UNCLASSIFIED

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

55p.

PROJECT PAPER

Proposal and Recommendations For the Review of the Development Loan Committee

SYRIA - Euphrates Basin Irrigation Maintenance

AID-DLC/P-2167

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June 3, 1976

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: SYRIA - Euphrates Basin Irrigation Maintenance

Attached for your review are the recommendations for authorization of a loan to the Government of the Syrian Arab Republic ("Borrower") of not to exceed Seventeen Million Six Hundred Thousand United States Dollars ($17,600,000) to assist in financing the foreign exchange costs of goods and services required to support an irrigation system maintenance project in the Euphrates Basin area.

No meeting has been scheduled for consideration by the Development Loan Staff Committee; however, your concurrence or objection is requested by close of business on Thursday, June 10, 1976. If you are a voting member a poll sheet has been enclosed for your response.

Development Loan Committee
Office of Development Program Review

Attachments:

Summary and Recommendations
Project Analysis
Annexes A-T

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE ("X" appropriate box)
[X] Original [ ] Change [ ] Add [ ] Delete

PP

DOCUMENT CODE 3

2. COUNTRY/ENTITY: Syria Near East

3. DOCUMENT REVISION NUMBER:

4. PROJECT NUMBER:

5. BUREAU: a. Symbol: ; b. Code: SA

6. ESTIMATED FY OF PROJECT COMPLETION: FY 81

7. PROJECT TITLE - SHORT (stay within brackets): [Euphrates Basin Irrigation Maintenance]

8. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL mo. 6 yr. 76; b. FINAL FY 76

9. ESTIMATED TOTAL COST ($000 or equivalent, $1 = LS4.00)

a. FUNDING SOURCE	FIRST YEAR FY 76 b. F.X	c. L/C	d. Total	ALL YEARS e. F.X	f. L/C	g. Total
AID APPROPRIATED TOTAL	17,600	--	17,600	17,600	--	17,600
(Grant)	(--)	(--)	(--)	(--)	(--)	(--)
(Loan)	(17,600)	(--)	(17,600)	(17,600)	(--)	(17,600)
Other 1	--	--	--	--	--	--
U.S. 2	--	--	--	--	--	--
HOST GOVERNMENT	--	1,388	1,388	--	1,388	1,388
OTHER DONOR(S)	--	--	--	--	--	--
TOTALS	17,600	1,388	18,988	17,600	1,388	18,988

10. ESTIMATED COSTS/AID APPROPRIATED FUNDS ($000)

a. Appropriation (Alpha Code)	b. Primary Purpose Code	c. Primary Tech. Code	FY ____ d. Grant	e. Loan	FY ____ f. Grant	g. Loan	FY ____ h. Grant	i. Loan	ALL YEARS j. Grant	k. Loan
		TOTALS								
11. ESTIMATED EXPENDITURES										

12. PROJECT PURPOSE(S) (stay within brackets) [ ] Check if different from PID/PRP

[To provide the Ministry of the Euphrates Dam with the capability and means to repair and maintain, in the Euphrates/Balikh River Basins, irrigation, drainage and reclamation works covering 95,000 hectares of agricultural land by the end of 1980.]

13. WERE CHANGES MADE IN BLOCKS 12, 13, 14, or 15 OF THE PID FACESHEET? IF YES, ATTACH CHANGED PID FACESHEET.

N/A (No PID or PRP) [ ] Yes [ ] No

14. ORIGINATING OFFICE CLEARANCE

Signature: Sidney B. Sauerbrey

Title: Dep Dir / NE (ED)

Date Signed: mo. 06 day 03 yr. 76

15. Date Received in AID/W, or For AID/W Documents, Date of Distribution: mo. 05 day 28 yr. 76

AID 1330-4 (7-75)

EUPHRATES BASIN IRRIGATION MAINTENANCE PROJECT

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ANNEXES

PROJECT COMMITTEE

Chairman:	William Larson, NE/CD
Engineer:	James Watson, SER/ENGR
Counsel:	Charles Costello, GC/NE
Desk:	Kurt Teil, NE/ME
USAID Rep:	Michael Kingery, USAID/Damascus
Consultant:	James Stephenson

EUPHRATES BASIN IRRIGATION MAINTENANCE PROJECT

I. SUMMARY AND RECOMMENDATIONS

1. Borrower: The Government of Syrian Arab Republic (SARG)

2. Loan

a. Amount: Not to exceed $17.6 Million

b. Terms: Repayment within forty (40) years, including a grace period of not to exceed ten (10) years. Interest at the rate of two per cent (2%) per annum during the grace period, and three percent (3%) per annum thereafter.

3. Description of the Project: The goal of the project is to insure sustained agricultural production on 95,000 hectares of reclaimed and irrigated lands in the Balikh River Basin lying along the Euphrates River, a short distance downstream from the dam at Tabqa.

The purpose of the project is to maintain and repair, as necessary, the irrigation and drainage works in the 95,000 hectares of irrigated land in the Balikh basin.

The project will provide:

a. Engineer equipment and vehicles for irrigation system maintenance.

b. A primary equipment maintenance and repair shop at Raqqa and four smaller satellite shops in the project area.

c. Technical assistance in establishing and initially operating the repair and maintenance facilities.

d. Training of equipment operators and repair and maintenance shop personnel.

4. Project Cost: Total cost of $18.988 million, of which $17.6 million is in foreign exchange, and $1.388 million is in local currency. The AID loan will finance the foreign exchange and SARG will finance all local costs.

5. Summary Findings: It is clear that a project such as this, which encompasses institution building, construction of facilities, massive procurement of equipment, a large consulting services contract, recruitment and training of local personnel, would be difficult to orchestrate at best. In the present case, all of the above which are difficult of themselves must be handled with an executing agency who will encounter for the first time the peculiarities of implementing an AID-financed project. It will not

be easy; in fact, it will be enormously frustrating at times for both AID and the Borrower. Nonetheless, given the desire by GADEB for the output of the project -- indeed, their recognition of the absolute necessity of it -- and the competence of top management responsible for execution, it is believed that the project will be successful.

The various elements in the proposed project were built up block-by-block in close consultation with the GADEB irrigation department, both at the top management and operating levels. Thus the goods and services proposed for the project are considered appropriate and the cost estimate reasonably firm.

6. Issues: None.

7. Other Sources of Financing: None.

8. AID's Funding Source: Supporting Assistance.

9. Mission Views: The U.S. Embassy and the AID Representative to Syria strongly support the proposed Project.

10. Statutory Checklist: All statutory criteria have been met. (See Annex T.)

11. Recommendations: That a loan in the amount of $17.6 million be authorized on the terms listed in paragraph 2(b) above.

II. GENERAL BACKGROUND

The Syrian Arab Republic (SARG) has undertaken intensive development of irrigation in the Euphrates Basin based on the water storage and regulation of flow provided by the large dam (60 meters high, 4,500 meters long) constructed on the Euphrates River at Tabqa (Al-Thawra) in northern Syria. The dam has been completed and filling of the 7.4 billion cubic meters (m^3) live storage reservoir (Lake Assad) which commenced at the end of 1973 reached design capacity early in May, 1976.

The area of land in the Basin considered by the SARG to be technically suitable for irrigation is 640,000 hectares (ha). About 200,000 ha situated in the Euphrates Valley lowlands have been historically irrigated from natural river flows.

A. Project Background: For development of irrigation, the SARG (through the General Administration for the Development of the Euphrates Basin -- GADEB, an organization under the Ministry of the Euphrates Dam), has given priority to the Balikh region beginning some 20 km downstream from the dam where good soils can be irrigated by gravity flow from the reservoir or by relatively low pump lifts. (See map, Annex "A"). A Pilot Project area of 20,000 ha was developed concurrent with dam construction and is now in operation with water supplied from a temporary pump station pumping water directly from the Euphrates River some twelve kilometers below the dam. A number of other irrigation projects in the Balikh region are in various stages of development. The farthest advanced are in the lower basin and the Mid-Euphrates Basin Project (27,000 ha) lying along either bank of the Euphrates in the vicinity of Raqqa.

- Balikh Section 1. Contract awards have been made for 10,000 ha (the Bir al Hashim area) of Section 1 and tenders have been invited for the balance of 12,000 ha. This work is being done with the assistance of a $73 million World Bank loan for the Balikh Irrigation Project (headreach canal, Units I and II) authorized in 1974.

- Mid Euphrates Basin. A construction contract agreement was negotiated and signed in February, 1976, for this work -- 27,000 ha -- to be carried out by ROMAGRIMEX (a Rumanian government agency).

- Balikh Section 2. Design has been completed on Balikh Section 2 (26,000 ha) which lies east of the Balikh river and extends some 50 km along the bench on the left bank of the Euphrates. While the financing for this work is uncertain, SARG intends to complete it by the end of 1980. The major portion of Section 2 was included in the World Bank loan mentioned above; however, bidding experience to date on Section 1 indicates a serious shortfall in funding for the original Bank project (41,000 ha) which was to cover both Section 1 and about 19,000 ha of Section 2.

Design has been completed on 12,000 ha of Section 3 (21,000 ha) which lies on the terrace north and east adjacent to Section 2. Funding for Section 3 has been arranged under a Protocol Agreement between SARG and Yugoslavia. No construction work is expected to begin in this section soon as its supply of water must come from the Section 2 main canal which is at least three, possibly four, years away.

GADEB is proceeding with planning for additional irrigated lands (Sections 4, 5 and 6) in the Balikh Basin but actual development of these areas is years away.

Two other areas to the west and south of the Balikh Basin are also being developed by GADEB. They are the Ressafe Plain (25,000 ha), presently under design by a Bulgarian firm and the Meskene - Aleppo area (120,000 ha) which is being developed with USSR and Japanese assistance. Both these relatively high plains areas will be irrigated by high lift pumping from Lake Assad, behind the Euphrates Dam. Beneficial operation of these projects is years away and they are not considered here except for possible future expansion of shop maintenance facilities described hereafter.

The land in the Balikh area is approximately 90% Government owned. The balance is either privately owned or farmed by cooperatives formed by the Government to take over previous large holdings under the Agrarian Reform Act. An existing law enables the Government to purchase private lands in the project area. The intention of the Government is to conduct farming operations through State farms (as presently done in the Pilot Area) or as cooperatives. The exact plan for allocation of landholdings to farm families has not been finalized. Present thinking is that an average of 5.3 hectares will be allocated per farm family.

B. The Project: The AID project here proposed will address the maintenance needs of irrigation systems which have been or will be completed by the end of 1980, specifically:

- The Pilot Project Area	20,000 ha
- Balikh Section 1	22,000 ha
- Mid-Euphrates Valley	27,000 ha
- Balikh Section 2	26,000 ha
Total	95,000 ha

The above are "net-irrigated" areas. Involved in serving these areas are some 800 km of main supply and branch canals, 900 km of secondary canals and flumes, 500 km of main surface drains, 800 km of roads, and ten major pumping stations.

The project is designed to:

1. Provide equipment necessary for upkeep and repair of canals, drains, associated roads and pumping stations.

2. Establish repair and maintenance shop facilities for the above equipment, to include technical supervision and training.

3. Provide training for engineer equipment and vehicle operators.

C. Other Donors: Other donors are active in the broad field of irrigation development in the Basin -- World Bank, USSR, Japan, Yugoslavia, Rumania, Bulgaria and the UNDP. To date, the general problem of irrigation systems maintenance has not been addressed, although under the Balikh Irrigation Project the World Bank allocated $1.1 million for operation and maintenance equipment. The equipment list was project-specific and maintenance items included would be minimal in relation to the overall GADEB requirement in the Euphrates Basin. It is entirely likely that, in view of the cost overruns being experienced on the Balikh project, none of the Bank loan proceeds will be available for this purpose.

III. PROJECT DESCRIPTION

A. Background: The IBRD appraisal completed in 1974, dealing with construction of Sections 1 and 2 of the Balikh irrigation recognized the need for maintenance and supporting facilities. Field review of the situation by AID in September 1975 indicated the need for not only up-graded equipment maintenance and repair facilities but for adequate spare parts and a training program. This project is planned to assist the GADEB in correcting existing deficiencies and to upgrade its capability to deal with the expanded needs as new irrigation systems are constructed and begin operation.

B. GADEB Management Role and Capabilities

1. Leadership: All technical departments of GADEB, as well as that of the Ministry, are headed by highly qualified engineers, experienced in carrying out large capital projects. The SARG plans for reclamation of the 640,000 ha of the Euphrates Basin are among the more ambitious economic development undertaking in modern times. It is recognized as such by the SARG, and priority is accordingly given it, financially, as well as in many other ways. While domestic politics does figure in high level decisions on leadership assignments, there is no doubt that assigned personnel are qualified and capable.

2. Structure: The organization was established by Presidential Decree in 1968. The legal authorization for the Ministry and GADEB to carry out the assigned tasks is clear and unquestioned. The organization as shown in Annex "J" is functional, and generally works well. As more and more land comes under irrigated agricultural production, some modification may be required due to the fact that unforeseeable management considerations may require it. At present it is adequate. As the equipment population density

grows, the GADEB maintenance organization will accommodate itself to the increased maintenance workload. A weakness in GADEB is the lack of experience in maintenance of large irrigation systems. It should be recognized in this connection that maintenance of the existing 20,000 ha Pilot Project has been unusually demanding due to major failures in the canal structures because of unique problems with gypsiferous soils. The Ministry and GADEB have held conferences with internationally recognized technical experts to find a solution to this special problem, with some results. We expect, however, that Syria will some day be the source of the world's leading experts in handling gypsiferous soils. This project is designed to address this problem, as well as the more routine matters of irrigation/drainage system maintenance.

3. SARG Commitment: The maintenance activity presented in this paper is virtually a new activity of GADEB. There is no question that the role of the implementing agency includes that of system maintenance, and there is clear recognition of the importance and absolute necessity of being capable of meeting the assigned responsibility. The urge to use the waters stored behind the Euphrates Dam is compelling, with the impetus beginning in the Office of the President. The most visible result of this declared urgency is the vigor with which GADEB is entering into construction contracts for irrigation and drainage work in the Balikh. This has in no way, however, displaced the interest or attention of GADEB in quickly attaining the organic capability to maintain and repair the completed works.

