation); and (2) the fact that project construction in all three cities was delayed considerably, thus forcing TMSI to reassess its goals and objectives, particularly with respect to operation and maintenance training. Sanaa Phase II (water), Hodeidah Water and Sewerage, and Taiz Water and Sewerage were scheduled for completion in 1979, 1980, and 1981, respectively. The staggered completion dates would have allowed for the orderly implementation of a comprehensive O&M training program. As it stands now, systems of the three major cities are coming on line almost simultaneously.

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ANNEX H

STATUTORY CHECKLIST

- H. 1 Project Checklist
- H. 2 Standard Item Checklist

2) Listed below are statutory criteria applicable generally to projects with funds and project criteria applicable to individual fund sources; Development Assistance (with a subcategory for criteria applicable only to loans); Economic Support Fund.

DSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE?
HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

GENERAL CRITERIA FOR PROJECT

1. FY 79 App. Act Unnumbered; FAA Sec. 653 (b); Sec. 634A. (a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) Is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure)?
 - a. Congress will be notified via an Advice of Program Change; no obligation will be made until the appropriate waiting period has expired
 - b. Yes.
2. FAA Sec. 611(a) (1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost of the U.S. of the assistance?
 - a. Yes.
 - b. Yes.
3. FAA Sec. 611(a) (2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

No further legislative action is required.
4. FAA Sec. 611(b); FY 79 App. Act Sec. 101. If for water or water-related land resource construction, has project met the standards for Planning Water and Related Land Resources dated October 25, 1973?

Not applicable.
5. FAA Sec. 611(a). If project is capital assistance (e.g. construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?

Not applicable - project is for technical, not capital, assistance.

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6. FAA Sec. 209. Is project inceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.

Project is one component of training prog. for implementing agency being financed by various donors; other components are being financed by IBRD and Arab Fund. Assistance will not encourage regional development programs.

7. FAA Sec. 501(a). Information and conclusions whether project will encourage efforts of the country to:
 (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

Marginal, if any, effects in the areas discussed.

8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

A large portion of project will consist of technical assistance from U.S. private sector firm.

9. FAA Sec. 612(b), Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

The YAR Government will finance at least 25 percent of the cost of the project. The U.S. owns no foreign currencies which can be utilized for this project.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

The Yemen Arab Republic is not an excess currency country.

11. FAA Sec. 601(a). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

Yes.

12. FY 79 App. Act Sec. 608. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely

Not applicable.

to cause substantial injury to U.S. producers of the same, similar, or competing commodity?

FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b); 111; 113; 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available; (include only applicable paragraph which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source..

(1) (103) for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; (103A) if for agricultural research, is full account taken of needs of small farmers;

(2) (104) for population planning under sec. 104(b) or health under sec. 104(c); if so, extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family

Marginal, if any, effects in all areas except (c). With regard to (c), project will train water/wastewater technicians and host country administrators how to operate, maintain and manage facilities on their own, thus strongly supporting self-help efforts of Yemen.

No.

Health. Project will train host country personnel how to operate, maintain and manage systems to provide adequate quantities of safe drinking water and sewage collection and treatment services in major urban areas of Yemen. Insofar

planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems and other modes of community research.

as they usually are among the most seriously affected victims of unsanitary water supplies, young children in these urban areas should be major beneficiaries of project. Project is not otherwise involved in low-cost health delivery.

(3) (105) for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development; No.

(4) (106) for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is: No.

(i) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;

(ii) to help alleviate energy problems;

(iii) research into, and evaluation of, economic development processes and techniques;

(iv) reconstruction after natural or manmade disaster;

(v) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;

(vi) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

c. (107) Is appropriate effort placed on use of appropriate technology?

Not applicable.

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?

Yes, the recipient country will provide at least 25 percent of the cost of the project.

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to the Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"?

Not applicable.

f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental and political processes essential to self-government.

Major purpose of this project is train a cadre of host country technicians and officials to enable them to operate, maintain, and manage water and wastewater facilities on their own.

g. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase or productive capacities and self-sustaining economic growth?

Yes. The project will contribute to well managed development of water resources which are critical to Yemen's future development. Project should contribute to increased productivity through increased health.

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.

Not applicable - project will be grant funded.

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

3 Project Criteria Solely for Economic Support Fund,

Not applicable - project is DA, not ESF, funded.

a. FAA Sec. 531(a). Will this assistance support promote economic or political stability? To the extent possible, does it reflect the policy directions of section 102?

b. FAA Sec. 533. Will assistance under this chapter be used for military, or paramilitary activities?

ANNEX H, NO. 2
STANDARD ITEM CHECKLIST

A. PROCUREMENT

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? Yes

2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him? Yes

3. FAA Sec. 604(c). If the cooperating country discriminates against U.S. marine insurance companies, will commodities be insured in the United States against marine risk with a company or companies authorized to do marine insurance business in the U.S.? Not applicable

4. FAA Sec. 604(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? Not applicable

5. FAA Sec. 603. Compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. -flag commercial vessels to the extent that such vessels are available at fair and reasonable rates. Will be complied with

6. FAA Sec 608(a). Will U.S. Government excess personal property be utilized wherever practicable in lieu of the procurement of new items? The use of U.S. Gov't excess property is not appropriate for this project.

7. FAA Sec. 621. If technical assistance is financed, to the fullest extent practicable will such assistance, goods and professional and other services from private enterprise, be furnished on a contract basis? If the facilities of other Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs? The facilities of other Federal agencies will not be utilized.

ANNEX H, NO. 2

STANDARD ITEM CHECKLIST

8. International Air Transport. Fair Competitive Practices Act, 1974.

If air transportation of persons or property is financed on grant basis, will provision be made that U.S.-flag carriers will be utilized to the extent such service is available?

Yes

9. FY79 App. Act., Sec. 105; FY80 App. Act Sec. (505)
Does the contract for procurement contain a provision authorizing the termination of such contract for the convenience of the United States?

Yes

B. Not applicable.

C. OTHER RESTRICTION

2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights?

Not Applicable

3. FAA Sec. 620(h). Do arrangements exist to ensure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries?

Yes

4. FAA Sec. 636(1). Is financing not permitted to be used, without waiver, for purchase, sale, long-term lease, exchange or guaranty of motor vehicles manufactured outside the U.S.

Yes

5. Will arrangements preclude use of financing:

a. FAA Sec. 104(f). To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; to pay for performance of involuntary sterilization as a method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization?

Yes

b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property?

Yes

c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?

Yes

ANNEX H, NO. 2

STANDARD ITEM CHECKLIST

- d. FAA Sec. 662. For CIA activities? **Yes**
- e. FY79 App. Act, Sec. 104; FY90 App. Act Sec. (504). To pay pensions, etc., for military personnel? **Yes**
- f. FY79 App. Act, Sec. 106; FY80 App. Act Sec (506). To pay U.N. assessments? **Yes**
- g. FY79 App. Act, Sec. 107; FY80 App. Act Sec. (507). To carry out provisions of FAA section 209(d)? (Transfer of FAA funds to multi-lateral organizations for lending.) **Yes**
- h. FY79 App. Act, Sec 112; FY80 App. Act Sec (511). To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields? **Yes**
- i. FY79 App. Act, Sec. 601; FY80 App. Act Sec. (515). To be used for publicity or propaganda purposes within U.S. not authorized by Congress? **Yes**