PROJECT ASSISTANCE COMPLETION REPORT (PACR)

FOR

WADI AL KHAWD AQUIFER RECHARGE PROJECT

PROJECT NO: 272-0102

LOAN NO: 272-K-01

OCTOBER 1987

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INTRODUCTION

Requirements:

Handbook 3, App. 14A requires that a PAC Report be prepared within six months after expiration of the PACD.

Purpose:

The purpose of this report is to briefly summarize the final level of inputs and outputs provided through various project activities, end-of-project status regarding achievements of objectives, review of the financial status and lessons learned from this project. In general, the report will cover the following:

- A brief historical record of the completion of all major activities represented in the form of a narrative summary and a Gantt Chart;
- A brief description of the project;
- A summary of AID contributions made and a review of commitments and disbursements;
- A brief review of the project accomplishments, conditions and covenants;
- Outline any arrangements and expected timing, if applicable, for a final project evaluation;
- Status of the project and need of continuing AID support for post-project monitoring actions;
- A summary of lessons learned from the project, if any.

Other Close-Out Activities:

On 2 February 1987 an internal memorandum was issued which listed all remaining actions to be closed out on the project before the expiration of the PACD on 12 May 1987. Action items which affected the implementing agency, the Ministry of Agriculture and Fisheries (MAF) and contractors (Stanley Consultants, Inc. and Consolidated Contractors/H.B. Zachry) were discussed with relevant personnel of these organizations.

PIL No. 17, issued 25 April 1987, advised the Minister of Agriculture and Fisheries of the forthcoming PACD expiration.

HISTORICAL RECORD & COMPLETION REPORT OF MAJOR ACTIVITIES

Narrative Summary:

On August 18, 1982, the Government of Oman and the United States of America signed a Project Loan Agreement to finance the design and construction of a pilot water retarding structure to demonstrate the concept of aquifer recharge in the Wadi al-Khawd. After a three months delay in the Ministry of Finance and Economy, a contract was signed on February 21, 1983, between the Ministry of Agriculture and Fisheries (MAF) and Stanley Consultants, Inc. for the completion of engineering design, tendering services and construction supervision. MAF signed a contract with CCC/H.B. Zachry for the construction of the dam on October 20, 1983. (See Appendix B).

Actual construction on the dam began in December 1983 and was completed March 8, 1985, on schedule and under budget. On April 17, 1985, at 10 a.m. the Wadi al-Khawd Aquifer Recharge Project was formally inaugurated by the personal representative of His Majesty Sultan Qaboos, H.H. Sayyid Thuwainy bin Shihab al-Said. The completion and dedication of the Wadi al-Khawd Aquifer Recharge Dam marked an important milestone for the Omani-American relation as it was the first project to be completed under the Joint Commission's program.

A grant of $700,000 for design, installation and training of MAF's personnel in operation of a Monitoring and Evaluation (M/E) System was signed April 10, 1985. The M/E System consisted of three parts. The first and second parts which addressed the engineering, training, procurement and testing of equipment was funded under this grant while the third part, a concrete weir to measure the flow of surface water flowing into the area behind the dam constructed in the wadi just below the Wadi al-Khawd village, was financed with a $400,000 balance remaining in the loan.

On June 12, 1985, MAF signed an amendment to the existing contract with Stanley Consultants for about $300,000 for engineering services and construction supervision of the M/E system. The engineering services consisted of; designing the M/E system, developing a procedure to evaluate the recharge effectiveness of the dam and training of MAF personnel in the operation of the system and in the analysis of the data collected. A second amendment adding about $30,000 to the Stanley contract was signed by MAF on May 17, 1986 for additional works consisting of procuring the required instrumentation and monitoring equipment in the U.S. for installation at the dam.

Stanley procured, shipped and supervised the installation of all the M/E equipment. They also conducted training sessions where nine Omanis were trained in data collections and analysis of water resources as well as in operation of the M/E system. Stanley also provided the construction supervision of the flume (weir) and assisted MAF in the procurement and installation of test and observation wells. The weir was constructed by CCC/HBZ the builders of the dam.

In the early spring of 1987, the dam experienced three major storms which produced flood flow into the reservoir behind the dam providing the first opportunity to observe the aquifer recharge structure in operation. Stanley Consultants, the dam engineers, evaluated data from these storms to analyze the effectiveness of the project. They found that a total of 5.7 million cubic meters of water had been saved from flowing to the sea during these three storms.

During this evaluation and the completion of the final report of the Wadi al-Khawd dam, a need for additional monitoring equipment and instrumentation was revealed. As a result of this finding the Ministry of Agriculture and Fisheries (MAF) and the Council for Conservation of Environment and Water Resources (CCEWR) transmitted requests to the Joint Commission to provide funds for a post project purchase of equipment and instrumentation in the U.S. at an estimated cost of $275,000.

Since the Project Assistance Completion Date (PACD) for the Subgrant had expired, the Joint Commission requested and received authorization from the Co-Chairmen to disburse grant funds up to $275,000 for funding of this monitoring equipment and instrumentation as an ad hoc Joint Commission activity.

ule Name: WADI AL KHAWD RECHARGE PROJECT
ct Manager: ED MARKESET
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Gantt Chart Completion Report of Major Activities

CT ASSISTANCE CLOMPETION REPORT
DULE OF MAJOR EVENTS

		Status	83 Feb 1	Apr 4	Jun 1	Jul 5	Sep 6	Nov 1	Dec 5	84 Feb 1	Apr 2	Jun 4	Aug 1	Sep 4	Nov 5	85 Jan 2	Feb 4	Apr 1	May 1	Jun 3	Aug 5	Sep 3	85 Nov 4	86 Jan 6
1	Feasibility Study 5-81 to 9-81	D M	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	PID Approved NEAC 20AUG81	D M	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	Final Fsblty Study by(SCI)1-82	D M	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	IQC to Stanley Cons 6MAY81	D M	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	Preparation of PP 9-81 to 4-82	D M	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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7	Project Authorized 19JUN82	D M	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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3	Tendering for Const Contractor	D	.	.13	▬▬	▬▬	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	Agreement w/Contractor Signed	D	.	.	.	.	.14 M	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	Agreement w/Cotractor Ratified	D	.	.	.	.	.15 M	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	Notice to Proceed to CCC/HBZ	D	.	.	.	.	.	16 M.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	PIL#5 ext PACD to 30JUN85	D	.	.	.	.	.	17 M		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	Construction of Dam	D	.	.	.	.	.	18	▬▬	▬▬	▬▬	▬▬	▬▬	▬▬	▬▬	▬▬	▬▬	.	.	.	.	.	.	.
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1	Amndm to SCI Contr Flume $.33m	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.21.M	.	.	.	.	.
2	PIL#9 ext PACD to 30JUN86	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	Construction of Flume	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	PACD for Dam 30 JUN 86	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	PIL#13 ext PACD subgrt-12MAY87	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	First Session Training Seminar	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	PIL#16 ext TDD/Loan to 30JUL87	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	First Water in Dam 20/21FEB87	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9	Second Training Session	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0	Second Flood 23/24 MAR 87	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1	Third Flood 7APR87	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	PIL#17 inf of PACD expiring	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	MAF request add funds M/E eqip	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	PACD for Subgrant 12MAY87 EXPR	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	Stanley Issue Final Report MAY	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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7	CCEWR reqst funds for equip.	D	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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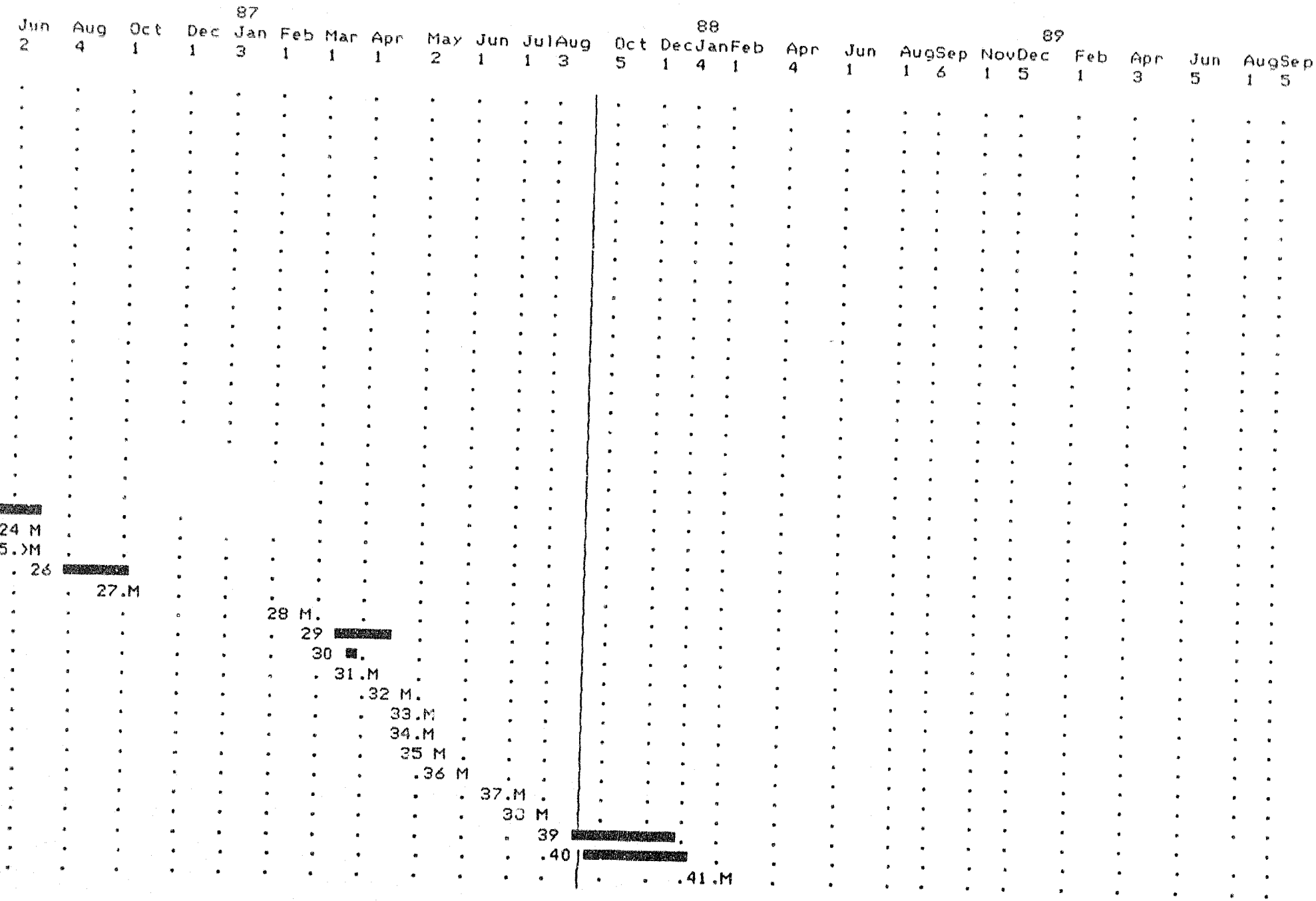
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PROJECT DESCRIPTION