4. Resources: From discussions with GADEB and Euphrates Ministry officials it appears evident that GADEB enjoys within SARG a high priority with respect to claims on financial and personnel resources required to carry out the work of GADEB. The Ministry of Euphrates has the priority for assignment of personnel, from within Government, and in recruiting from technical and professional schools.

A basic 50% post differential is paid to all personnel assigned in the area. Depending on job classification and incumbent experience and skill, an additional 25-75% is paid to all employees. Thus, engineers receive up to 125% of their basic salary in post differential. There is no apparent difficulty in obtaining the necessary personnel at any level of the organization. An ambitious program of housing construction is underway in the area, and will be expanded as necessary to accommodate further increases in staff necessitated by this project. Housing is given to key GADEB employees for a nominal sum per month.

The operational elements of GADEB are headquartered at Raqqa where facilities include administration buildings, warehouses, minor shops and staff housing. GADEB now employs about 4,200 people, 53 of whom are directly connected to the present small maintenance infrastructure in Raqqa. It owns and operates over 40 pieces of

equipment including some 22 pieces of canal or road maintenance oriented heavy equipment located in Raqqa.

C. GADEB's Maintenance and Construction Capabilities: The design, construction, operation and maintenance of civil works is the responsibility of the Irrigation Department of GADEB. Contracted A&E services are used for major civil works, but a significant amount of design work is done by GADEB, as in the case of buildings and utilities in the farm communities, and primary roads. Almost all construction services are contracted out, with only minor works done by force account.

At present, maintenance of facilities, civil works and equipment is divided, with each department responsible for maintenance in its own area; agricultural machinery by the Agriculture Department, irrigation system and other civil works by the Irrigation Department, and transport vehicles by the Communications Department. About 300 pieces of equipment are involved.

Looking ahead, a vastly expanded operation will be necessary. By about 1990 the Irrigation Department will have some 95,000 ha of irrigation system to maintain, compared to 20,000 ha now; the Agriculture Department will have 3,000 tractors and combines, compared to 220 now. In view of the magnitude of the tasks involved and the different demands on the different Departments, it is considered essential that the equipment and maintenance operations of the two sectors be organized separately.

A Bulgarian consultant has prepared a proposal for a "Machine-Tractor Station" to service and repair farm machinery. No definitive action has yet been taken on the proposal. The project herein proposed would not deal with farm machinery but would be confined to the maintenance of irrigation systems and related infrastructure.

D. Project Design

1. Project Goal: The goal of this project is to ensure to the extent possible the sustained production of agricultural products on reclaimed and irrigated lands comprising 95,000 hectares of the Balikh River basin. Key assumptions to the accomplishment of this goal are a) timely, successful completion of the construction of the irrigation and drainage systems; b) continued availability of water for irrigation, and electric power for necessary pumping; c) availability of a productive farm labor population; d) that all other necessary elements other than those above are available in a timely sufficient manner, e.g., farm credit to the extent required, State-owned or cooperatively managed farm communities are organized that are compatible with whatever private farmers exist, to provide the necessary inputs for agricultural production (fertilizer, seed, insecticides, rodenticides, etc.).

2. Project Purpose: The purpose of the project is to maintain and repair as necessary the irrigation and drainage works comprising the 95,000 hectares of irrigated land in the Balikh River basin. Important assumptions are a) GADEB is given the means to establish and maintain the necessary qualified staff for Operation & Maintenance activities; b) financing and other means are available to GADEB for full operation of the shop facilities and equipment operation.

3. Project Outputs: The outputs of the project, by major category are maintenance and repair of: a) all canals; b) drains; c) water regulation and other structures in the canal system; d) pumping stations; e) roads in the project area. Key assumptions made that effect the accomplishment of these outputs are (a) acceptable equipment availability through effective shop and spare parts support; b) maintenance requirements are sufficiently predictable to allow scheduling; c) trained, or trainable personnel are available in sufficient number.

4. Project Inputs: Inputs are technical assistance, machinery, equipment, materials for construction, skilled and unskilled labor, and training.

E. Technical Design: The quantitative base for this maintenance project is the magnitude of the irrigation system(s) it is designed to service. At the present time, only the Pilot Project (20,000 ha) is in operation. As discussed in Part I, GADEB has a number of schemes, in various stages of planning but only three are advanced to the point where construction completion dates can be forecast with reasonable confidence, i.e., Balikh Section 1 (22,000 ha), Balikh Section 2 (26,000 ha), and the Mid-Euphrates Basin Project (27,000 ha). For Section 1 construction contracts have been signed for 10,000 ha with bids to be opened May 31, 1976 for the remaining 12,000 ha. For the Mid-Euphrates work an agreement was signed in February 1976 with ROMAGRIMEX (A Rumanian government agency). Balikh Section 2 final designs are complete and due to be tendered for construction this year. We are therefore targeting for a total of 95,000 ha to be completed by the end of 1980, as follows:

Pilot Project	20,000 ha	Complete
Balikh Section 1		
Bir al-Hashim area	10,000	1978
Balance	12,000	1979
Mid Euphrates Valley	27,000	1980
Balikh Section 2	26,000	1980
Total	95,000	1980

The irrigation development plans were examined to identify the principal features requiring maintenance by the Irrigation Department as follows:

Main Supply and Branch Canals	800 km
Secondary Canals and Flumes	900 km
Main Surface Drains	500 km
Pump Stations	10 each
Roads, secondary and tertiary	800 km

From the above, the equipment population necessary to maintain the various facilities was determined taking into account seasonal shutdowns of canals, response to emergency situations, and geographical spread of the system.

From the total equipment population flowed the requirement for maintenance, repair parts and shop facilities and, in turn, the technical assistance and training input necessary to establish an effective, self-sustaining facility.

As discussed in greater detail hereafter, the project will provide:

1. Mobile and special equipment for irrigation system maintenance.

2. A primary maintenance and repair shop and parts depot at Raqqa, with four secondary satellite facilities at locations in the Pilot Project, Section 1, Section 2, and the right bank of the Mid-Euphrates Project. (See Annex "A").

3. Technical assistance in establishing and operating the maintenance facilities.

4. Technical assistance in training of equipment operators, shop and parts personnel.

F. Equipment and Spare Parts

1. Inventory and Condition of Existing Equipment: An inventory of the present Irrigation Department equipment can be found in Annex "E". Examination of this equipment reveals a serious lack of maintenance which is attributed to lack of spares, repair facilities, administrative capability and mechanics. In addition, due to shortage of proper types of equipment, the existing machines suffer from forced use in applications for which they are not designed, thus aggravating the maintenance problem.

2. AID Financed Equipment: Annex "D" details AID-financed equipment proposed for maintenance of the Irrigation

Department's irrigation systems and related infrastructure. The equipment so listed represents the amount necessary to handle the 20,000 ha Pilot Project and to meet the early years' requirements as Sections 1 and 2 and the Mid-Euphrates come on stream. Purchase under the proposed loan of the total equipment requirement for the 95,000 ha under full operation would be a premature expenditure, resulting in many pieces being unutilized (or at best, under-utilized). The purchases here proposed will provide a working nucleus of equipment to maintain the system in the near term (4-5 years) to which will be added future requirements as construction and beneficial operation progresses. Under no circumstances should the proposed equipment list be expanded quantitatively to match additional area brought under irrigation. The equipment proposed here is basic for the level of effort foreseen starting from virtually zero. As a new area is developed, a new analysis of overall equipment requirements must be made. Maintenance equipment needs are not necessarily progressive; nor is the concept correct that a bigger maintenance fleet is better than a small one. In view of this, no attempt has been made to project the maintenance equipment needs beyond 1980.

3. AID Financed Spare Parts: At the time of purchase of equipment described above, spares to the value of 15% (average) of the equipment cost should be purchased. The detailed spares list will be recommended by the equipment bidder; actual purchase to be made after review by GADEB and its Consultant.

G. Repair and Maintenance Facilities

1. An inspection of the facilities now devoted to maintenance has been made and reveals that these facilities, originally established by the contractor who built the Pilot Project, have been adapted for emergency support of those works. The contractor, upon departure, removed all installed machinery and equipment. The present shop areas are built in a square compound with buildings surrounding a central parking area. Construction is of concrete block with metal roofing and prefabricated metal buildings. These facilities cannot be incorporated effectively into the new building plan, but might serve the needs of other GADEB activities, as discussed with GADEB officials.

2. Inventory of Machinery and Tooling: Equipment and tooling presently available must be termed as inadequate for the maintenance of the engineer equipment presently on hand. Only minor pieces are adaptable to the new facility planned, and for this reason no attempt has been made to inventory and list these items for this purpose.

3. AID Financed Maintenance and Repair Facilities: GADEB has proposed a site which is acceptable for the new maintenance facility. Close to road and rail lines, and with access to utilities, there is adequate space for the planned maintenance complex. The

AID-financed structure for the maintenance facility will be of pre-fab steel construction and will involve approximately 2,100 m^2 of covered floor area. A proposed floor plan is shown in Annex "G". This facility will include areas for classroom use that can eventually be converted to additional spare parts storage as the program expands. In addition to the main repair facility at Raqqa, four satellite maintenance stations of approximately 280 m^2 each will be established within the service areas. (See Annex "H").

It is impractical at this juncture to forecast the scale of expansion of shop facilities in the future; whether, for example, the Raqqa facility would be expanded or a second major facility established at another location because of geographical considerations. The Raqqa facility proposed herein will be laid out and sited in the final design so that expansion will not be foreclosed.

4. AID Financed Shop Equipment (Tooling): Annex "F" details shop equipment (tooling) which is for maintenance and repair of engineer equipment and vehicles. An analysis of these lists and recognition of the complexity of the machines reveals the importance of technical assistance to assure proper utilization of the equipment.

H. Technical Assistance and Training

1. Technical Assistance Needed: To date, the requirements for irrigation system maintenance by GADEB have been small. Only the Pilot Project is in operation; facilities are new with irrigation having commenced in the initial unit in 1973 with others following in 1974. This is not to say there have been no problems; sections of canal have collapsed, or been on the verge of collapse, due to gypsiferous soils underlying canal linings going into solution and undermining the structures. Thus the primary maintenance activity has been of an emergency reconstruction nature.

Existing GADEB manpower levels are low. Only 11 equipment operators and 13 mechanics are on board. The minimal spare parts stock on hand is managed by 2 parts clerks. Supervisory personnel are sufficient in number, but they, as well as all the others, are inexperienced and need training. Fortunately, GADEB personnel seem aware of their shortcomings, and are eager to get technical assistance and training.

It is clear from the above that present capabilities can hardly be considered even a nucleus for the project proposed herein. Therefore, a prerequisite to a technical assistance input is the consideration of the capability of GADEB to recruit or otherwise provide personnel to operate the equipment and staff the maintenance facilities. This was discussed at length with GADEB.

- Source of Personnel: There are a number of technical "high schools" and vocational training centers in Syria. The product of these schools will be the primary source of GADEB recruits for shop personnel and engineer equipment operators. Due to the importance to the country of the Euphrates development, GADEB has first call on the graduates of these schools. Further, as mentioned heretofore, to attract staff to Raqqa, GADEB base salaries are boosted by a "post differential" of 75% to 125%.

- Housing: GADEB normally provides housing for staff at a nominal charge. Considerable building is currently underway at Raqqa (80 flats in one building) and villages have been and will be built throughout the project area.

- Budget: GADEB operates on appropriated funds and thus must deal with the vagaries of annual fund allocations. Given the high priority of Euphrates development, necessary fund allocations have been forthcoming. Though it is clear GADEB does not have carte blanche, discussions with officials indicate that Euphrates Basin projects have not suffered from lack of funds and there is no reason to believe that this situation will not continue.

In sum, GADEB will have to launch a considerable effort to staff the new repair shop and provide operators for the new irrigation maintenance equipment; however, there appear to be no major obstacles to its accomplishment.

a. Provision of Technical Services: Technical services must be provided to design, assist in monitoring construction and commission the shop(s) and to supervise the initial operation of the maintenance and repair facility, to train shop personnel (both managers and technicians), and to conduct training for heavy equipment and vehicle operators.

Such services would be provided through a consulting services contract with a U.S. firm over a period of four years, providing approximately 430 man-months of effort. A summary outline of the scope of work for a consultant contract follows:

(1) Given the composition of the engineer equipment and vehicles to be maintained by GADEB, at present, as well as through the year 1980, design central shop facilities for all levels of maintenance of that equipment through rebuild and overhaul (5th echelon -- see Annex "M" for definition) using either prefabricated metal buildings of the type available in standard size from U.S. suppliers, or local construction methods on a least cost basis (including time considerations). Provision for repair parts and training functions will be incorporated in the structure. The shop should be designed in such a manner that it may be expanded in the event of future needs.

(2) Prepare tender documents for procurement of building components (in conjunction with GADEB) for construction of the facility.

(3) Recommend for GADEB and AID approval a list of tools and equipment needed to accomplish 5th echelon maintenance and overhaul of engineer and vehicular equipment.

(4) Prepare in specification detail the invitation for bids for the machine and other shop tools for competitive procurement for approval by GADEB and AID. Assist GADEB with the evaluation of the bids, and recommend award of purchase contracts.

(5) Supervise erection of shop facilities and installation of the machine tools and related repair and maintenance equipment.

(6) Provide expatriate U.S. personnel for supervisory duties in various key departments of the shop to work with counterpart GADEB personnel for production operations in the shop and concurrent on-the-job training (OJT).

(7) Review equipment assets and design basic spare parts stocks to support the operation of the equipment. Supervise the Parts Department operation and train GADEB personnel in all aspects of repair parts logistics management.

(8) Conduct classroom instruction for GADEB shop personnel, in accordance with a program of instruction to be proposed by the Consultant and approved by GADEB and AID.

(9) Conduct Engineer equipment and vehicle operator training to ensure that GADEB operator personnel attain an acceptable degree of operating skill, and understand the requirements for and methods of applying 1st and 2nd echelon (operator) maintenance checks and adjustments.