Project Purpose:

To test the concept of aquifer recharge as means of increasing water supplies for agriculture and municipal use by building a retarding structure to capture flood water runoff and, through controlled discharge, allow the water normally lost to the sea to percolate into groundwater aquifers.

It was anticipated that the water supply would increase by an estimated five million cubic meters per year.

Physical Features:

The dam is designed as an earth-fill embankment with riprap and gabion mattress protection using wadi material. It is constructed across the main channels of the Wadi Al-Khawd and is approximately 5 kilometers long and about 8 meters at its highest point. The water captured behind the dam during heavy flash floods will be allowed to escape at a controlled rate through 11 culverts through the dam, allowing water to slowly infiltrate into the ground.

Since the principal objective of the project is to develop a data base and state-of-the-art information on the performance of the recharge facility, a monitoring and evaluation (M/E) system has been installed and tested.

Key Dates:

Approval Date	: 12 May 1982	PACD for Loan	: 30 June 1986
Agreement Date	: 18 August 1982	TDD for Loan	: 30 July 1987
CP Met Date	: 20 October 1983	PACD for Subgrant	: 12 May 1987
Original Compl. Date	: 12 May 1965	TDD for Subgrant	: 12 Feb. 1988
Revised Compl. Date	: 12 May 1987		

FINANCIAL STATUS

COST ESTIMATES (DOLS 000)

	Original	Revised
Total Cost	15,000	16,048
AID	7,500	7,500
Host Govt	7,500	8,548
Other Donors	NIL	NIL

FINANCIAL DATA (DOLS 000) as of 9/30/87

	Grant	Loan	Total
Approved LOP	1000	7,500	8,500
Revised LOP	700	7,500	8,200
Obligations	700	7,500	8,200
Commitments	395	7,428	7,823
Accrued Expenditures	357	7,260	7,617
Unexp Bal (Pipeline)	343	240	583

STATUS OF DISBURSEMENT

Contractors Loan Funds:	Amount Authorized	Amount Claimed	Balance
CCC/H.B. Zachry (Dam Construction)	6,171,872.00	6,136,452.46	35,419.54
Stanley Consultants (Engineering U.S.)	594,703.00	553,479.34	41,223.66
Stanley Consultants (Engineering Oman)	258,521.00	180,212.01	78,308.99
CCC/H.B. Zachry (River Flume Construction)	403,337.66	390,294.40	13,043.26
Sub Total	$7,428,433.66	$7,260,438.21	$167,995.45

Uncommitted Balance	71,566.34		71,566.34
Total	$7,500,000.00	$7,260,438.21	$239,561.79

Grant Funds:	Amount Authorized	Amount Claimed	Balance
Stanley Consultants (Design & TA)	330,996.00	299,836.46*	31,159.54
Hydro Drilling, Oman (Well Drilling)	64,500.00	56,858.41	7,641.59
Sub Total	$395,496.00	$356,694.87	$38,801.13
Uncommitted Balance	304,504.00		$304,504.00
Total	$700,000.00	$356,694.87	$343,305.13

*Includes approximate amounts for Voucher Nos. 21, 22, 23 & 24. These vouchers have not been received by the Joint Commission from the Ministry of Finance as of 10/14/87.

DEOBLIGATION

From Loan Funds:

All committments have been made to the contractors. The TDD has expired, therefore, the total balance of the loan can be deobligated $239,561.79

From Grant Funds:

TDD has not expired, therefore, any deobligation can only be estimated:

Stanley Consultants:	± 30,000.00
Hydro Drilling [7,641.59 - 1,606.61 (½ retention)]:	6,034.98
Uncommitted Balance:	304,504.00
Estimated Amount to be Deobligated:	± 340,000.00

Note: Stanley has received approval from the ANE General Council to use U.S. Dept. of State Indexes tables of Living Cost Abroad to calculate Post Allowance. The voucher examiner used U.S. Govt. Standard Regulation tables and disallowed $2,122.79.

Stanley has claimed the disallowed amount and since the TDD for the loan has expired, this amount will be paid to Stanley from the grant funds rather than from the loan funds.

PROJECT ACCOMPLISHMENTS

Conditions and Covenants:

Conditions precedent to disbursement were met as follows:

A. First disbursement - Article 5, Section 5.1 of Loan Agreement

The conditions precedent to first disbursement were satisfied on December 26, 1982. (See Appendix C).

B. Additional conditions for specific disbursement - Article 5, Section 5.2 of Loan Agreement

Condition precedent to 5.2(a) was satisfied with the signing of the Engineering Contract on February 21, 1983, and condition precedent to 5.2(b) was satisfied with the signing of the Construction Contract on 20 October 1983.

Special Covenants listed in Article 6 of the Loan Agreement have all been satisfied except for Covenant 6.1 Project Evaluation which has been partially completed and is discussed in more details in the next section under Project Evaluation.

MAF continues to meet Special Covenant 6.4 Maintenance, by having recently awarded two contracts for maintenance work, one for the removal of silt and debris deposited in the dam area during the spring floods and the other for construction works for improvements to the stilling basin discharge recommended by Stanley Consultants.

MAF and JC have cooperated in trying to satisfy Special Covenant 6.5 Protection Measures. The Minister of Agriculture and Fisheries issued letters in Spring of 1984 to relevant government authorities pointing out

the problem with well drilling, contamination and flood protection associated with agricultural and residential land development in the aquifer recharge area. Announcements were also placed in local newspapers reminding the public of punishment for drilling wells without obtaining prior licences. A Ministerial Decision No. 6/86, dated 28 September 1986, was issued on the Preservation of Water Quality in Western Well Fields.

The Joint Commission has issued a letter to His Excellency Qais bin Abdul Munim al-Zawawi, Deputy Prime Minister for Financial and Economic Affairs, pointing out the damaging effects the encroachment of farms and houses could have on the quality of the water of the aquifer at WAK.