(10) Provide supervisory services for mobile field maintenance teams, charged with performing emergency and routine maintenance activities in field locations within the project area.

(11) Submit monthly reports to GADEB and AID describing in detail the progress of maintenance shop production activities, spare parts activity, and training progress.

b. Irrigation Maintenance Equipment Design: For project design purposes this paper presents AID's and GADEB's professional judgment on the type and quantities of engineer equipment and vehicles needed to perform irrigation works maintenance (see Annex "D"). However, the unusual nature of the problems in the pilot project area (attributable to gypsiferous soils) have led us to propose, and the Ministry of Euphrates Dam has agreed to, the utilization of AID grant funds to procure the services of Engineering

Consultants, Incorporated (ECI) under an AID Requirements Contract to give GADEB an independent, professional recommendation on maintenance equipment requirements. ECI presently has other AID-financed work in the Euphrates Basin, and their scope of work will be expanded to include the following:

"Examine the completed irrigation works and surrounding terrain in the Pilot Project Area, and together with considerations of projected new works in the Balikh Basin, and a review of GADEB's present planned equipment list, recommend the type, size and quantity of equipment and vehicles necessary to maintain and repair an estimated 800 km of Main and Branch canals; 900 km of Minor canals; 500 km of Main Drains; and 800 km of roads in the 95,000 ha project area".

We anticipate that these services (reflected in the PPTN, Annex "C") will be complete by 31 July 1976, which will allow timely preparation of specifications and IFB's for GADEB procurement.

2. Training

a. Background and General Approach: The fact that the present Irrigation Department maintenance staff is barely sufficient to cope with its sparsely equipped operation dictates heavy emphasis on training. While GADEB will have priority access to technical and vocational school outputs, we anticipate and have planned for extensive efforts in on-the-job training (OJT) supplemented by platform instruction to cover areas of weakness discovered. The approach is to train trainers, so that there is some foreseeable point in time when the consultant can disengage from this part of the operation, and turn it over to indigenous personnel qualified to handle whatever training requirements remain for GADEB over the long term. The cadre will be formed of carefully selected Syrian personnel, either from vocational schools or from the private sector who are experienced, and possess the English language skills to work with the consultant, and in some cases, as recommended by the consultant, undertake off-shore training in the U.S. These cadre will serve as the nucleus of trainers in the shop operations, as well as in field equipment operation which will stress operator maintenance and techniques of operation calculated to prevent maintenance problems before they happen. It is not planned to undertake basic training of raw recruits, since graduates of existing training facilities will fill this important need.

b. Off-Shore Training (Participants): Certain skills critical to the successful operation of the maintenance shop will be acquired by medium-term tours of training in the U.S.A. In 1978, carefully selected Syrian personnel, qualified in English, will be sent for periods of training at U.S. manufacturers' facilities, to become thoroughly qualified in the following skills (the list is to be subject to review by the consultant):

(1) Crankshaft welding and grinding.

(2) Hard chrome plating.

(3) Testing and adjustment of power shift transmissions.

(4) Fuel injectors and fuel pump testing and repair.

(5) Hydraulic systems repair and maintenance.

(6) Repair parts logistics management.

(7) Maintenance facility management.

These men, upon return to Syria, will be paired with U.S. expatriate personnel to work together as a team with other lesser trained shop personnel for OJT in various shop areas.

c. Operator Training: Proper attention to this area of training will pay handsome dividends, and this project will conduct platform instruction and practical exercises in operation of the U.S. equipment and vehicles which constitute one of the inputs to this project. U.S. expatriate personnel, teamed with English speaking Syrian cadre, will train GADEB operators in equipment operation techniques, and place heavy emphasis on 1st and 2nd echelon (operator) maintenance so that all personnel understand the requirements of before, during and after-operation operator checks and adjustments.

d. Technical Platform Training: Because of the sophistication of U.S. equipment, and the fact that new developments frequently occur, it is planned to conduct classroom training as required to familiarize shop personnel with new techniques, new types of equipment and machine tools, and to retrain older, experienced personnel. This training will then be put to use in the shop, in production applications under the supervision of U.S. expatriate personnel/cadre teams.

e. On-The-Job Training (OJT): OJT will prevail in the day-to-day operation of the shop departments. By careful selection and training of cadre personnel, and equal care in selection of non-English speaking shop workers, the shop can meet production goals while at the same time increasing the skill levels of all personnel involved in the shop. These expatriate/cadre teams will be located in the following areas:

(1) Line Maintenance (overhaul, hydraulic transmissions, track repair).

(2) Engine Overhaul (brakes, dynomometer, pump and injector, chrome plating).

(3) Operation Maintenance (machine shop, electric shop, blacksmith and welding, carpentry).

(4) Spare Parts and Purchasing.

(5) Field Maintenance (satellite shops, mobile shops, greasing units).

f. Repair Parts Supply Management Training: It is difficult to find an area of maintenance operations that is more critical than this. All other areas of maintenance are totally dependent on the timely supply of repair parts of the right type and quality. It is not uncommon to find a $75,000 machine deadlined for days because of the lack of a 23¢ part, such as an O-ring for part of the hydraulic system. GADEB is starting from ground-zero in this area, and will require considerable assistance in planning of basic stock levels, reorder points, inventory control (stock record cards), procurement, etc. The consultant will conduct necessary classroom training, and in a supervisory role, conduct OJT in an operational spare parts department in support of shop operations.

g. Consultant level of effort:

	Man Months
1 Chief of party	25
1 Office Manager	24
1 Machine Shop Technician	18
1 Hydraulic Shop	24
1 Engine Overhaul	24
1 Electric Shop	12
6 Maintenance Mechanics	
3 @ 24 months	
3 @ 18 months	126
1 District Maintenance Spec. (Field Maintenance)	24
1 Vocational Education Specialist	30
1 Equipment Operator Training Specialist	24
1 Spare Parts Management Specialist	28
Miscellaneous Short-Term Specialists	12
	371

Upon determination by the Consultant and AID that the Consultant's involvement is no longer required in a specialty, that training function will be turned over to GADEB cadre personnel.

IV. COST ESTIMATE

The equipment listed in Annex "D" is estimated to cost approximately $7 million f.o.b. Allowing for a 10% physical contingency factor, and an average of 15% of acquisition cost for spare parts,

brings the total for equipment and spare parts to approximately $8.8 million f.o.b. Ocean freight has been calculated at 30%, which includes port surcharges, and assumes 100% use of U.S. bottoms.

In the summary cost estimate which follows, local currency capital investment by SARG is shown for the maintenance shops and consulting engineers services. Recurring local costs, such as utilities, building maintenance, salaries, equipment operating costs, etc., are not included. These were discussed with GADEB, who recognizes the obvious need for budget planning for these necessary expenditures.

Contingencies were separately calculated for various categories of inputs, since they vary by category, as do the escalation rates. Annual inflation rates used in computing overall compounded escalation rates are 6%/year for U.S. costs of goods and services, and 10%/year for local costs through 1980.

Summary Cost Estimate

Description	AID (000)	($ 000) SARG (000)	Total (000)
Maintenance Equipment	10,774	12 1/	10,786
Shop tools and Equipment	1,056	4	1,060
Shop Buildings	650	585	1,235
Consulting Services	2,282	319	2,601
Participant Training	133	--	133
Sub Total	14,895	920	15,815
Physical Contingencies	1,116	181	1,297
Sub Total	16,011	1,101	17,112
Escalation	1,589	287	1,876
TOTAL	17,600	1,388	18,988

1/ Exchange Rate: $1.00 = LS 4.00

V. PROJECT JUSTIFICATION

Capital investment in the four basic areas of irrigation and drainage works totalling 95,000 ha net is projected to total $480 million equivalent. The design life of these works is 35 years, with an overall internal economic rate of return of approximately 11-12%. On a pure economic basis, the return on the investment would suffer as a result of any reduction in the life of the works.

It is not practical to attempt to quantify the benefit stream from the project if it is operated without maintenance. Qualitatively, however, it should be safe to say that project life would be significantly reduced, and while the discounted cashflows for later years in the benefit stream would have small effect, one must assume that the cash flows in early years would be seriously reduced if the project is not maintained. Loss of water for a sustained period, due to failure of the system during the growing season, could result in catastrophic crop losses and loss of income to the project. Accordingly, one can only conclude that the irrigation and drainage system must be maintained in order to sustain an acceptable return on the investment.

As a practical matter with economics aside, the goal of the Euphrates Basin Irrigation Project, to produce agricultural products and introduce social development, would unquestionably suffer if the project is not properly maintained. This effect, in contrast to the economic considerations, would be highly visible, and have great adverse impact on the Syrian domestic scene.

This project, the capital investment of which constitutes a mere 4% of the capital cost of the works being maintained, is unquestionably a sound investment in the overall project, and will serve to ensure continued acceptable levels of system capability to provide water for agricultural crop production in the area.

VI. IMPLEMENTATION

A. Background

1. The General Administration for the Development of the Euphrates Basin (GADEB) was established in 1968 as an executing agency of what is now the Ministry of the Euphrates Dam. It is charged with the responsibility for integrated development of the basin area, including the irrigation and drainage works, and will be the implementing agency for this project. GADEB has four operational departments each headed by a Deputy Director General: Irrigation, Agriculture, Social Affairs, and Administration and Finance. The post of Director General of GADEB is recognized by the SARG as one of great importance, and it is to be filled at all times by a person fully qualified in the management of a large irrigated agricultural project. See Annex J for an organizational chart of GADEB.

2. In the 4th Five Year Plan, including the years 1976-1980, GADEB has been allocated the equivalent of $1,584 million. This sum represents 7% of the total plan funds, and 41% of the total funds allocated for the agriculture/irrigation/land reclamation sector in Syria. It constitutes 57% of the total $2.77 billion allocated for the capital investment in works to be carried out by GADEB. GADEB is responsible for completing the studies on 640,000 ha (the total of the Euphrates Basin project); completion of the reclamation (including civil works) of 240,000 ha; and bringing into agricultural production a total of 119,000 ha of land in the area by the end of 1980.

3. Past and present activities of GADEB consist of planning and implementing the resettlement of the families displaced by inundation of lands behind the Euphrates Dam; planning and supervision of the 20,000 ha Pilot Project in the Balikh Basin; research activities at various experiment stations; planning and management of various consulting services for the development, design and construction of irrigation and drainage systems; development of farms and all supporting infrastructure, for the areas constituting the focus of this project; operating and maintenance of the Pilot Project system and agricultural production of the lands included therein.

B. GADEB Irrigation Department

1. This Department, with a staff of 750, including 320 professionals, is responsible for the preparation of designs, contract administration and management of technical and construction services for the irrigation and drainage system, including roads, housing and utilities in the project area. GADEB has employed three consulting firms, Technoexportstroy (Bulgaria), GERSAR (France) and ROMAGRIMEX (Rumania) to prepare designs, specifications, tender documents and construction drawings for much of the work in the project area.

2. In addition, the Irrigation Department is responsible for the operation and maintenance of the irrigation/drainage system, including the pumping and power stations, housing and utilities, and road net in the project area. While most new civil work is done under contract, this department does plan to undertake construction of some connecting secondary and tertiary roads on a force account basis.

3. The Irrigation Department will have primary responsibility within GADEB for implementing the proposed AID project, supported by the Office of Procurement which will be responsible for final approval and award of contracts and purchase of materials, machinery and equipment.

C. Procurement: The Office of Procurement under the Director General, GADEB, in coordination with the Irrigation Department, will be responsible for contracts for goods and services. Invitations for bids (IFB) from suppliers will be prepared, with input of technical specifications from the Irrigation Department, and will be subject to AID approval prior to issuance. Bid evaluation and award, with AID approval, will take place in Raqqa, the operational headquarters of GADEB. U.S. consulting services will be contracted for to design shop facilities, prepare equipment and machinery specifications for the shop and assist in evaluation of supplier bids for the Irrigation Department and Procurement Office. The consultant will assist with evaluation of bids for shop construction/erection and supervision of construction contractor activities.

Consulting services will be competitively procured by GADEB, using procedures in general conformity with AID Handbook 11.

All contracts will be host country contracts, with AID interest as lender recognized. All goods and services financed by this loan will be of U.S. source and origin exclusively and will be procured on the schedule foreseen in the Project Performance Tracking Network, Annex "C".

D. AID Role in Implementation

1. For the most part, AID will play the role of financier for this project. Due to the fact that the implementing agency, GADEB, and its parent Ministry of the Euphrates Dam, has no experience in implementing AID-financed activities, substantial attention will have to be given to this project by AID. While all contracts for goods and services will be Borrower contracts, AID approvals must be planned for. Major monitoring/approval/evaluation actions of AID are listed below.

- Approval of solicitation of Consultant expressions of interest.
- Approval of prequalification short list of consulting firms.
- Approval of request for technical proposals.
- Consultation, approval of technical specifications for engineer equipment and vehicles for system maintenance.
- Approval of IFBs for engineer equipment and vehicles.
- Approval of Consulting firm selection, after review of technical proposals.
- Approval of draft consulting contract, and evaluation of cost proposal.
- Approval of negotiated contract terms and conditions and price of consulting services.
- Monitoring of Consultant performance, approval of key expatriate personnel.
- Approval of shop design and machinery specifications for procurement.
- Approval of IFB's for shop structure and equipment procurement.
- Approval of training plans.

2. The complex nature of this project, particularly as it involves procurement of U.S. goods and services, maintenance shop operations, repair parts logistics management, and training of shop personnel as well as equipment operators will require close overall attention on the part of AID. Proper attention to AID's interest in the project will be difficult from Damascus; therefore, the Project Committee recommends consideration be given to the assignment of a full-time AID direct-hire project manager to be located at Raqqa. Such an AID representative should be qualified to provide strong assistance to the GADEB Office of Procurement in the preparation of bidding documents for a large amount of engineering equipment early in the project.

E. General Implementation Schedule

1. Loan Schedule

Loan Authorization	15 Jun 1976
Loan Negotiated and signed and Implementation Letter #1 Issued	30 Jun 1976
Loan Ratified by SARG	30 Sep 1976
Initial CPs met 1/	31 Dec 1976
Subsequent CPs met	30 Jun 1977
Terminal date for requesting Letters of Commitment	31 Mar 1980
Terminal Disbursement Date	31 Mar 1981

2. Project Schedule

GADEB Irrigation Department, with the guidance, advice and approval of AID, will perform the actions necessary to implement the project on the following schedule:

1/ The extended time required to meet initial CPs is due to the fact that a signed consulting services contract in this project is the crucial initial CP. Clearly, no procurement should proceed in the absence of an approved consulting service contract for the project as a whole. Past experience in Syria shows that seven to nine months may be necessary for the process from advertisement to an approved signed contract.

Solicit expressions of interest for consulting services	31 Jul 1976
Prequalified firm short list	15 Oct 1976
Issue RFP for consulting services	31 Oct 1976
Issue IFB (engr. equipment)	30 Nov 1976
Select firm and request cost proposal for consulting services	15 Jan 1977
Open bids for engr. equip.	31 Jan 1977
Sign consulting svc. contract	1 Mar 1977
Award engr. equip. contracts	31 Mar 1977
Shop design brief complete	30 Jun 1977
Issue IFB for shop buildings	1 Sep 1977
Shop final design and machine tool list complete	30 Nov 1977
Begin participant trainee selection	1 Jan 1978
Sign local civil works contract for shop construction	30 Apr 1978
Sign shop tool contracts	15 May 1978
Sign spare parts contracts, begin participant training	30 Jun 1978
Engineer equipment field commissioning complete	31 Dec 1978
Participant training, shops, parts procurement completed, consulting services enter phase II (training)	31 Jan 1979
3 remaining satellite shops complete	30 Jun 1980
Consulting services terminate	31 Jan 1981

F. Tentative Training Plan: In devising a training plan to assure effective operation of engineer equipment and vehicle supported by effective maintenance/repair facilities, one begins from the base that (a) the Irrigation Department's present staff of operators and mechanics is negligible vis-a-vis the requirements

four years hence, and (b) GADEB will be able as discussed heretofore (Part II, H.1.a.) to recruit and/or transfer readily trainable people for timely insertion in the training cycle beginning early in 1978 and continuing into 1980.

The detailed planning and implementation of the training plan will be a task performed by the Consultants.

Training Requirements

This project envisages training in four broad categories:

-Maintenance facility management.
-Spare parts management.
-Shop mechanics/technicians.
-Mobile equipment operators.

1. Maintenance Facility Management: An executive staff of seven is foreseen for the central workshops to include: a Director of Maintenance, a Deputy Director, and five Assistant Directors responsible respectively for central shop Line Maintenance, Engine Overhaul and Rebuild, Spare Parts and Purchasing, Field Maintenance, and Shop Facilities Maintenance. The personnel filling these positions will be trained mainly on-the-job by the Consultant's field staff having responsibility for establishment and initial operation of maintenance facilities (See Part II. H. 2. g.). The project makes provision for participant training in the U.S.; the Director of Maintenance would be a likely candidate for such participant training.

2. Spare Parts Management: This aspect of operating a maintenance facility cannot be over-emphasized. Its importance is illustrated by provision of an expert in this field by the Consultant for a full 24 months. This individual will establish the parts control and purchasing system and will be responsible for training the Spare Parts Manager and his basic staff of eight in the Central Shop and four in the satellite shops. Such training would consist of on-the-job training supplemented by platform training, arranged by the Consultant's Vocational Education Specialist plus participant training in the U.S. for the Spare Parts Manager at an appropriate time.

3. Shop Mechanics/Technicians: This will be a major training effort involving the basic mechanic/technician staff of 130 (see Annex "K"). The program will be organized and conducted to cover both on-the-job and platform training by the Consultant's specialists in the shop and the Vocation Education Specialist. Further, technicians for certain highly specialized operations, e.g., crankshaft welding and grinding, chrome plating, testing and adjustment of power shift transmissions will receive training in the U.S. for upgrading of skills and preparation for assisting with training of shop personnel.

4. Engineer Equipment and Vehicle Operators: This will be a major training effort that will in time vastly affect the load on shop facilities. A basic staff of 152 operators of various machines (see Annex "L") will be taught in courses of fairly short duration -- two weeks for truck drivers, two months for heavy equipment operators -- not only how to "operate the levers" but also to perform daily operational checks and first echelon maintenance (see Annex "M" for definition). Training initially will be organized and carried out by the Consultant's Equipment Operator Training Specialist and Vocational Education Specialist. On-the-job checks and up-grading will be a continuing function of the Consultant's Field Maintenance Specialist in cooperation with the Operator Specialist.

It is emphasized that training will be a continuum for the life of the project. The numbers indicated above for equipment operators and shop basic staff will not come on board en masse but will feed in as the requirements for maintaining the irrigation system escalate from 20,000 hectares (present) to 95,000 hectares by 1981. Further, as the project progresses the Consultant's specialist's activities will move toward training of trainers to accommodate replacements and expansion of mechanic and equipment operator staff and away from heavy involvement in day-to-day shop operations as in-house skill is developed.

G. Disbursement: Only foreign exchange costs incurred after satisfaction of conditions precedent, will be eligible for financing from loan proceeds. Eligible costs include costs of commodities and services of U.S. source and origin when incurred under AID approved procurement processes. The costs of land, rights-of-way, permits, taxes, customs duties, and other local currency costs will not be eligible for AID loan financing and will be financed directly by SARG.

In the event that total project costs run over the $17.6 million presently estimated, the loan agreement will require that SARG provide the additional funds required.

Loan proceeds will be disbursed for dollar costs of the project through standard AID Letter of Commitment/Letter of Credit procedures. However, provision will be made for other AID approved methods of disbursement of loan proceeds, should circumstances require.

The nature of the project requires a series of sequential events to be accomplished, each of which is prerequisite to that which follows (see Project Schedule VI. E. 2, page 21). Termination of training activities in January, 1981, will mark project completion. Therefore, the terminal disbursement date for loan proceeds is March 31, 1981.

The loan proceeds to finance the foreign exchange costs (including contingencies and escalation) of the proposed project are projected to be disbursed approximately as follows:

	Calendar Years ($000)				
Item	1977	1978	1979	1980	1981
Maintenance equipment	5,000	5,574	--	--	--
Parts	--	1,682	--	--	--
Shop tools & equipment	--	1,125	161	--	--
Participants	--	67	66	--	--
Consulting services	141	164	1,001	1,326	442
Shop buildings	--	646	205	--	--
	5,141	9,258	1,433	1,326	442

H. Repayment Prospects: The most recent IBRD economic report for Syria states that the short-term prospects (1975-1980)1/ for the Syria economy appear to be favorable and would be greatly enhanced if peace is restored to the area. In the projection, GDP growth rates of 8½% per annum (10% in 1975), and growth of exports (goods plus non-factor services) of 12% per annum are predicted for that time period.

At the end of 1974, Syria's debt service payments on external public debt (excluding military) of $702 million was estimated at $52 million. This is equivalent to about 5% of exports of goods ($784 million) and non-factor services ($272 million) in 1974. Although no reliable figures are available on 1975 external public borrowings, it is probable that they were substantial. Projected public sector investments, given the estimates of public sector savings, will require additional borrowing abroad by the SARG to finance its ambitious investment programs.

In view of the improved prospects of the Syrian economy and the relatively low debt services rates in 1974, Syria should have no problems servicing the modest additional debt relative to this proposed project.

VII. ENVIRONMENTAL AND SOCIAL CONSIDERATIONS; ROLE OF WOMEN

A. Environmental Consideration: This project consists, in the main, of maintenance and repair of civil works built from studies and designs incorporating environmental examination. As such, there is no direct environmental implication from this project except for those possibly arising from construction of the shop facilities.

1/ Current Economic Position and Prospects of Syria, October 31, 1975, EMENA CP 11-C, Report No. 806-SYR. See particularly table on p. 21 (Macro-Economic Projections (1980)).

The shop areas, covering a total of approximately 17 hectares at five locations, will be sited on SARG-owned land and will not displace housing. Construction involves building erection, and site preparation on relatively level terrain with a minimal amount of earth moving. The shops will not contribute to air pollution; waste water and other liquid wastes will be disposed of in septic tanks and drain fields.

B. Social Considerations: This project will create jobs for 300 technical and skilled workers, as well as additional employment for administrative overhead personnel. The training and experience gained by GADEB personnel will broaden the spectrum of non-farm labor skills in the area. We can also expect some spread effect, due to turnover of trained personnel as some inevitably resign to take employment outside the area, or become employed in other similar activities in the area. Other than these effects, the social impact anticipated from this project is negligible.

C. Role of Women: GADEB already has a number of women employed, some being in professional positions such as engineers, architects, and executive assistants. This project does not promise significant direct impact on the role of the Syrian woman, however. Other than a few jobs in the administrative organization (including spare parts logistic management) and possibly, in time, for light vehicle drivers, the nature of job duties require physical strength generally not possessed by the Syrian female -- operating heavy construction equipment under poor work conditions, heavy shop work for the most part, etc.

VIII. EVALUATION PLAN

Though no attempt was made at the time to lay out the details of an evaluation plan, it was clear from many discussions with the GADEB Deputy Director General-Irrigation during the course of development of the project paper that AID would receive full cooperation in evaluation of the project; indeed, he would welcome it.

As indicated in Part V above, it would be purely a cerebral exercise to attempt to quantify the benefit stream from agricultural production in the 95,000 hectares project area with and without irrigation system maintenance. It is indisputable nonetheless that the system must be maintained in order to function and insure sustained food production. It is proposed therefore that the Evaluation Plan concern itself primarily with how well the establishment of an effective system maintenance capability is proceeding. As a corollary, data might be collected showing the annual agricultural output in the project area throughout the project life.

a. At the time of main repair shop commissioning (projected February 1979 on the PPTN) the project should be evaluated in terms of completion of physical facilities, adequacy of staffing, state of training, and delivery of engineer equipment and spare parts.

b. One year later, an expanded evaluation would be made up-dating the above but also delving into (1) actual maintenance work performed on the irrigation system, (2) dead-line rate of engineer equipment, (3) the quantity and quality of maintenance/repair work passing through the shops in the year under review.

c. At the end of the project approximately one year later (TDD end of March 1981 on the PPTN) a repeat of b. above would be performed.

Realistically the base index for irrigation system maintenance by GADEB is zero. Such activities in the project area to date have been concerned almost wholly with emergency repair of canal breaks (or threatened breaks) due to unforeseen gypsiferous soil conditions.

IX. CONDITIONS PRECEDENT, COVENANTS & LOAN NEGOTIATIONS

A. Conditions Precedent

1. To initial disbursement, including consulting services and engineer equipment:

a. Ratification by SARG & Legal Opinion

b. Specimen signatures of Borrower Representative(s)

c. Signed construction contracts for irrigation and drainage works in Section 1 of the Balikh Basin

d. Signed consulting service contract

e. Approved tender documents for engineer equipment procurement.

2. To subsequent Disbursements for shop, shop equipment and training:

a. Final design of maintenance shop facilities including installed equipment requirements in specifications detail.

b. Completed staffing, recruitment and training plan and program.

B. Covenants

1. The Borrower covenants to make the proceeds of the loan available to GADEB so that GADEB may implement the project directly.

2. The Borrower shall warrant that the project will be carried out with due diligence and efficiency, in conformity with sound engineering and management practices. All plans, contracts, schedules, and other arrangements mutually approved pursuant to the Loan shall be conformed to. The Borrower shall provide, or cause to be provided, qualified and experienced staff, as well as persons capable of becoming qualified through reasonable training activities to cause the project to achieve its purpose, and to provide promptly as needed all funds, in addition to the Loan, and all other resources required for the punctual and effective carrying out of the project.

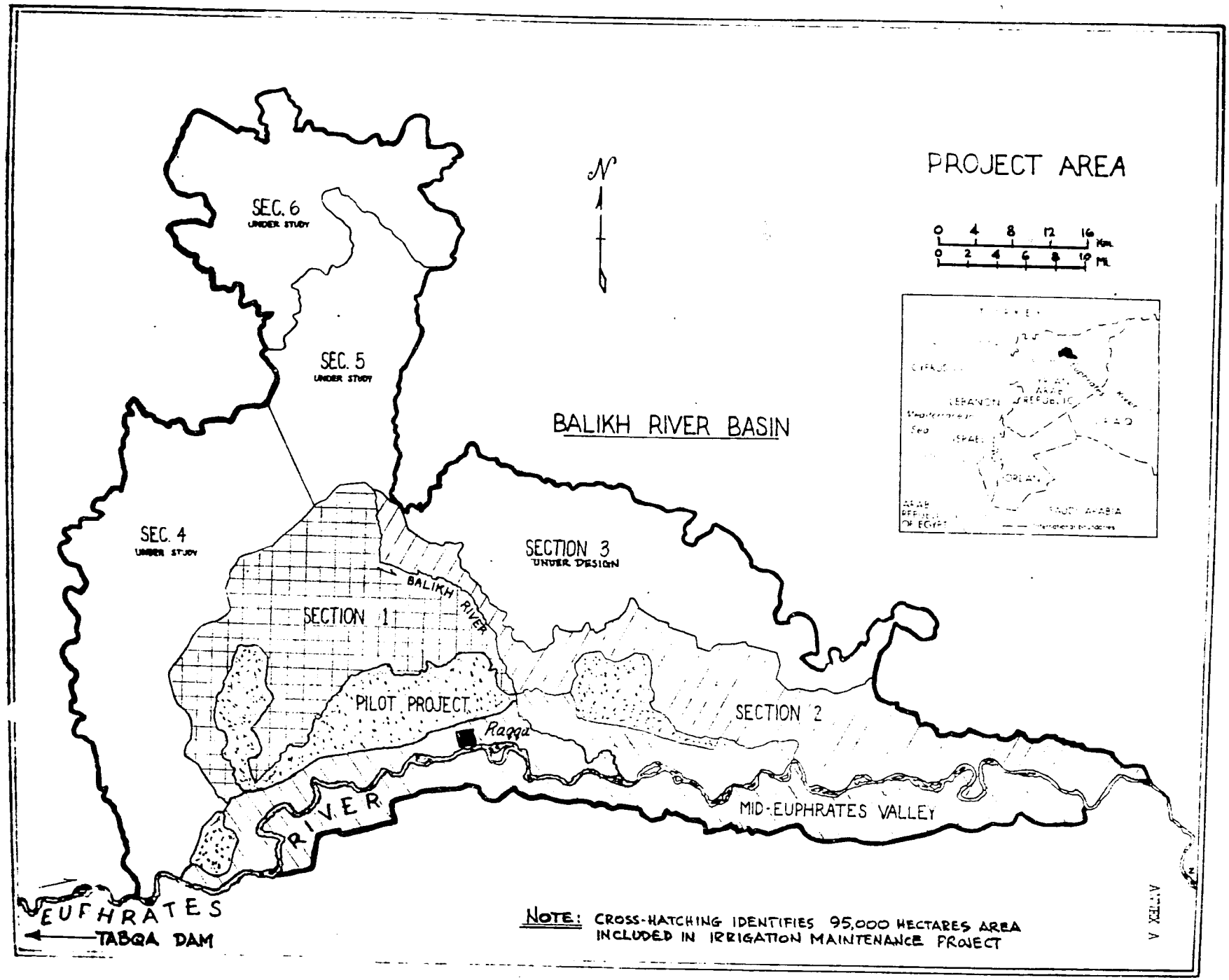
C. Implementation Documents: The Loan will be made to the SARG central government, with the Borrower's Representative expected to be the Deputy Minister of State,Planning Affairs. Additional representatives are expected to be the Minister of the Euphrates Dam and the Director General, GADEB. The proceeds of the Loan will be passed through to