Goals, Purpose & Outputs:

At the project level, day to day monitoring and continuing evaluation by JC has provided information about the use of the project resources and helped tracking progress toward the development objectives of the project, as defined by the output, purpose and goal statements of the project's Logical Framework. The goals, purpose and outputs have all been met.

Listed below are the development objective statements as listed in the Project Paper:

Program or Sector Goal: The broader objective to which this project contributes.

To realize effective management of Oman's water resources.

(Thru storage of run-off water generally lost).

Project Purpose:

To test whether a dam of specific type in the Wadi al-Khawd:

(a) can save rain water by allowing it to percolate into the groundwater aquifer.

(b) will prevent or reduce loss of water to the sea from flood flows.

: of Grant Technical Assistance

To assist the Ministry of Agriculture and Fisheries strengthen its capacity to evaluate the results of the demonstration project, correlate water resources data, and identify and develop a training program for Ministry Officials.

Outputs:

Increased amounts of water are stored in aquifer of wadis and increased amounts of water are made available for extration from aquifer. Improved water quality expected in areas of increasing salinity.

Water analyses completed successfully in a timely manner.

Water resources data correlation for participation to other wadis is significant. MAF personnel trained.

Inputs:

1. A.I.D. Project Loan
2. Govoman 50% Contribution to Project
3. Engineering Services
4. Construction Services
5. $1 Million T.A.P.

PROJECT EVALUATION

Section 6.1 of the Project Loan Agreement states the following:

SECTION 6.1. Project Evaluation. The Parties agree to establish an evaluation program as part of the Project. Except as the Parties otherwise agree in writing, the program will include, during the implementation of the Project and at one or more points thereafter: (a) evaluation of progress toward attainment of the objectives of the Project; (b) identification and evaluation of problem areas or constraints which may inhibit such attainment; (c) assessment of how such information may be used to help overcome such problems; and (d) evaluation, to the degree feasible, of the overall development impact of the Project.

Since the project from its early beginning has progressed well without major problems or constraints which may have inhibited the attainment of the objectives of the project, it was felt that full scale evaluations were not required. It is not believed that significant information would be gained by conducting a final evaluation. Completion of the project on time and within budget should further confirm that there is no need for further evaluations.

An interim technical evaluation of the effectiveness of the project has been completed by the engineer for the project. The results of this evaluation are presented in Stanley Consultant's final report on "Operation of Aquifer Recharge System - The Wadi Al-Khawd Aquifer Recharge Project" submitted May 1987.

A final assessment of the project is now being undertaken by the implementing agency with assistance from CCEWR. It should be noted that it may take many years and several storms before any reliable trends can be expected as far as the performance of the recharge facility over time is concerned. However, as a result of the recent storms, valuable data has been collected since March of this year by MAF and CCEWR which should facilitate a reliable analysis. In other words, the project was blessed with the occurrance of several floods which made it possible to test the facility shortly after it was constructed and prior to the closing of the project.

Since the Wadi al-Khawd has always been viewed as being a pilot project, one of the principal objectives of the project is to demonstrate that recharge structures such as WAK, are feasible in Oman and can be replicated in other wadis. It is, therefore, essential that the upcoming evaluation of the effectiveness of the recharge project demonstrate that this objective has been met before the Joint Commission considers funding of other and similar recharge structures in Oman. Stanley's report of May 1987 stated that, "data gathered todate indicates that the Wadi al-Khawd Aquifer Recharge Project is meeting its goal. However, collection and evaluation of groundwater levels over a longer time period is required to make final assessment of the project's effectiveness."

STATUS OF PROJECT TODATE AND POST PROJECT SUPPORT

All major activities have been completed and all milestone dates have expired with the exception of the TDD for the Subgrant which expires on 12 February 1988.

As a post-project activity, the JC has agreed to fund requests from CCEWR and MAF for additional monitoring equipment and instrumentation for a total cost of $275,000. This additional equipment which will be procured in the U.S. and later turned over to MAF and CCEWR was recommended by Stanley in their final report on the operation of the WAK recharge system. The equipment requested by MAF is for replacement equipment and for spare parts while the equipment/instrumentation requested by CCEWR is basically rainwater gauges to be installed in the Wadi Samail catchment area which is the main contributor of floodwater to the Wadi al-Khawd Dam.

JC will prepare the procurement documents and supervise the procurement and installation of this equipment as well as monitor the completion of the improvements of the stilling basin recommended by Stanley. This work is now being tendered. After termination of this work and with the completion of the evaluation report now being prepared by MAF and CCEWR, the JC should not need to be involved any longer with the project.

LESSONS LEARNED & FACTORS CONTRIBUTING TO SUCCESS

There are no clear lessons to be learned from this project that might be relevant to programming, design and implementation of other similar projects.

There are, however, two aspects which should be mentioned as could have been improved:

- The Technical Assistance Program (T.A.P.) which the Project Paper (PP) envisioned as a three-year effort at an estimated cost of $1.0 million could have been implemented earlier. The PP proposed that the first phase of the T.A.P. which included drilling of monitoring wells and procurement of recording devices be part of the original construction and engineering contracts. This was not done, they were implemented through amendments at a later time and as a result the T.A.P. was shortened, and possibly the training component suffered.

- The design engineer for the dam should have taken percolation tests in the recharge area downstream of the dam himself, and not relied on other consultant's test data which proved to be errorneous. As a consequence the rate of water being lost to the sea during the first flood in February 1987 was much greater than anticipated. Corrective actions were taken by Stanley so instead of loosing about 60% of the water during the February flood, only 10% and 15% were lost during the March and April storms. For more details see Stanley Consultants' Final Report on the Wadi al-Khawd Aquifer Recharge Project.

Perhaps it is more relevant to emphasize the factors which contributed to the success of this project rather than to dwell on minor setbacks that occurred which could not easily have been foreseen during the design phase.

- MAF actively managed the project

  Basic decisions regarding the design and construction of the dam were made by the engineer with full participation of MAF.

- The Engineer and the Contractor formed an excellent team.

- Excellent working relation and coordination between MAF and JC project management

  Working relationship, decision making and sound monitoring and evaluation procedures were retained throughout the project.

- Continuity of staff of all organizations involved facilitated project activities

  Few personnel turnovers during the life of the project contributed to the early completion of the project and within the budget.

- Ample financial resources were available by both MAF and JC.

- Project goals were simple, clear and quantifiable, making it easier to reach agreement in the early stages of design and during the execution of the construction and technical assistance (TA).

Respectfully submitted by:

Edvard Markeset

Edvard Markeset:lrs
Project Officer & Chief Engineer

APPENDIX A - FEASIBILITY REPORT SUMMARY

Chronology of Studies:

1974 - Sir Alexander Gibb and Partners. "Water Supply to Muscat and Mutrah" recommended investigation of the possibility of impounding wadi flood flows in the coastal plain for increasing groundwater recharge.

1978 - The United States Army Corps of Engineers. "Report on Water Resources Study, Phase I and Technical Proposal for Construction of Water Recharge Projects" recommended development of conceptual designs and specific sitings for recharge projects.

1979 - The United States Corps of Engineers. "Report on Water Resources Study, Phase II and Technical Proposal for Construction of Water Recharge Projects" undertook more detailed study leading to the selection of Wadi Samail as the initial recharge development site.

1980 - The Public Authority for Water Resources. "Preliminary Engineering Design for Wadi Al Khawd Recharge Scheme" proposed two permeable retention structures acting in series over the alluvial fan. The dams would spread the water over wide leveled spreading basins by spillway overflow and seepage through the dams.

1980 - Tetra Tech International Inc. "Evaluation of Alternate Groundwater Development Schemes for the Wadi Samail Aquifer" evaluated the effects of long-term uniform recharge of the Public Authority for Water Resources' plan upon water levels in the aquifer. Additional study of the effectiveness of spreading basins was recommended.

1980 - The Public Authority for Water Resources. "Groundwater Recharge Alternatives for Wadi Al Khawd" compared proposed plans by the U.S. Army Corps of Engineers and The Public Authority for Water Resources. They

developed 5 objectives which would be most desirable for the project and, based on these objectives, recommended the Public Authority for Water Resources plan for further development.

1981 - Stanley Consultants, Inc.* The Government of Oman and the U.S. Agency for International Development acting through the Joint Commission on Economic and Technical Cooperation authorized Stanley Consultants, Inc. to proceed with development of the recommended plan. A "Feasibility Report, The Wadi Al Khawd Aquifer Recharge Project", construction plans, bidding documents and "Feasibility Report Summary" were submitted in December 1981.