GADEB as described in B-1 above. To clarify this relationship, a draft Implementation Letter No. 1 will be prepared and negotiated together with the Loan Agreement prior to issuance by A.I.D. A separate Project Agreement format might be used if such an approach becomes necessary. Such a Project agreement should be executed, or an Implementation Letter issued, at the time the Loan Agreement is executed.

D. The Project Defined: For use in the Loan Agreement a project description is attached as Annex "P".

E. Loan Negotiations: The Ministry of the Euphrates Dam and GADEB made the request for this project (represented by SARG's application at Annex "R") with an understanding of the general terms and conditions of the Loan Agreement. However, it is anticipated that upon negotiating the Loan Agreement, considerable discussion and explanation of terms and condition dealing with geographic codes, shipping and insurance, AID approvals, rights of audit, and other implementation matters will be required in order for the Ministry and GADEB to understand them and agree on final wording of the Project Agreement or I/L #1 concurrent with Loan Agreement signing.

· ANNEXES ·


PROJECT AREA
N
0 4 8 12 16 Km
0 2 4 6 8 10 Mi
BALIKH RIVER BASIN
SEC. 6
UNDER STUDY
SEC. 5
UNDER STUDY
SEC. 4
UNDER STUDY
SECTION 3
UNDER DESIGN
BALIKH RIVER
SECTION 1
PILOT PROJECT
Raqqa
SECTION 2
MID-EUPHRATES VALLEY
EUPHRATES RIVER
EUPHRATES
TABQA DAM
NOTE: CROSS-HATCHING IDENTIFIES 95,000 HECTARES AREA INCLUDED IN IRRIGATION MAINTENANCE PROJECT
ANNEX A

EUPHRATES BASIN IRRIGATION MAINTENANCE PROJECT

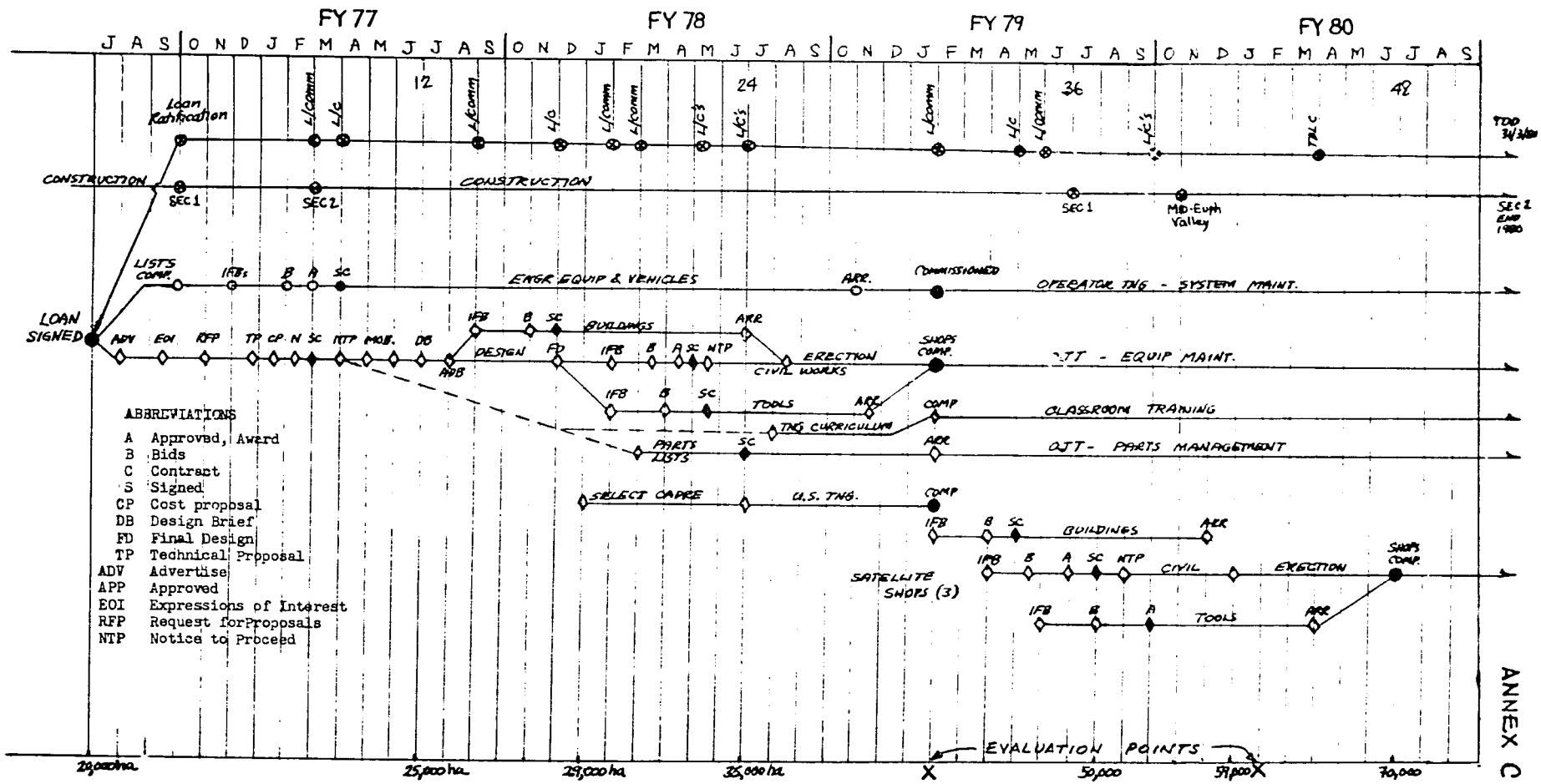
LOGICAL SUMMARY

		MEANS OF VERIFICATION	
GOAL: Target area progresses beyond self-support in agriculture to positive contribution to SARG agricultural production.	Measures of Achievement: Agricultural output sufficient to maintain positive benefit-cost ratio for area under irrigation.	1. Reports and records of the SARG 2. Field inspection	1. Sustainable, timely completion of the irrigation system. 2. Continued availability of water and electric power. 3. Availability of a productive farm labor force. 4. Effective maintenance program for farm machinery. 5. Availability of agricultural credit and farm inputs (seed, chemicals, etc.)
Purpose: To ensure continued operation and effectiveness of completed irrigation and drainage works and related structures in the Balikh River Basin.	End of Project Status: 1. Repair and maintenance facilities plant and staff fully operational year round. 2. Equipment deadline rate within acceptable percentage (15-30% range). 3. Irrigation water available as needed to farmers during agricultural year.	1. Reports and records of DADEB. 2. Reports of U.S. consultants. 3. Field inspection of USAID. 4. End of project evaluation.	1. DADEB is given means to obtain and maintain necessary staff. 2. Financing for operations of shops and engineer equipment is available
OUTPUTS: 1. Satisfactory completion and commissioning of equipment repair and maintenance facilities. 2. Field commissioning of engineering and other equipment for system maintenance. 3. DADEB staff, in sufficient number and type, trained and in service. a. Participants (No.) b. Locally trained personnel (No.) 4. Maintenance Repair of: a. Net Irrigated Area (ha) b. Canals, Flumes, & Drains (km) c. Pump Stations (each) d. Roads (km)	MAGNITUDES: 2/79 (main facility + one satellite shop completed) 7/80 (three satellite shops completed) 8/79 (field commissioning completed) CY77 CY78 CY79 CY80 10 170 121 29,000 42,000 59,000 95,000 670 970 1,310 2,200 3 4 9 10 245 350 500 800	1. Reports and records of SARG. 2. Reports of U.S. Consultants. 3. USAID field evaluation.	
INPUTS: 1. Technical Assistance. 2. Machinery. 3. Equipment. 4. Materials for construction. 5. Skilled and unskilled labor. 6. Training. FINANCING: AID LOAN: $ 17,600,000 SARG: $ 1,388,000 TOTAL: $ 18,988,000	VERIFIABLE INDICATORS: 437 man-mo., $ 3,6M total cost Machine, tools $ 1.3M Equipment and parts, $ 12,26M Shops, 5 ea. $ 1,7M total cost 10 participants ($ 133,000), 152 operators and 139 mechanics/technicians (OJT)	1. Disbursement records. 2. USAID monitoring. 3. DADEB records. 4. Consultant reports.	1. Acceptable equipment availability. 2. Maintenance requirements are sufficiently predictible for scheduling. 3. Trained/trainable personnel are available in sufficient number. 4. Services are procured w/o undue delay.

ANNEX B

EUPHRATES BASIN MAINTENANCE

TRACKING NETWORK



ANNEX C

PROPOSED
IRRIGATION SYSTEM MAINTENANCE EQUIPMENT LIST*

A. Road Maintenance	NO.	Unit Cost	Total Cost
Grader and scarafier Cat 12	4	60,300	241,200
Front End Loader Cat 950	4	55,600	222,400
Tractor D8 Cat with Ripper	1	175,800) 17,700)	193,500
Tractor D7 Cat with Ripper	2	88,300) 10,500)	197,600
Roller Vib-Self Propelled 6T	4	17,139	68,556
Low Boy 40T	1	16,800	16,800
Low Boy 20T tilt-top	1	7,400	7,400
Compressor 300 CFM (trailer mounted)	1	26,000	26,000
Fuel Truck 1,500 gal	2	21,000	42,000
Dump Truck $5M^3$	14	17,000	238,000
Pick-up Trucks 3/4 ton	10	7,700	77,000
Truck mounted Water Tanker 2000 gal	3	14,300	42,900
Agregate Equipment			
Crusher 40MT/hr	1	201,000	201,000
Screening Plant 50 MT/hr	1	212,000	212,000
Asphalt Equipment			
Asphalt Plant 40MT/hr) (Electric Generator))	1	165,925 18,000	183,925
Asphalt Truck 1,750 gal	1	36,200	36,200
Asphalt Storage (semi) 5000 gal	1	35,200	35,200
Asphalt Paving Machine	1	54,300	54,300
Asphalt Patch Unit	1	13,600	13,600
Pavement Brush (truck mounted)	1	2,150	2,150
Double Drum Roller 6T	2	17,139	34,278
Truck Tractor	2	23,500	47,000

* Subject to quantity, model and capacity refinements or revisions to meet actual project needs prior to issuance of IFB's.

B. Mobile Shops	Total Cost
1. Truck 3 ton, long wheel base, 4 wheel drive with enclosed rear, van type construction (dual rear wheels) five speed transmission	
2 Trucks @ 16,500	33,000
2. Compressor (Gasoline Driven)	
200 CFM (2) compressors @ 800	1,600
3. Welder/Generator 400 AMP, 5,000 volts, 220 - 110 1-phase, 50 cycle	
2 each @ 4000	8,000
4. Drill Press 14-inch throat	
2 @ 400	800
5. Grinder 8-inch wheels	
2 @ 350	700
6. Air Tools and air wrenches	
2 sets @ 450	900
7. Master Pin Pusher w/manufacturer's attachments	
2 @ 5,300	10,600
8. Hand Grease Equipment	
2 @ 120	240
9. Hydraulic tester with flo divider	
2 @ 2,950	5,900
10. Nozzle Tester (injector)	
2 @ 450	900
11. Ignition Equipment	
2 @ 300	600
12. Folding Arm Crane, Truck-Mounted 2000 lb.	
2 @ 1,600	3,200
13. Tire Equipment	
2 @ 450	900
14. Gas Welding and Cutting	
2 @ 800	1,600
15. Electric Hand Drills	
2 @ 300	600
16. Vises and Anvil	
2 @ 600	1,200
17. Jacks, Hydraulic, 10 ton	
2 @ 300	600
18. Mechanical Field Maintenance Tool Sets	
2 @ 2,223	4, 446

C. Grease Units

	Total Cost
Grease Units, 1-ton heavy duty pick-up, four wheel drive, dual rear wheels, with grease unit and compressor 4 @ 17,950	71,800

D. Canals and Drains	No.	Unit Cost	Total Cost
Tractor Cat D8 with ripper	1	125,800) 17,700)	143,500
Tractor Cat D7 with ripper	6	88,300) 10,500)	592,800
Tractor Cat D4	7	34,000	238,000
Front end loader (Cat 950)	4	55,600	222,400
Traxcavater (Cat 955)	2	50,800	101,600
Back hoe (wheeled, Int.) Harvester 3900	3	78,500	235,500
Back hoe (track) Cat 225	5	82,500	412,500
Back hoe Cat 245	2	211,000	422,000
Roller vibrator 6T (propelled)	2	12,135	24,270
Roller vibrator 6T (Towed)	2	8,970	17,940
Roller vibrator 1-ton	6	7,795	46,770
Roller compactor CM-20 (dynapac)	13	3,400	44,200
Hand compactor CM-15 (dynapac)	22	1,200	26,400
Concrete mixer 3/4 M^3	6	3,700	22,200
Grader (Cat 12G)	5	60,300	301,500
Low Boy 40T	2	16,800	33,600
Low Boy 20T tilt top	2	7,400	14,800
Generator 10-15 KW	6	4,135	24,810
Crane, Rubber Tired (Grove) 15T	2	32,300	64,600
Crane, Rubber tired (Grove) 6T	3	11,140	33,420
Pump clay 30-50 lit. per sec.	8	4,000	32,000
Dredge 15 (Mud Cat) Portable w/1 trailer	2	90,000	180,000
Front end loader 54-inch (Case 1737)	4	8,170	32,680
Front end loader 35-inch (Case 1816)	4	5,069	20,276
Conveyor (canal clean up)	8	18,000	144,000
Gradeall 1/2 yd.	1	103,405	103,405
Compressor 300 CFM	3	26,000	78,000
Grouting set complete, truck mounted - 4 wheel drive	4	55,000	220,000
Drill (wagon)	4	16,950	67,800
Pick-up Truck - 3/4 Ton	11	7,200	79,200
Dump Truck 6M^3	14	17,000	238,000
Water tankers, 2000 gal (4 wheel drive)	10	14,300	143,000

D. Canals and Drains (Cont'd)	No.	Unit Cost	Total Cost
Fuel Tankers, 1500 gal	4	21,000	84,000
Fuel Tankers, 6000 gal, transporter	1	35,200	35,200
Truck Tractors (Int. Harvester 2500)	2	23,500	47,000
Tractor, Industrial, 100 hp	2	9,750	19,500
Pick-up Truck, 3/4 Ton	20	7,200	144,000
TOTAL ANNEX D			6,976,000

ANNEX E

INVENTORY OF IRRIGATION DEPARTMENT PRESENT EQUIPMENT

	Number
Tractor (Cat D8 with ripper)	1
Front end loader (Cat 950)	2
Traxcavater (Cat 955)	1
Back hoe (wheel)	4
Back hoe (track)	2
Dragline (P&H) - 1 1/2 yd^3	4
Roller vibrator 6T (propelled)	1
Roller vibrator (Towed), one ton	1
Roller compactor(Dynapac) CM-20	1
Concrete mixer 3/4 M^3	3
Grader (Cat 12G)	1
Compressor 300 CFM	1
Dump truck 6 M^3	6
Tractor, industrial, 100hp	1
Pick-up Truck, 1/2 ton	6
Tractor, wheel, dozer	1
Low Boy 50T	1

ANNEX F

PROPOSED
TOOLING & MACHINES FOR MAINTENANCE SHOPS*

A. Line Maintenance

1.	Master mechanic maintenance tool set 3 sets @ 5,692 = 17,076 3 sets @ 2,223 = 6,669	23,745
2.	Welding machines 400 Amp 3 @ 3,000 = 9,000 5 Gas Welding cutting @ 1,100 = 5,500	14,500
3.	Air tool and wrenches 3/4" drive 2 sets @ 1,125	2,250
4.	Master Pin Pusher with manufacturer's attachments 1 @ 5.300	5,300
5.	Sprocket Puller with manufactuer's attachments 1 @ 4,900	4,900
6.	Load Rotor (Hoist load balancer) 5 @ 150	750
7.	Mobile Floor Cranes - hydraulic (4,000 lb cap.) 4 @ 1,650	6,600
8.	Industrial Puller (Set A) 2 @ 860	1,720
9.	Hydraulic tester with Flo Divider 50 gals/min. 5000 P.S.I., 3 @ 2,950	8,850
10.	Nozzle Tester (Injectors) 2 @ 675	1,350
11.	Sleeve Puller and Installer @ 413	826
12.	Sun Engine Tester (or equal) 1 @ 6,925	6,925
13.	Hoist, 12,000 lbs. (Floor type hydraulic) 2 @ 6,250	13,500

* Subject to quantity, model and capacity refinements or revisions to meet actual project needs prior to the issuance of IFB's.

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

14.	Steering and alignment equipment (portable) 1 @ 3,900	3,900
15.	Engine Stand heavy duty 2 @ 675	1,350
16.	Press 100 ton 1 @ 3,300	3,300
17.	Press 20 ton 1 @ 350	350
18.	Work Benches and vises 10 @ 280	2,800
19.	Shop Compressor 300 CFM 1 @ 4,850	4,850
		$107,760

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

B. Hydraulic Transmissions and Pumps

1.	Hydraulic Transmission tester 1 @ 34,500	34,500
2.	Hydraulic Tester with Flow divider 1 @ 2,950	2,950
3.	Mechanic Tools (hydraulic set) 1 @ 2,233	2,233
4.	Motor Stands for Hydraulic Transmission 4 @ 655	2,700
5.	Floor Cranes - 4-ton 4 @ 1,650	6,600
6.	Industrial Puller (Set C) 1 @ 475	475
7.	Load Rotor (Load Balance Attachment) 1 @ 150	150
8.	Work Benches 36 x 96 Metal Top with Vises 3 @ 250	750
		50,358

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

C. Track Repair

1.	Track Press (Manufacturer's Tooling, Air Compressor, Air Hammers, Wrenches)	
	1 @ 26,750	26,750
2.	Mechanic Tools (hydraulic set) 1 @ 1,225	1,225
3.	Flux Welder Automatic Electric (Rollers & Idlers)	
	1 @ 5,920	5,920
4.	Press 20 ton 1 @ 500	500
5.	Misc. Tools incl. Electric Grinders	800
		35,193

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

D. Engine Overhaul and Rebuild

Equipment Group:

1.	TD3000 Hot Tank 64" L x 42" H w/rinse booth & access	$ 3,620.00
2.	AFA 100 Astroflux - 100" w/block cables & powder	7,311.00
3.	855 Surface Grinder - Work 38" L x 11-1/2" W x 12-3/4" H	4,430.00
4.	860 Surface Grinder - Work 43" L x 15" W x 27" H	9,388.00
5.	TF Cylinder Boring Machine 7" Bore x 18" Stroke	10,000.00
6.	FN Portable Cylinder Boring Machine 5.28" Bore x 14" Stroke	3,080.00
7.	LBM Align Boring Machine (Popular Set)	2,526.00
8.	KWIK-BLAST Glass Bead Peening	1,575.00
9.	019 Headshop w/cutters and accessories	4,555.00
10.	SGH Valve Seat Grinder Set w/arbors & Grinding wheels	680.00
11.	SGF Valve Seat Grinder Set w/arbors & grinding wheels	703.00
12.	VL Valve Automatic Refacer 5/8" stem - 6" valve head, or VS Valve Refacer 5/8" stem - 4" valve head	4,210.00
13.	RM Rod & Pin Fitting Machine with Journal Boring	7,965.00
14.	Honing Machine Accessories 1 Bench Hone & Portable Cylinder Hone Equipment	2,400.00
15.	Crankshaft Grinder SV-15C (21x78") hydraulic w/access	35,000.00
16.	Crankwelder SV-150B-96" w/wire, flux and accessories	14,210.00
17.	Crankshaft Press CSP-78	1,400.00
18.	Crack Repair Kit Irontite Master Set	670.00
19.	Head Test Table Irontite	1,750.00
20.	Engine Stands OTC 1730A/1718 (4 units)	2,545.00
	TOTAL	$127,753.00

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

D. Engine Overhaul and Rebuild (Cont'd)

Tool Group

	SNAP-ON		
1	5590-B-GSB Master Automotive Tool Set (590 pcs)	$ 5,692.00	$ 5,692.00
7	5252 AGSB Maintenance Tool Set (252 pcs)	2,233.00	15,631.00
1	CM-80 Inside Mide - 1 1/2 - 8"		55.00
1	CM-86 Inside Mike - 2-12 1/2"		57.00
1	CM-45RL Standard Mike 0-4" Set		170.00
1	CM-260 Universal Dial Indicator		33.00
	OWATONNA TOOL CO.		
1	Model No. Y-150-A 50-ton Shop Press		1,500.00
	WATCO		
4	V6-SHD 6 1/4 x 6" Bench Vise	99.95	400.00
	BLACK & DECKER		
1	#6047 1/2" Electric Drill		109.95
1	#6031 3/8" Electric Drill		89. 5
	INGERSOLL-RAND		
2	231 1/2" Impact Wrench (air)	129.50	260.00
2	Socket Set		100.00
	ZOERMANN-CLARKE		
2	2109 Ring Compressor 3 1/2 - 7"	3.30	6.60
2	2108 Ring Compressor 2 1/8 - 5"	2.75	5.50
2	2102 Piston Groove Cleaner 2-9"	6.95	14.00
2	2092 Piston Groove Cleaner 2-5"	4.10	8.50
2	1001 Ridge-Reamer 3-5"	19.95	40.00
2	2103 Piston Ring Expander 2-3"	4.45	9.00
2	2104 Piston Ring Expander 2.75-4.5	4.45	9.00
2	2105 Piston Ring Expander 4.5-7"	5.25	10.50
6	2093A Hones 3-7"	18.75	112.50
6	2095 DeGlazers 2-3	14.50	87.00
6	2096 DeGlazers 3-315	17.50	105.00
6	2097 DeGlazers 3.5-4	21.00	126.00
4	2098 DeGlazers 4-4.5	22.25	90.00
4	2099 DeGlazers 4.5-5	25.00	100.00
4	2100 DeGlazers 5-6	41.50	170.00
4	2113 Master Puller Sets	69.75	279.00
6	2630 Stud Extractor	8.10	49.00
6	2316 Screw Extract Set	8.45	51.00
3	2261 Nut Splitter	7.10	22.00
3	2259 Impact Driver	9.85	30.00
4	2000 Valve Spring Compressor (air optional)	55.50	225.00
3	1033 Master Knurling Kit	355.50	1,067.00
	TOTAL		$32,500.00
	Special tooling to suit GADEB Equipment		20,000.00
	Total engine overhaul and rebuild		$180,253.00

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

E. Brake Shop and Tire Repair

Truck Drum Lathe 14" depth by 30" dia., with disc attachment and drum grinding outboard support	6,940
Auto Drum Lathe 9" depth x 22 dia max.	1,295
Disc Brake Lathe 16" dia max.	1,500
Tire Changine and Patching set	1,340
Tire Crane	460
Misc. tools (set)	400
Air wrenches 3/4" (set)	1,000
	12,945

F. Dynanometer Shop

Dynanometer 450 H.P. max. (multiple set-ups)	30,950
Cooling Towers (2)	560
Misc. tools and air wrenches, set	460
Hand Tools, mechanics set (B)	2,233
	34,193

G. Chrome Plating Shop

Chrome plating shop complete including wax removal (96" tank length)	33,900
Air filtering and conditioning incl. 2 air condition units	7,400
	41,300

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

H. Pump and Injector Shop

Universal Diesel Pump and Injector Equipment	14,650
Nozzle and Injector Tester	450
Misc. Tools	890
2 air conditioning units	600
	16,590

J. Spare Parts Area

65 sections 2' Deep x 4' Wide x 6' High, (3-shelf shelving heavy duty) 65 @ 26.45	1,692
Cardex Files and Cards (25,000 items)	4,300
Ladders and misc. equipment	300
128- 4'x8' - 1/2" Plyboard partitions 128 @ 11.00	1,408
	7,700

K. Machine Shop

1. Lathe Drop Bed 24" swing 96" length	34,700
2. Lathe Universal Metric and English 12" swing 60" length	7,785
3. Lathe Universal Tool Maker 6" swing 36" length	3,750
4. Universal Mill 42" Table 18" throat	14,250
5. Shaper 30" stroke	6,200
6. Surface Grinder 18" wide x 42" L x 24" throat	14,600
7. Drill Press 14" throat	350
8. Pedestal Drill 36" throat	4,300
9. Power Hack Saw 8"	640

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

K. Machine Shop (Cont'd)

10. Grinder 12" wheels	670
11. Hydraulic Press 75 Ton	2,300
12. Tools Hand (set)	2,233
13. Micrometers, Dial Indicators (3 sets)	900
	92,678

L. Electric Motor Rewind Shop

1. Motor rewinding machine for 6 KVA Motors	13,200
2. Motor rewinding Machine, 3 KVA	6,600
3. Drill Press 18" Throat	700
4. Baking Oven 3' x 3', 600^{O} F.	1,500
5. Six work benches 3'x8' - metal, w/vises	1,500
6. Storage facilities for insulation	1,000
7. Misc. Tools and electric drills	3,000
8. Electrical Testing Equipment	1,500
	29,000

M. Blacksmith and Welding Shop

1. Forge Blacksmith (fire brick lined) air driven 48" bowl 2 @ 1,745	3,490
2. Furnace (Heat Treating)(electric) 24"x24")	1,100
3. Forging Stake Bed (2" square stake holes)	
Stake forging bench 36"x36"x6"	5,420
10 stakes @ 100	1,000
4. Drill Press Pedestal 24" throat	2,950
5. Press 40 Ton	935
6. Forging hammer (5 ton) (electric drive)	6,100

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

M. Blacksmith and Welding Shop (Cont'd)

7.	Anvil 100 lb single horn	120
8.	Anvil 150 lb double horn	175
9.	Forging Tools and Hammers	1,365
10.	Welding machine 400 AMP (Heli-Arc) 2 @ 650	1,300
11.	Electric Grinder, six inch wheels	450
12.	Tolls misc. and Drills	2,750
13.	Hardness Tester (Rockwell)	1,800
		30,190