*Stanley Consultants, Inc. was contracted for by AID/W with an IQC/Requirement contract for the JC account on 6 May 1981.

Alternative Designs:

Stanley Consultants, Inc. analyzed three alternatives for retarding stormwater runoff and recharge it to the aquifer. They were:

1. Construction of two pervious gravel and rock fill structures in series across the wadi to spread the water over leveled basins for infiltration.

2. Construction of two impervious gravel and rock fill structures in series across the wadi with culverts which release the water into existing wadi channels for infiltration.

3. Construction of a single impervious gravel and rock fill structure across the wadi with culverts which would release the water into existing wadi channels for infiltration.

Their analysis concluded the following:

a) Alternative number two and alternative number three were more effective schemes to accomplish recharge than alternative number one.

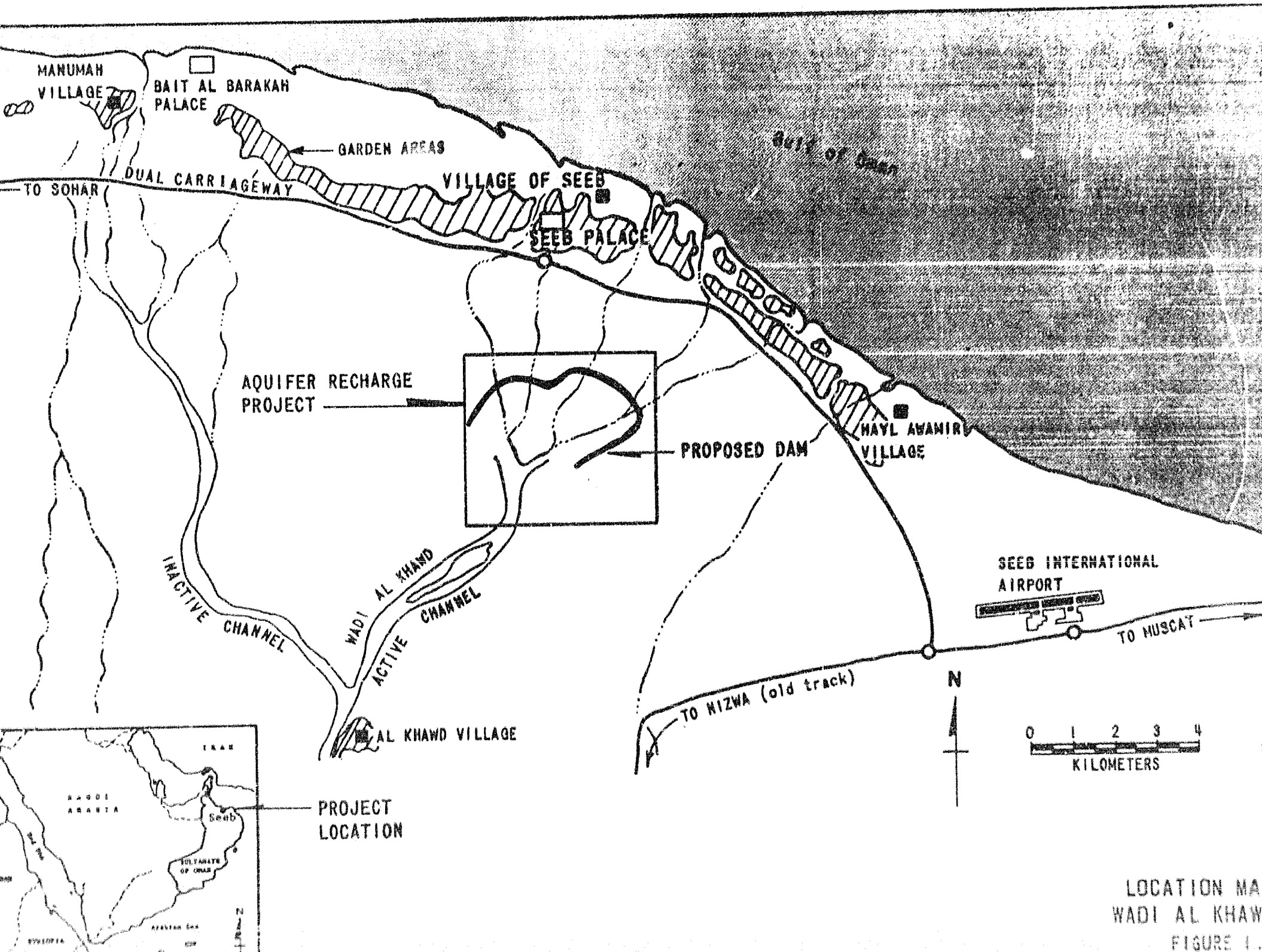
b) Alternative number three was found to be as effective as alternate number two and was the least expensive. Stanley estimated that 645,000 Rials Omani could be saved and the construction period shortened by four months.

Therefore, alternative number three was recommended by Stanley.

Recommended Project:

The single structure (alternative number three) is a low impervious gravel and rock fill dam made of compacted material from the Wadi Al Khawd. It is approximately 7.5 meters high, 5 meters wide at the top, and has 3:1 side slopes. It has riprap on the sides for erosion protection and a gabion mattress spillway. The 3000 meters long spillway is designed to pass five times the probable maximum flood of 1900 cubic meters per second without failure of the structure.

Fig. 1.1 shows the location of Aquifer Recharge Project.



LOCATION MA
WADI AL KHAW
FIGURE 1.

For the Dam

Engineering Services & Construction Supervision

The feasibility/design study was done by Stanley Consultants, Inc. under an AID/W IQC contract at the request and for the account of the Joint Commission out of the FY 1980 A.I.D. Grant.

A waiver was later required to permit AID funding of Stanley as the engineer to provide the construction supervision for the Dam. AA/ANE, W. Antoinette Ford, approved a sole source waiver on 17 June 1982 permitting MAF to negotiate a contract with Stanley for these services. (See copy attached).

Construction Services

A total of six Omani and U.S. contractors were prequalified to tender on this project. From this group of prequalified contractors five tenders were received on July 23, 1983.

SUMMARY OF TENDERS
THE WADI AL KHAWD AQUIFER RECHARGE PROJECT

Tenderer	Base Tender Total Extended Price US $	Rial Omani	Total Price US $
1. Grove Overseas Corporation	7,120,684.77	3,087,731.285	15,993,589.39
2. J/V Consolidated Contractors & H.B. Zachry	4,963,772.94	2,835,734.150	13,112,538.59
3. J/V Raymond International & Sharfari-Birse	4,198,534.90	4,192,155.100	16,245,111.80
4. J/V Omak Travo & Nello Teer	-	4,750,452.900	13,650,901.45
5. J/V Oman Construction, Fischbach & Moore Int'l & Abdullah Moosa Contracting	7,390,335.55	2,428,313.150	14,368,336.22
6. Engineer's Estimate	-	4,937,579.200	14,188.627.59

Stanley Consultants, who evaluated the tenders, recommended that an award of contract be initiated with Consolidated Contractors Company & H.B. Zachry Company, and on 20 October 1983 MAF signed a contract for the construction of the dam with CCC/H.B. Zachry.

For the Monitoring and Evaluation (M/E) System

Background - The PP anticipated loan funding of the physical facilities required for the M/E system. It included a Technical Assistance Program (TAP) which would be financed by a Dols 1 million grant which was authorized at the same time as the loan. Since the PP was written some studies were done which affected the M and E system and the related TAP. As a result, a modified M and E and associated TAP was proposed by the MAF.

The M/E system proposed consisted of three parts. The first and second parts which addressed the engineering, training, procurement and testing of equipment, was grant funded by a $700,000 subgrant. The third part covered the construction of a flume (weir) which was financed with a $400,000 balance remaining in the loan.

Engineering, Training & Construction Supervision

A waiver of competition was requested from AID/W to permit MAF to amend the existing contract between Stanley Consultants, Inc. and the Ministry to add approximately $300,000 to finance the engineering, training, procurement assistance and construction supervision services for the M/E system. (See copy of Request for Waiver attached).

Robert H. Bell, AA/ANE, approved the waiver on 30 January 1985 (copy attached) and MAF signed the contract amendment with Stanley Consultants, Inc. on 12 June 1985.