N. Pattern and Carpenter Shop

1.	Table saw 12"	1,260
2.	Cut off saw 16"	1,460
3.	Jointer 8"	860
4.	1 shaper (3 H.P.) (2 1/2" knives)	1,370
5.	1 Sander 16" Disk and Spindle (1", 1 1/2", 2") oscillating	400
6.	Grinder 6" wheel	300
7.	Drill press 14" throat	350
8.	Set Hand Tools	400
9.	Electric tools (drills, sander, router, etc.)	800
		7,260

P. Sheet Metal Shop

1.	Metal shear 15 gauge to 6' - 0" wide	3,500
2.	Brake 15 gauge to 8' - 0" wide	4,300

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

P. Sheet Metal Shop (Cont'd)

3.	Punch Metal 15 gauge to 3" square holes	1,700
4.	Spot Welder 400 Amp	2,700
5.	Seaming Machine 15 gauge	900
6.	Welding machine (Heli-Arc) 200 Amp with gas attachment	2,600
7.	Metal Band Saw	1,800
8.	Electric Drills (set)	300
9.	Hand Tools Misc. (set)	400
		18,200

Q. Satellite Repair and Maintenance Shops

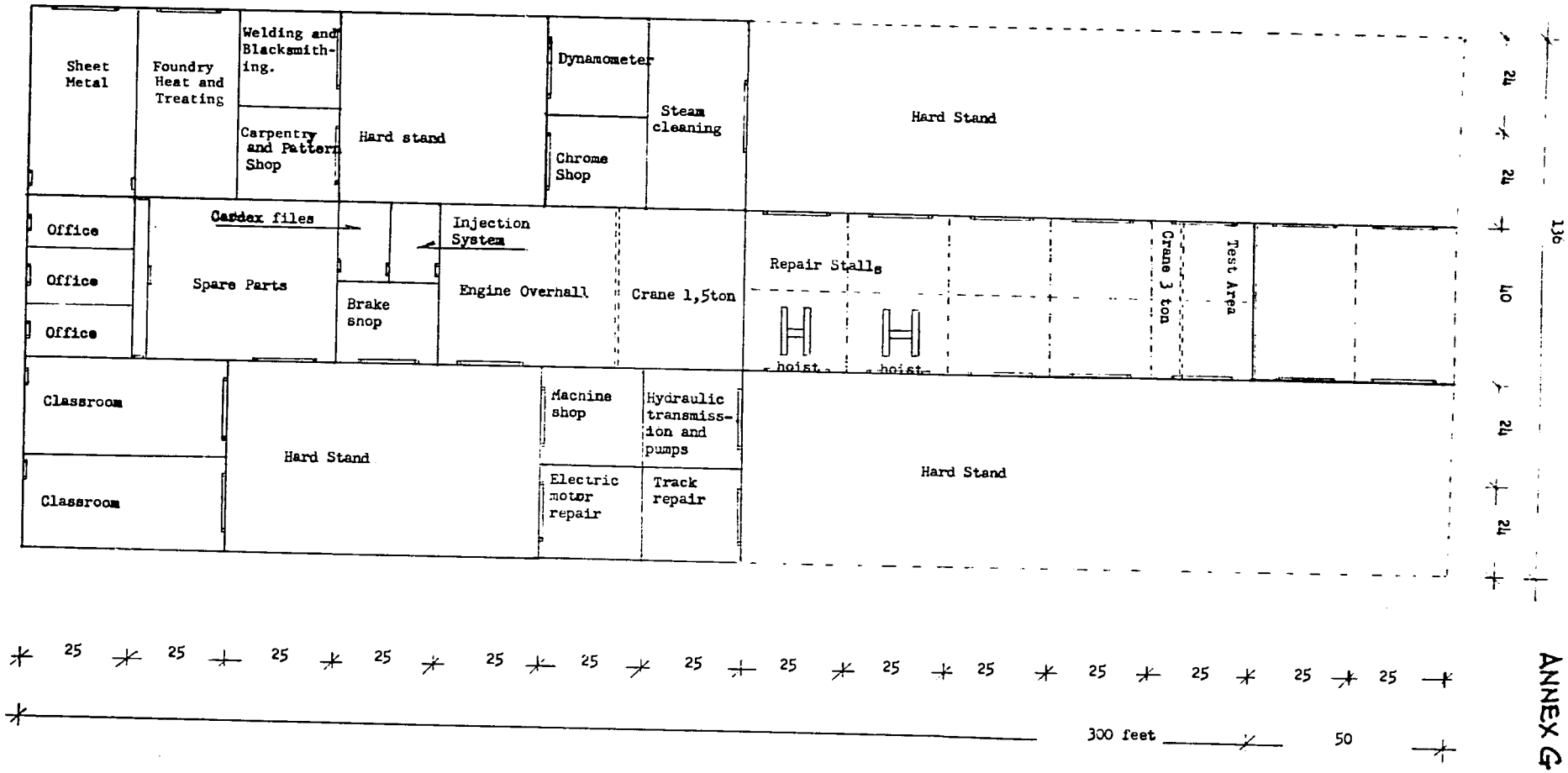
1.	Master mechanic maintenance tool set 4 @ 5,692	22,768
2.	Welding Machine 400 Amp 4 @ 3,850	15,400
3.	Air Tools with wrenches 4 @ 850	3,400
4.	Master Pin Pusher with manufactor's attachments 4 @ 5,300	21,200
5.	Sprocket Puller with manufactor's attachments 4 @ 4,900	19,600
6.	Load Rotor (Balance attachment) 4 @ 150	600
7.	Mobile Floor Cranes 4000 lb. (hydraulic) 4 @ 1,650	6,600
8.	Nozzle Tester (Injector) 4 @ 450	1,800
9.	Compressor 200 CFM 4 @ 650	2,600

TOOLING AND MACHINES FOR MAINTENANCE SHOPS (Cont'd)

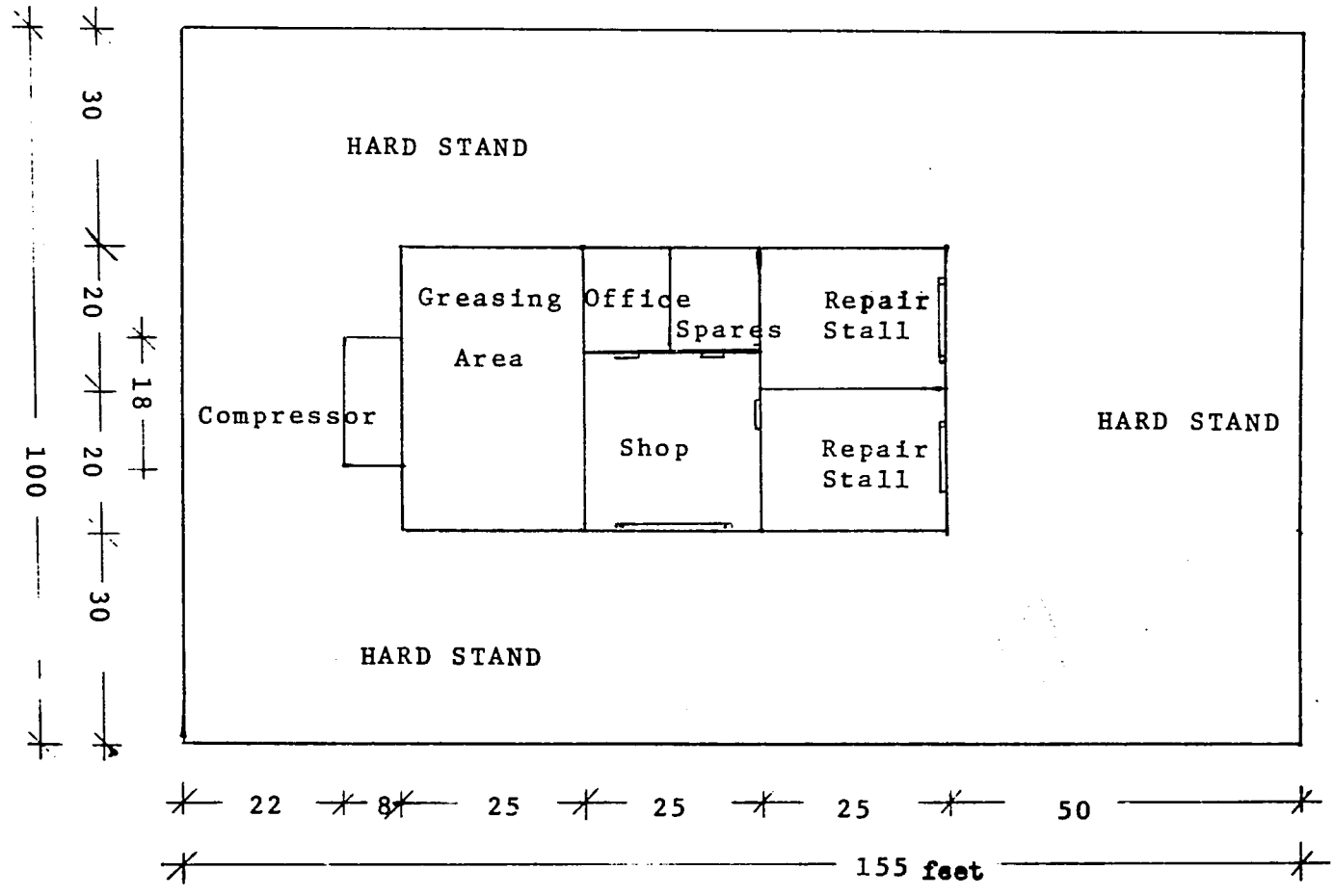
Q. Satellite Repair and Maintenance Shops (Cont'd)

10. Grease Units 4 @ 1,170	4,680
11. Hydraulic Press 50 Ton 4 @ 1,400	5,600
12. Drill Press 14" throat 4 @ 450	1,800
13. Lathe 10" swing 36" C length with attachments 4 @ 3,100	12,400
14. Tire equipment 4 @ 450	1,800
15. Grinder 8" wheels with attachments 4 @ 400	1,600
16. Ignition equipment and scope 4 @ 750	3,000
17. Jacks 10 ton 8 @ 100	800
18. Work Benches and vises 4 @ 280	1,520
19. Parts shelving 2' deep 4' wide 6' high Sixteen sheets of plywood @ 11.00 8 shelving units @ 26.45	176 212
20. Cleaning facilities (steam) 4 @ 850	3,400
21. Electric hand drill with attachments 4 @ 300	1,200
22. Lockers 2'x4'x6' 4 @ 250	1,000
23. Gas welding and cutting units 4 @ 800	3,200
TOTAL	136,350

CENTRAL MAINTENANCE & REPAIR SHOP
FLOOR PLAN



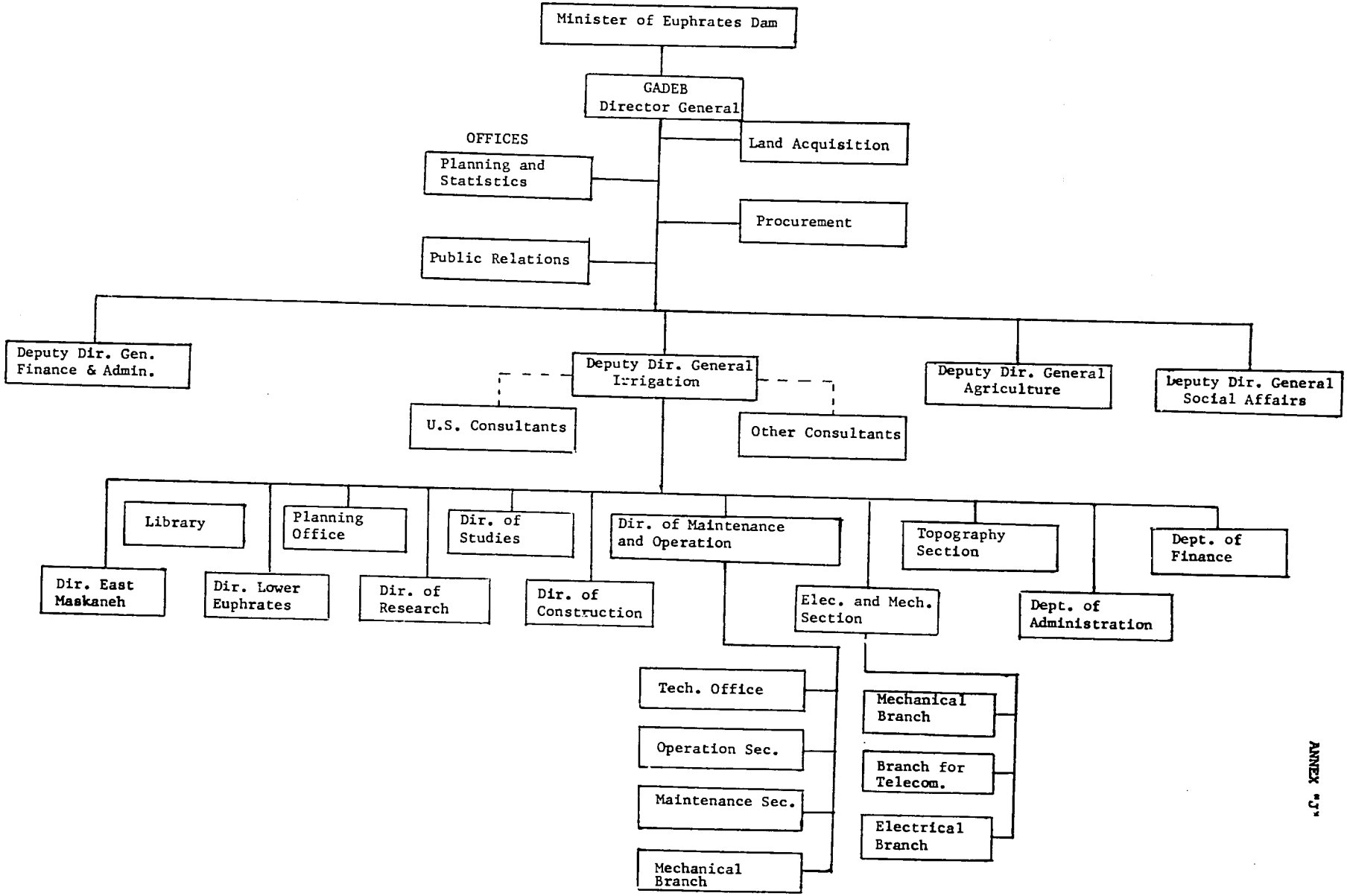
ANNEX G



FLOOR PLAN

SATELLITE MAINTENANCE AND REPAIR SHOP

ANNEX "H"