Flume (Weir) Construction

The Joint Commission waived competitive selection procedures to permit MAF to negotiate a contract amendment with CCC for the construction of the flume (see copy of waiver attached). A $412,000 contract amendment was signed by MAF and CCC on 18 March 1986.

Well Drilling

The Ministry of Agriculture and Fisheries awarded a contract to Hydro Drilling, Oman, on 22 July 1986, for the construction of test and observation wells in the WAK recharge area. Hydro Drilling was selected on the basis of submitting the lowest and most responsive proposal received from five local well drilling companies which had previously been prequalified by the Ministry. Joint Commission waived advertising of this contract in local newspapers and journals (copy of waiver attached).

ACTION MEMORANDUM FOR THE ADMINISTRATOR

JCG - WRP
Stanley Eng. Corp.

THRU: ES
BRADSHAW LANGMAID, JR.

FROM. AA/NE, W. Antoinette Ford

SUBJECT: Oman - Wadi al-Khawd Aquifer Recharge Project (Loan No. 272-0102)- Sole Source Waiver

Problem: Your approval is required for a waiver to permit negotiation of a contract on a sole source basis with Stanley Consultants, Inc. ("Stanley") for supervision of construction of the water retarding structure for the Wadi al-Khawd Aquifer Recharge Project.

Discussion: The Wadi al-Khawd Aquifer Recharge Project (the "Project") is the first loan project sponsored by the United States Oman Joint Commission for Economic and Technical Cooperation (the "Joint Commission"). Under the Project, A.I.D. and the Government of the Sultanate of Oman will each finance, on a 50-50 basis, the construction services and the supervision of construction for a water retarding structure in the Wadi al-Khawd. The structure will capture storm water which would otherwise run off to the sea, so that it can percolate down to replenish the underground aquifer. A secondary benefit of the structure will be some flood control. This is a pilot project involving an innovative design, and if the project is successful it may be replicated elsewhere in Oman.

The aquifer recharge project was one of the major activities identified for Joint Commission support when the Joint Commission was established in late FY 1980, in connection with the United States' acquisition of base rights in Oman. Because of the desire to have the design contractor in place as quickly as possible, to provide concrete evidence of U.S. economic support for Oman, it was decided to use a standing A.I.D. indefinite quantity contract ("IQC") 1/ for these services. Stanley was selected among A.I.D.'s IQC design contractors on the grounds that it was the firm most qualified for this work. Additionally, Stanley was currently doing engineering design work in Oman for the U.S. Corps of Engineers.

1/ A.I.D. has entered into indefinite quantity contracts with various contractors, under which the contractor is obliged to provide specified services when and if A.I.D. places a work order under the IQC. Contractors are initially awarded IQC's on a competitive basis. However, there are usually several IQC's in place for a specified type of service, and there is no competition requirement connected with issuance of a work order, making that step a non-competitive selection process.

0034996

The Government of Oman has subsequently requested the construction for the Project. Handbook
Stanley's supervision of the construction for the Project. Handbook
11, Chapter 2. .2.4 provides that a waiver authorizing negotiation with
a sole source, instead of following competitive selection procedures,
may be authorized when:

> "The Borrower/Grantee desires to utilize a contractor previously engaged in the project for follow-on work and the contractor clearly has special capability by virtue of previous experience in the work but the contractor was. . .not initially selected on a competitive basis. . ."

Here, Stanley has a special capability to supervise the construction of the water retarding structure by virtue of having designed it. It is usual in the engineering field to have the firm which designed a project supervise the construction, and it may be difficult to hold an engineering firm to all of the desired warranties for one of these phases if it does not carry out the work on the other phase. The fact that this is an innovative design employed in a pilot project makes it particularly important here that the design firm supervise the construction. Since the estimated value of the procurement ($800,000) exceeds $500,000, under applicable A.I.D. regulations, the approval must be made by you.

Recommendation: That you approve a sole source waiver to permit negotiation of a contract with Stanley Consultants Inc. for supervision of construction of a water retarding structure for the Wadi al-Khawd Aquifer Recharge Project.

Approved: Joseph C. Wheeler

Disapproved: _____

Date: JUN 17 1982

Clearances:

NE/DP:C Johnson		Date 6/8/82
NE/PD:Staubenblatt		Date 5/29/82
NE/PD/SDILO:DMackell	draft	Date 3/21/82
NE/ME:GKamens	draft	Date 3/21/82
MK GC;C. van Orman		Date 6-2-82
GC/NE:JKessler		Date 5/1/82

MAK

Drafter:NE/PD/ENG:RHenrickson/GC/NE:MAKleinjan:paj:5/25/82:x28826

Best Available Copy

U.S. GOVERNMENT PRINTING OFFICE 1983—474 189/263

Reading File

TELEGRAM

INDICATE
☐ COLLECT
☐ CHARGE TO

FROM	CLASSIFICATION
AmEmbassy MUSCAT	UNCLASSIFIED

E.O. 11652: 12356: N/A

TAGS:

SUBJECT: Monitoring and Evaluation (M and E) System for the Wadi al-Khawd Aquifer Recharge Dam Project

ACTION: SecState WASHDC

UNCLASSIFIED MUSCAT _____

AIDAC

JC

AMB

DCM

CHRON

1. Summary - After several studies and discussions with JC, Ministry of Agriculture and Fisheries (MAF) has submitted ~~proposal~~ proposal for subject system with request for Dols 1 million grant to finance implementation. While JC endorses MAF proposal, detailed cost estimates of certain components and source of funds for some items remain to be determined. Time does not permit resolution of all issues prior to initiating implementation of program. Purpose of this cable is to request waiver to permit MAF to negotiate an amendment to Stanley Consultants, Inc. (SCI) contract for engineering services, supervision of construction and training services required to implement first phase of monitoring and evaluation system. Amendment will be funded from

DRAFTED BY:	DRAFTING DATE	TEL. EXT.	CONTENTS AND CLASSIFICATION APPROVED BY:
JC:DHMandel:nd	12/16/84		JC:DHMandel

CLEARANCES: JC:EMarkeset

JC grant.

2. Background - The PP for the subject project anticipated loan funding of the physical facilities required for the M and E system. It included a Technical Assistance Program (TAP) which would be financed by a Dols 1 million grant which was authorized at the same time as the loan. Since the PP was written there have been two studies, one by USCS advisor Lee Holt and one by G. Tavener of SCI. There have also been some changes in situation which affect the M and E system and the related TAP. As a result, a modified M and E and associated TAP have been proposed by the MAF.

3. Proposed monitoring and evaluation system -

A. Physical facilities. The M and E system will consist of a flume or weir upstream from the dam, located so as to measure the inflow of surface water. Below the dam, in the area to be recharged, the MAF will install two large diameter wells which can be pump tested and six piezometers to be used to determine groundwater levels and saline interface. Further downstream at appropriate locations, surface water gauges will be installed to monitor flood water runoff. The location of these facilities has been identified by Tavener. PAWR is installing a series of small diameter test wells on either side of and parallel to the wadi to be used to locate the fresh water/salt water interface. These wells will provide information on the dam's impact on salt water

intrusion. The MAF proposed to employ SCI, through an amendment to their existing contract, to provide design, procurement assistance and supervision of construction services. This phase would last about six months.

B. Training of MAF employees and analysis of data. The MAF has asked SCI to provide a proposal for training two MAF employees to collect data from the wells and gauges and to train MAF personnel in the analysis and application of the data. This phase would include a resident advisor for about six months after the physical facilities are installed. The advisor would conduct on-the-job training while operating the monitoring system. He would also develop procedures for analyzing the data and for operating and maintaining the dam. Some short-term training in the U.S. would be provided to officers of the MAF.

C. Cooperation with the PAWR. PAWR is very active in collecting data for use in determining the feasibility of other recharge projects. It is also setting up a comprehensive computerized data bank. As noted above, some of the essential measuring devices will be installed and operated by PAWR. The MAF will, therefore, enter into an agreement with the PAWR under which data will be exchanged. PAWR will also do related analysis using the data collected from the system. However, MAF must have the capacity to do its own analysis to insure that its needs are met. Hence the training program for MAF personnel described above.

4. Implementation Plan - MAF proposes to immediately contract with SCI for design and supervision of construction of physical facilities. They have a proposal from SCI already in hand which appears to be reasonable. MAF will procure well materials and installation will be by local contractors. SCI will assist the MAF in this effort. A construction contract for the weir will be let to a local firm on a competitive basis by the MAF with the assistance of SCI. SCI's proposal for training and technical assistance for collection and analysis of data will be available in time to include this element in the proposed amendment to the contract.

5. Activity Cost Estimates. The cost of SCI's design, procurement assistance and supervision of construction services is estimated at Dols 140,000. The preliminary cost estimate for the training and analysis component is Dols 160,000. The cost for equipping and installing the test wells and piezometers is estimated at Dols 250,000. The cost estimate for the weir is Dols 500,000. While the number of wells that will be installed will be less than originally estimated because PAWR is providing some of them, the weir will cost more than estimated. It will be a substantial structure as it must be able to withstand heavy flood flows. When SCI completes the final designs for the wells and the weir, accurate cost estimates will be available.

The TAP will cost considerably less than anticipated because some

of the originally planned elements (Phase II and parts of Phase III of the program as described in Annex F to the PP) will not be done (see para 8 below).

6. Funding - The MAF proposal requests complete financing of the M and E system and TAP with the Dols 1 million grant. We will review the status of dam construction funding with the MAF in order to determine whether funds from the loan and/or the MAF will be available for funding equipment and construction. An initial grant of Dols 300,000 will be made to fund the cost of SCI's services. Additional funds will be added, if necessary, after the funding review and final design of physical facilities is completed.

7. Implementation Schedule - The physical features of the M and E system must be in place as soon as possible to permit the gathering of baseline data and to be ready if and when heavy rains and flooding occur. From the practical point of view, the MAF would like to be able to seek construction quotations before CCC demobilizes as the dam contractor should be in a position to provide a very favorable price for this work. With dam completion scheduled for March/April 1985, this can only occur if SCI is authorized to proceed with the final design of the M and E system immediately. This will take about one month. With an immediate start, MAF will have time to request bids in February and enter into a contract or contract amendment in March. The

training element of SCI's work will begin when the wells, weir and other gauges are installed.

8. Changes in TAP -

A. Phase II of the TAP as presented in PP Annex F contemplated a major data collection and analysis effort by the MAF in other wadis along the Batinah Coast. Responsibility for basic hydrologic data collection is the responsibility of the PAWR. Over the past year, the JC has been working closely with the PAWR in an effort to assess the availability of data required to determine the feasiblity of other wadi recharge projects and to identify next the steps in collecting additional data. A major study by the PAWR financed consultants, Brown and Root, using a scope of work prepared with the assistance of JC financed consultants, ~~consultants~~ has just been completed. The JC is discussing with the PAWR implementation of the recommendations for additional studies contained in the report. The data and analysis resulting from the al-Khawd dam M and E system will be an important component of this overall effort. While the MAF will participate in collecting and analyzing data for wadi recharge projects, primary responsibility will remain with PAWR.

B. Phase III of the TAP described in the PP included training to generally strengthen the MAF's water resources staff. The MAF's training needs, which go beyond those directly related to the M and E system, will now be met under the JC's Scholarship and

Project. We are in the process of obtaining GOVOMAN approval to have Checchi, the project consultant, undertake training needs assessments and develop training plans for three sectors, one of which is water resources and would involve the appropriate sections of the MAF. The TAP will, therefore, be limited to training directly associated with the collection and analysis of al-Khawd data.

9. Request for Waiver of Competition

Problem: A waiver of competition in accordance with Handbook 11, Chapter 1, Section 2.4.2 is required to permit the MAF to amend the existing contract between SCI and the Ministry to add approximately Dols 300,000 to finance design, procurement assistance, construction supervision services and training for the installation and operation of a monitoring and evaluation system.

Discussion: The original contract provided for assistance in tendering for construction services and the supervision construction of the Wadi al-Khawd aquifer recharge dam. It also provided for some services related to the design and supervision of the installation of a monitoring system but did not include all the work required. An amendment to the existing contract will provide for SCI to design the M and E system, assist the MAF with procurement of required equipment, assist the MAF in contracting for construction services and supervise the

construction of the facilities. It will also include training and technical assistance for the collection and analysis of data. The total duration of services under the amendment would be about one year and the total estimated cost of the services is Dols 300,000.

A waiver of competition in the selection of a consultant is permitted by Handbook 11, Chapter 1, Section 2.4.2.a.4., when the borrower/grantee wishes to use a contractor previously engaged in the project for follow-on work and the contractor clearly has special capability by virtue of previous experience in the work. SCI has a predominant capability arising from its long association with the project. SCI designed the dam and is supervising construction. The company has also provided some services directly relating to the design and implementation of the M and E system including its preliminary design (i.e. Tavener report). SCI has an excellent working relationship with the MAF which adds to its capability.

Because of the low value of the work to be done and the short duration of job, other firms are not likely to be interested in a contract. There is also a need to expedite the work, as the dam construction period is drawing to a close and the M and E system should be in place by the time the dam is finished.

Recommendation: That you waive competition in the selection of a consultant to provide services related to the design,

installation and operation of a monitoring and evaluation system for the wadi al-Khawd aquifer recharge dam and allow the implementing agency to obtain the required services by amending its existing contract with SCI.

COUNTRYMAN

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR, NEAR EAST

FROM: NE/PD, Robert H. Bell

SUBJECT: Oman - Wadi al-Khawd Aquifer Recharge Project (Loan No. 272-0102 Grant sub-activity No. 272-0101.2) Sub-activity Authorization Amendment and Sole Source Waiver

PROBLEM: You are requested to amend the sub-activity authorization to permit the grant financing of necessary equipment for a system to monitor and evaluate the Wadi al-Khawd Aquifer Recharge Project, in addition to engineering services for the design and the construction of the system and training of Omani operating personnel. Your approval of a waiver to permit negotiation of a contract on a sole source basis with Stanley Consultants, Inc. ("Stanley") for these services is also requested.

DISCUSSION:

I. Sub-activity Authorization Amendment: The Wadi al-Khawd Aquifer Recharge Project (the "Project") is for the construction of a water retarding structure in the Wadi al-Khawd. The structure will capture storm water, which would otherwise run off to the sea, so that it can percolate down to replenish the underground aquifer. Because this is a pilot project involving an innovative design, a monitoring and evaluation component was included within the project to determine if the project could be successfully replicated elsewhere in Oman.

The PP originally envisioned that the aquifer recharge dam would cost $15 million (later increased to $16.8 million) of which A.I.D. would finance $7.5 million from loan funds. A monitoring system was designed as an integral part of the project. In addition to the loan, a $1 million grant was authorized (in the form of a sub-activity under the Project Grant Agreement between the Sultanate of Oman and the United States dated September 28, 1980) to fund a Technical Assistance Program (TAP) for monitoring and evaluation activities. Phase I of the TAP was to determine equipment needs, to oversee its purchase and installation, to train Government of Oman personnel in its use, to develop a program for data collection, to train Omani personnel for this task, to schedule analysis of the data, to analyze the data and to train Omani personnel in this analysis. Phase II of the TAP was to gather water resource data relating to other aquifers, criteria for indicators of potential

RECEIVED 16 FEB 1989

successful recharge candidates, and water use data. Phase III was to be short-term training. Although the sub-activity was authorized for TAP, no funds have yet been disbursed for these purposes.

The Government of Oman, upon the advice of the consulting engineers, has proposed changes in the design of the monitoring system based upon a better understanding of the hydrology and engineering requirements involved. The new design adds a weir or flume upstream of the dam with water gauges downstream to measure surface runoff. It also makes use of more wells than originally contemplated. The Government has requested the Joint Commission to use grant funds to help finance the increased costs of the monitoring system in view of the fact that Phase II of the TAP is being done parallel to the grant project by the Government of Oman primarily with its own funds. Phase III activities are properly part of the Scholarship and Training sub-activities.

The mission supports the Government's request which requires an amendment to the grant sub-activity authorization (Attachment A), which was limited to the provision of technical assistance, to include the provision of equipment. It is now intended to use the $1,000,000 of grant funds approved for this sub activity as follows:

Technical Assistance Program (Phase I)		$350,000
(Engineering services)	(100,000)	
(Training)	(200,000)	
(Contingency)	(50,000)	
Technical Assistance Program (Phase II and III) not covered by Government resources or under the Scholarship and Training sub-grant activities.		$300,000
Equipment and Installation		$350,000
Total		$1,000,000

Construction costs of the Flume estimated at $400,000 will be financed either from the loan or from the Government of Oman contribution to the project.

II. Waiver of Competition: The Government of Oman proposes to employ Stanley Consultants, Inc., the Architect and Engineering firm responsible for both the design and construction supervision of the recharge dam, to perform all of the engineering services connected with the construction and equipping of the monitoring system and to provide related training services. The contractor will conduct on-the-job training while operating the monitoring system. The contractor will also develop procedures for analyzing the data and for operating and maintaining the dam. Some short-term training in the U.S. would be provided to officers of the Government.

Note: We are only asking for a subgrant of 700,000 and not 1,000,000.

Stanley currently has a host country contract with the Government which will be amended to broaden its scope and add funds to carry out the additional functions.

Stanley was originally selected from among A.I.D.'s indefinite quantity contract ("IQC")1/ contractors to design the Wadi al-Khawd recharge dam. An IQC contractor was selected because of the desire to have the design contractor in place as quickly as possible, to provide concrete evidence of U.S. economic support for Oman.

The Government of Oman subsequently requested A.I.D. to finance a host country contract with Stanley for assistance in tendering for construction services and for the supervision of the construction for the Project. The Administrator, at your request, signed a waiver (Attachment B) authorizing negotiation with Stanley as a sole source, instead of following competitive selection procedures.

The Government of Oman's request to employ Stanley Consultants, Inc., requires a sole source waiver for three reasons: (1) the firm was not originally selected through a competitive bid procedure; (2) the scope of work, level of effort and financing will be significantly modified; and (3) the waiver authorizing follow-on work (Attachment B) was based upon an estimated cost of $800,000 which did not include training activities.

Moreover, Stanley has a special and a predominant capability arising from its long association with the project. Stanley designed the dam and is supervising its construction. Stanley has also provided inputs into the preliminary design of the monitoring and evaluation system. Stanley has an excellent working relationship with the Government of Oman implementing agency which adds to its capability. Handbook 11, Chapter 1, paragraph 2.4.2a4 provides that a waiver authorizing negotiation with a sole source instead of following competitive selection procedures may be authorized when: "The Borrower/Grantee desires to utilize a contractor previously

1/ A.I.D. has entered in indefinite quantity contracts with various contractors, under which the contractor is obligated to provide specified services when and if A.I.D. places a work order under the IQC. Contractors are initially awarded IQC's on a competitive basis. However, there are usually several IQC's in place for a specified type of service, and there is no competition requirement connected with issuance of a work order.

engaged in the project for follow-on work and the contractor clearly has special capability by virtue of previous experience in the work but the contractor was ... not initially selected on a competitive basis ..."

Because of the low value of the work to be done and the short duration of the work, other firms are not likely to be interested in a contract. There is also a need to expedite the work. The dam construction is expected to be completed by April 1985 and the monitoring and evaluation system should be in place by the time the dam is finished. The total duration of services under the amendment would be about one year and the total estimated cost of the services is $350,000.

Since the estimated value of the procurement ($350,000) does not exceed $1,000,000, under applicable A.I.D. regulations, the waiver approval may be made by AA/NE.

RECOMMENDATION: That you authorize the use of grant funds to finance: the design of, assistance in the procurement of equipment and construction services for, supervision of the construction of, and necessary equipment for the monitoring and evaluation system for the Wadi al-Khawd Aquifer Recharge Project, by signing the attached Authorization.

RECOMMENDATION: That pursuant to Handbook 11 you waive competition in the selection of a consultant to provide services related to the design, installation and operation of a monitoring and evaluation system for the Wadi al-Khawd Aquifer Recharge Dam and allow the implementing agency to obtain the required services by amending its existing contract with Stanley.

APPROVED _____

DISAPPROVED _____

DATE 30 JAN 1985

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523

ASSISTANT
ADMINISTRATOR

FIRST SUB-ACTIVITY AUTHORIZATION AMENDMENT

Name of Country: Oman (United States Oman Joint Commission on Economic and Technical Cooperation)

Name of Sub-activity: Technical Assistance Program (In Conjunctio with the Wadi Al Khawd Aquifer Recharge Project)

Number of Sub-activity: 272-0101.2

1. In accordance with Project Implementation Letter No. 5, Section IC9, for Grant No. 272-0101, dated September 28, 1980 between the United States of America and the Sultanate of Oman (the "Grant"), setting forth procedures for selecting sub-activities under the Grant, the Technical Assistance Project sub-activity was authorized on May 12, 1982 in conjunction with the Wadi Al Khawd Aquifer Recharge Project. That sub-activity authorization is hereby amended as follows:

(a) The Life of Project in Section 1, line 8, is extended one year to a cumulative total of four years;

(b) Section 2 is deleted in its entirety, and the following substituted therefor:

2. The sub-activity consists of the design and equipping of a system to monitor the effects of the Wadi Al Khawd Aquifer Recharge Project and a technical assistance program to complement the Wadi Al Khawd Aquifer Recharge Project by assisting the Ministry of Agriculture and Fisheries, Directorate of Water Resources and Irrigation (the "Ministry") to further develop and strengthen its staff through training and the provision of consultants for evaluating the results of the project and analyzing water resources data.

(c) Section B(d) is added to provide that all goods and services purchased with grant funds shall have their source and origin in the United States or Oman unless otherwise agreed by A.I.D.,

(d) The authorization cited above remains in force except as amended.

W. Antoinette Ford
Assistant Administrator
Bureau for Near East

30 JAN 1985
Date

ACTION MEMORANDUM

TO: David H. Mandel
Acting AID Representative

FROM: Edvard Markeset
Chief Engineer

DATE: September 3, 1985

SUBJECT: Oman - Wadi Al-Khawd Aquifer Recharge Project
(Loan No. 272-0102 - Grant Sub-Project No. 272-0101.2)
Waiver of Competitive Bid Procedures to Allow
Noncompetitive Negotiation for Construction Contract
Amendment.

PROBLEM: A waiver of competition in accordance with the criteria prescribed in Supplement B. Section 12C4.a of A.I.D. Handbook 1, and A.I.D. Handbook 11, Chapter 2, Section 2.3.3, is requested to permit the Ministry of Agriculture and Fisheries (MAF) to negotiate a ~~contract amendment for additional work outside the scope of the~~ original contract with Consolidated Contractors Company - Oman in joint venture with H. B. Zachry Company - U.S. (CCC/HBZ) to construct a flow measuring flume (weir) upstream of the Wadi Al-Khawd (WAK) Aquifer Recharge Dam as part of the monitoring and evaluation (M/E) system for this project. You can authorize this waiver under Redelegation of Authority 113.3D dated April 4, 1985.

DISCUSSION: The components of an M/E system and their financing under the loan and a separate subgrant were authorized by the Assistance Administrator, Near East Bureau (AA/NE), on January 30, 1985 by an amendment to the WAK Project Authorization. The system is designed to monitor the effects of the recharge dam and includes construction of a flume and installation of test wells and water gauges in the recharge area.

The Government of Oman proposes to employ the joint venture, CCC/HBZ, the construction contractor for the Wadi Al-Khawd Aquifer Recharge Dam, to construct a flow-measuring flume and related work upstream of the dam as part of the M/E System for the WAK project. The CCC/HBZ contract with the MAF under which it constructed the dam is still in effect and can be amended to increase its scope to perform the additional work.

CCC/HBZ was originally prequalified from among 15 contractors and joint ventures which submitted prequalification documents for the construction of the dam. CCC/HBZ was later selected on a competitive basis from a short list of 6 joint ventures for the construction services contract. Though all construction of the dam was completed May 1985, the contract remains in effect for a one year maintenance program which started May 1, 1985.

The duration of the construction services under the contract amendment would be 4-6 months and the total construction cost is estimated at $450,000 which will be financed from the balance of the $7.5 million AID loan to the Government of Oman for the WAK project.

The proposed flume is being designed by Stanley Consultants, Inc., who will also supervise its construction. Stanley also designed the dam and supervised its construction. At the same time the WAK Authorization was amended, AA/NE also waived competition to permit the Government of Oman to obtain the consultant services it required for the M/E system by amending the Stanley contract.

The MAF's request to employ CCC/HBZ requires a waiver for a noncompetitive contract amendment. Handbook 1, Supplement B, Section 12C4.a.(2)(b)1. and Handbook 11, Chapter 2, Section 2.3.3.a.(1) state that a waiver of competition may be granted if: "The borrower/grantee wishes to utilize the contractor for additional work outside the scope of the original contract and the contractor is still mobilized at the site or for some other reason the contractor is so closely related to the project that utilization of that contractor would effect a substantial saving of time or money." A

A waiver to permit the use of CCC/HBZ to do the follow-on work meets this criteria for several reasons:

a. The construction contractor, as a result of its work on the dam, has special knowledge of the area and the needs of the project. The contractor has available both manpower and equipment which it can use to rapidly mobilize.

b. The contractor has agreed to use the unit prices of the original contract, fixed several years ago in the formal competitive bid process, as a basis for arriving at the total cost of the contract amendment.

c. The time required for formal competitive tendering is substantial and would significantly delay the completion of the M/E system and the initiation of data collection.

d. The time and cost of engineering services will be increased substantially if competitive procurement procedures are utilized because the engineering consultant will have to prepare tender documents and evaluate bids.

e. Few qualified contractors will be willing to bid on a small job and if they do they are likely to ask for higher prices. The construction industry in Oman is working to full capacity to meet the demand for completion of many major projects in time for National Day and the GCC Heads of State Conference in late November. Most firms will not have the capacity to undertake more work until 1986. CCC/H.B. Zachary have indicated that they will mobilize as soon as the amendment is signed which should be in mid October 1985.

Action Memorandum
3 September 1985
Page Three

RECOMMENDATION: That pursuant to Handbook 1, Supplement B, Handbook 11 and Redelegation of Authority No. 113.3D dated April 4, 1985 you waive competition in the selection of a contractor to provide services related to the construction of a flow measuring flume of the M/E System for the WAK Aquifer Recharge Dam and allow the MAF to obtain the required services by amending its existing contract with CCC/HBZ. If you concur, please sign below and also sign cable attached advising AA/ANE of the waiver per Handbook 1, Supplement B.

Approved _____

Disapproved _____

David H. Mandel
Acting U.S. A.I.D. Representative
Omani-American Joint Commission
for Economic and Technical Cooperation

Date September 7, 1985

Non-Competitive Review Board

Arnold W. Squire, _____
Financial and Administrative Officer

Douglas Robertson, _____ per cable 07770
Regional Legal Advisor

Edvard Markeset, _____
Chief Engineer

MEMORANDUM

TO: Mr. F. Gary Towery
U.S. Representative

FROM: Edvard Markeset
Chief Engineer

DATE: 12 February 1986

SUBJECT: Oman - Wadi Al-Khawd Aquifer Recharge Project
(Loan No. 272-0102 - Grant Sub-Project No. 272-0101.2)
Waiver of Advertising in Local Newspapers and/or Journals
for Construction Contract Under $500,000

PROBLEM: A waiver of advertising in accordance with the criteria prescribed in Handbook 1, Supplement B, Chapter 12, Sections 12C3b and 12C4b, and Handbook 11, Chapter 2.4.2, is requested to permit the Ministry of Agriculture and Fisheries (MAF) to issue requests for proposals (RFP) to five or six shortlisted drilling companies for the downstream monitoring facilities for the Wadi al-Khawd (WAK) Recharge Project as part of the Monitoring and Evaluation (M/E) system for this project.

DISCUSSION: The components of an M/E system and their financing under the loan and a separate subgrant was authorized by the Assistant Administrator, Near East Bureau on 30 January 1985, by an amendment to the WAK Project Authorization. The system is designed to monitor the effects of the recharge dam and includes construction of a flume and installation of test wells and water gauges in the recharge area.

The Government of Oman proposes to issue RFP's to five or six local well drilling companies which have previously carried out similar works for the Ministry, all of whom have met the Ministry's standards in executing work and have been rated as excellent or first grade contractors in accordance with Government standards. The duration of the construction services would be about three months and the total construction cost is estimated at $200,000 which will be financed from the $700,000 subgrant agreement for the M/E system signed 10 April 1985.

The contract documents for the downstream monitoring facilities have been prepared by Stanley Consultants, Inc. who will also supervise the tendering process, contractor selection, equipment procurement and provide the construction supervision. Stanley also designed and supervised the construction of the dam and is presently supervising the construction of the flume (weir), the other component of the M/E system.

JUSTIFICATION:

1. It is urgent to proceed with the implementation of this phase of the (M/E) system since the Technical Assistance Program (TAP) is contingent upon the start of construction of this contract. As soon as site work is initiated on this phase of the monitoring system, Stanley's training engineer will arrive in Oman to develop and present a training program for MAF to prepare Omani personnel to carry on the activities of the M/E system. Furthermore, this phase of the M/E system should be implemented in conjunction with the construction of the wadi flume so that the training engineer can train the Omanis in the operation of the flume and its gauging system as well.

   Going through formal advertising will unduly delay this phase of the project. Advertising of this short-term contract will involve at least two months at the best.

2. Issuing RFPs to short-listed contractors for small contracts, less than R.O. 100,000, without advertising is a common practice within all Ministries. All contractors, who will receive RFPs, have previously been selected by the Ministry through use of formal competitive procedures and have been retained on the Ministry's register of firms as a result of their satisfactory work.

3. Competition for this contract is not being waived since the Ministry will issue the RFP to five or six contractors and the award will be made to the lowest and most responsive proposal submitted.

AUTHORITY: To issue this waiver under Redelegation of Authority 113.3D dated April 4, 1985.

RECOMMENDATION: It is recommended that you waive advertising of this contract action and authorize the Ministry of Agriculture and Fisheries to issue an RFP to a short list of five or six firms.

Approved: F Gary Towery

Disapproved: _____

Date: 12 February 1986

Cleared by: DHMandel (in draft)
DRobertson (in draft)

EMBASSY OF THE
UNITED STATES OF AMERICA

Muscat, Sultanate of Oman

AGENCY FOR INTERNATIONAL DEVELOPMENT

December 26, 1982
Letter No. 486/82

His Excellency Mohammed Musa
Undersecretary
DIRECTORATE GENERAL OF FINANCE
P. O. Box 506
Muscat

Your Excellency:

Satisfaction of "Conditions Precedent to First Disbursement"

The Project Loan Agreement for the Wadi al-Khawd Aquifer Recharge Project, signed between the Sultanate of Oman and the United States on 18 August 1982, provides in Section 5.3 for notification of the Borrower when the conditions precedent of Article 5, "Conditions Precedent to Disbursement," have been met. This letter confirms that the conditions of Section 5.1, "First Disbursement," were satisfied as of 15 December 1982.

Section 5.1 of Article 5 sets forth the conditions precedent to initial disbursement under the loan. The four conditions set out have now been satisfied as follows.

Section 5.1(a) requests an opinion of counsel that the agreement has been duly authorized and executed and is a valid and legally binding obligation of the Borrower. Secretary General Hassan Said Mohammed's letter of 22 August 1982 presenting the legal opinion satisfies the requirement of Section 5.1(a).

Section 5.1(b) requests a statement of the names of the persons representing the Sultanate of Oman and a specimen signature of each representative. The certificate attached to Minister Abdul Hafidh Salim Rajab's letter, No. 375/82 of November 1982, to Minister Yusuf al-Alawi Abdulla naming you as Undersecretary of the Directorate General of Finance and himself as Minister of Agriculture and Fisheries and enclosing specimen signatures meets the requirement of this Section 5.1(b).

Section 5.1(c) asks for evidence that the Project has been approved by the Co-Chairmen of the Omani-American Joint Commission for Economic and Technical Cooperation. This requirement was met by Joint Commission memorandum No. 126 of 25 April 1982 signed by the Co-Chairmen on June 19, 1982.

Section 5.1(d) requires evidence that the Borrower owns the land required for the project and has no objection to its use for this project. Minister Ahmed Abdullah al-Ghazali, in his letter to Minister Abdul Salim Rajab of 13 December 1982, ref. No. 313, provided confirmation that the land required for the project is the property of the Government of the Sultanate of Oman and that it has been agreed that it shall be used for the purpose of the project.

The terminal date for meeting the conditions of Section 5.1, established in Section 5.4, is hereby extended to December 26, 1982.

The "Additional Conditions for Specific Disbursements" of Section 5.2 have not yet been met. These two conditions call for the submission of contracts for (a) engineering services and (b) construction services. The terminal date for meeting these conditions, as set forth in Section 5.4, is 150 days from the date of the Loan Agreement.

Sincerely yours,

FOR THE U. S. AGENCY FOR
INTERNATIONAL DEVELOPMENT

Chester S. Bell, Jr.
U. S. Representative
Omani-American Joint Commission

Copy to His Excellency Abdul Hafidh Salim Rajab
Minister
Ministry of Agriculture and Fisheries

XC: H.E. Yusuf al-Alawi Abdulla
Ambassador Countryman
Mr. Hamood Hilal al-Habsi
Mr. Richard Burns (2)