ANNEX "C"

ORGANIZATION PLAN

GENERAL ADMINISTRATION for the DEVELOPMENT of the EUPHRATES BASIN (GADEB)

ANNEX K

TECHNICAL STAFFING- MAINTENANCE SHOPS
(Candidates for Training Program)

* Management				7
Spare Parts	1 Manager	(8 clerks-Main (4 clerk-Satellite		
Shop Component	Technical Personnel			
	Mech/Tech	Apprentice	Welder	Admin.
1. Line Bays	15	20	-	
2. Engine Overhaul/Rebuild				
A. Disassembly	1	1	-	
B. Inspection	1	1		
C. Block Boring	4	1		
D. Surface Grinder	2	1		
E. Crankshaft	2	1	1	
F. Bearings	3	1		
G. Head and Valve	4	1		
H. Engine Assembly	4	1		
3. Brakes	1	2		
4. Dynamometer	1	1		
5. Chrome Plating	1	1		
6. Injector & Pump	1	1		
7. Hydraulic Transmission	3	4		
8. Track Repair	1	1	1	
9. Machine Shop	4	2		
10. Electric Motor Shop	2	2		
11. Blacksmith/Welding	1	2	3	
12. Satellite Shops (4)	4	4	4	4
13. Mobile Shops	2	2		
14. Carpenter	2	1		
15. Foundry	3	2		
16. Sheet Metal	1	1		
Sub Total	63	54	9	4
Total	64	66	9	11

*1- Director of Maintenance
1- Deputy Director
5- Asst. Directors (Line Maintenance
(Engine Overhaul and Rebuild
(Spare parts and purchasing
(Field Maintenance
(Facilities Maintenance

ANNEX L

ENGINEER EQUIPMENT AND VEHICLES STAFF
(Candidates for Training Program)

Specialty	No. Operators
Motor Grader	10
Tractor/Bulldozer	18
Front End Loader Tracked	3
Front End Loader-Wheeled	18
Tractor/Bulldozer-Wheeled	1
Compaction Roller	15
Back Hoe	17
Dragline	4
Truck Crane	5
Dredge	2
Total Engineer Equipment	93
Truck Drivers-Dump, Tankers, etc.	59
Total Mobile Equipment	152

Standard Echelons of Maintenance and Repair

Utilized by the U.S. Armed Forces

1st Echelon

Grease, oil, radiator, battery, air cleaner, tires, minor adjustment. Equipped with basic lubricating accessories and minor hand tools but no machine shop facilities.

2nd Echelon

Clean carburetor, generator, starter, distributor, spark plugs, fuel line and tank, fan belt. Equipped with very little or no machine shop facilities and only basic hand tools and wrenches.

3rd Echelon

Replace worn or broken parts, change clutch, replace unit assemblies such as generator, starter, distributor, radiator, transmission, engine, springs, wheel bearings, brake reline, head gasket or cylinder head. Equipped with some machine shop and allied trade shop facilities such as welding, electric and carburetor repair, small lathe, grinder and drill press.

4th Echelon

Complete overhaul and rebuild of assembly, engines, transmissions, differentials, fuel pumps, generators, starters, mainly of agricultural rubber-tired equipment, including crawler tractors up to D-4 size except track rebuild. This echelon is the dividing line between light agricultural equipment and heavy and track-laying equipment. Equipped with good machine shop facilities and most of the allied shop facilities such as welding, radiator, electric-carburetor, painting, fuel pump-injecting room. A shop may be classified as 4th echelon even if such work as crankshaft grinding, cylinder reboring and injection repairs are sent out to private or other shops, provided such outside shops are within a reasonable distance from the shop concerned.

5th Echelon

Complete overhaul and rebuild of any assembly up to and including heavy track-laying, dirt-moving and construction equipment. Equipped with complete machine shop and all allied trade shop facilities. The main difference between 4th and 5th echelon-rated shops in this system is in the capability of the latter to handle equipment of the

D-6 and larger tractor unit category, graders, dozers, and in facilities for track repair or rebuild. This implies larger shop space, heavier overhead hoists, heavier welding capability, track press, automatic welders for rollers, idlers, etc.

(NOT USED)

PROJECT DESCRIPTION (LOAN AGREEMENT ANNEX I)

"THE PROJECT

The project financed hereunder shall consist of the establishment of a functional equipment maintenance facility for the General Administration for Development of the Euphrates Basin ("GADEB"), and necessary equipment for carrying out maintenance activities of GADEB, all as described in in Annex I (Project Description) attached hereto and made a part hereof. Such Annex I may be modified by the parties hereto in writing consistent with the terms of this Agreement."

-/-/-/-/-/-/-/-/-/-

ANNEX I

PROJECT DESCRIPTION

1. Background. The overall program of the GADEB includes the expansion of the present reclaimed and irrigated area in the Balikh River basin from 20,000 hectares to 95,000 hectares by 1980. These new works, now in varying stages of implementation, consist of Section 1 (22,000 ha), and the Mid-Euphrates Valley area (27,000 ha), Section 2 (26,000 ha). Upon completion major civil works in these 95,000 ha will include the following approximate quantities:

Main and Major Canals.....800 km

Minor Canals.....900 km

Main and Major Drains.....500 km

Roads, all types.....800 km

Pumping Stations.....10 ea.

2. "The Project" (Sec. 1.02) to be undertaken with the proceeds of the Loan is provision of appropriate and necessary equipment for the maintenance and repair of the irrigation and drainage system, including canals, drains, water regulatory structures, pumping stations, and roads in the area. In addition, to support the operation of the maintenance equipment, the proceeds of the Loan will be used to design, furnish, equip and commission an equipment maintenance system for shop operations in support of maintenance equipment, using U.S. consulting services as needed for design, commissioning, training of staff, and supervision of shop operation for a period of time as mutually agreed upon by the parties to the Agreement. Project implementation will generally follow the tentative schedule:

Activity	Tentative Estimate of Completion Date
Solicit expressions of interest for consulting services	31 July 1976
Prequalified firm short list	15 October 1976
Issue RFP	31 October 1976
Issue IFB (Engr. Equipment)	
Issue IFB (Engr. Equipment)	30 November 1976
Select and Request Cost Proposal	15 January 1977
Open Bids, Engr. Equipment	31 January 1977
Sign Consulting Svc. Contract	1 March 1977
Award Engr. Eqip. Contracts	31 March 1977
Shop design brief complete	30 June 1977
Invite bids on shop buildings	1 September 1977
Shop final design & machine tool list complete	30 November 1977
Begin participant selection	1 January 1978
Sign local vivil contract for shop construc.	30 April 1978
Sign shop tool contracts	15 May 1978
Sign spare parts contracts, begin partic. trg.	30 June 1978
Engineer Equip. field commissioning complete	31 December 1978
Participant Training, shops, parts procurement completed, Consulting Services enter Phase II	31 January 1979
3 Remaining satellite shops complete	30 June 1980
Consulting Services Terminate	31 January 1981

3. The Project is to be carried out by GADEB with the foreign exchange financing provided by the Borrower from the AID loan.

4. The estimated Project cost is 19.0 million U.S. dollars, allowing for price increases during Project implementation. A cost breakdown is given below (all amounts in thousands, with $1 = L.S. 4.00):

Summary Cost Estimate

Description	AID $ (000)	SARG $ (000)	TOTAL $ (000)
Maintenance Equipment (+)	10,774	12 (a)	10,786
Shop tools, and Equipment (+)	1,056	4 (a)	1,060
Subtotal	11,830	16 (a)	11,846
Contingencies, 6.6%	778	-	778
Inflation, 7,9%	934	-	934
Subtotal	13,541	16	13,557
Participant Training	133	-	133
Consulting	2,282	319	2,601
Contingencies, 10.5%	240 (20,1%)	64	304
Inflation, 24.2%	552 (39.2%)	125	677
Subtotal	3,074	508	3,582
Shop Building**	650	585	1,235
Contingencies, 15.1%	98 (20%)	117	215
Inflation, 16%	104 (27.7%)	162	266
Subtotal	852	864	1,716
Grand Total	17,600	1,388	18,988

* $1 U.S. = L.S. 4.00
** Including AID-financed prefabricated metal buildings.
(a) Inland freight, Syria.

EMBASSY OF THE
UNITED STATES OF AMERICA

ANNEX Q

EUPHRATES BASIN IRRIGATION
MAINTENANCE PROJECT
Loan No. 276-J

CERTIFICATION PURSUANT TO SECTION 611(e) of the
FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, Gordon B. Ramsey, the Representative to the Syrian Arab Republic Government, for the Agency for International Development, having taken into account, among other things, the maintenance and utilization of projects in Syria previously financed or assisted by the United States, do hereby certify that in my judgment Syria has both the financial capability and the human resources capability to effectively maintain and utilize the capital assistance project for the Euphrates Basin irrigation system.

This judgment is based upon general considerations discussed in the project paper to which this certification is attached.

Gordon B. Ramsey
A.I.D. Representative

ANNEX R

SYRIAN ARAB REPUBLIC
PRESIDENCY OF THE COUNCIL
OF MINISTERS
STATE PLANNING COMMISSION

الجمهورية العربية السورية
رئاسة مجلس الوزراء
هيئة تخطيط الدولة

Ret. : 3067/A.H
Date : May 23.1976

Mr. Gordon B. Ramsey
AID Representative
Embssy of the United State of America
Damascus, S.A.R.

Dear Mr. Ramsey :

In accordance with various discussions carried out between AID officials and the officials of the Ministry of Euphratis Dam,.

The Government of Syrian Arab Republic requests that AID gives favorable consideration to a $ 17.6 million loan for financing the foreign exchange costs of constructing the Euphratis Basin Irrigation maintenance project in the Balikh ,

We look forward to your prompt reply ,

Sincerely

Eng. M. Issam Hilou
Deputy minister of state
For Planning Affairs .

D R A F T

5/26/76

LOAN AUTHORIZATION

Syria: Euphrates Basin Irrigation Maintenance Project

Provided from: Foreign Assistance Act, Part II, Chapter 4
("Security Supporting Assistance"), Section 532

Pursuant to the authority vested in the Deputy Administrator, Agency for International Development ("A.I.D."), by the Foreign Assistance Act of 1961, as amended (the "Act"), and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan (the "Loan"), pursuant to Part II, Chapter 4 (Security Supporting Assistance), Section 532 of the Act, to the Government of the Syrian Arab Republic ("Borrower") of not to exceed Seventeen Million Six Hundred Thousand United States Dollars ($17,600,000) to assist in financing the foreign exchange costs of goods and services required to support an irrigation system maintenance project in the Euphrates Basin area.

1. Interest Rate and Terms of Payment. Borrower shall repay the Loan to A.I.D. in United States dollars within forty (40) years from the first disbursement under the Loan including a grace period of not to exceed ten (10) years. Borrower shall pay to A.I.D. in United States dollars interest on the outstanding disbursed balance of the Loan and any due and unpaid interest at the rate of two percent (2%) per annum during the grace period and three percent (3%) thereafter.

2. Other Terms and Conditions

   (a) Borrower shall make available the proceeds of the Loan to the General Administration for the Development of the Euphrates Basin (GADEB) on terms and conditions satisfactory to A.I.D.

   (b) Prior to initial disbursement, Borrower shall enter into a contract with a U.S. consulting firm for consulting services for the project.

(c) Prior to initial disbursement, Borrower shall prepare an A.I.D.-approved set of tender documents for equipment procurement.

(d) Prior to disbursement for shop or shop equipment, Borrower shall prepare an A.I.D.-approved plan for staffing and training of personnel for the project.

(e) Unless A.I.D. otherwise agrees in writing, goods and services financed under the Loan shall have their source and origin in the United States.

(c) The Loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

_____
Administrator

_____
Date

Clearance:
NE/CD:THLustig _____
NE/ME:NSweet _____
NE/DP:BLangmaid _____
FM/FCD:JMcColl _____
AA/PPC:PBirnbaum _____
GC:CLGladson _____
GC/NE:MGKitay _____
AA/NE:RHNooter _____

GC/NE:CECostello:jab:5/25/76

EUPHRATES BASIN IRRIGATION MAINTENANCE PROJECT

CHECKLIST OF STATUTORY CRITERIA

The following abbreviations are used:

FAA - Foreign Assistance Act of 1961, as amended.

FAA, 1973 - Foreign Assistance Act of 1973.

App. - Foreign Assistance and Related Programs Appropriation Act, 1974.

MMA - Merchant Marine Act of 1936, as amended.

BASIC AUTHORITY

1. FAA § 103; § 104; § 105; § 106; § 107. Is loan being made

   Inapplicable. Loan is being provided from Security Supporting Assistance funds.

   a. for agriculture, rural development or nutrition;

   b. for population planning or health;

   c. for education, public administration, or human resources development;

   d. to solve economic and social development problems in fields such as transportation, power, industry, urban development, and export development;

   e. in support of the general economy of the recipient country or for development programs conducted by private or international organizations.

COUNTRY PERFORMANCE

Progress Towards Country Goals

2. FAA §201 (b) (5), (7) & (8); § 208

   A. Describe extent to which country is:

   Inapplicable. Loan is being provided from Security Supporting Assistance funds.

   (1) Making appropriate efforts to

increase food production and improve means for food storage and distribution.

(2) Creating a favorable climate for foreign and domestic private enterprise and investment.

(3) Increasing the public's role in the developmental process.

(4) (a) Allocating available budgetary resources to development.

(b) Diverting such resources for unnecessary military expenditure (See also Item No. 20) and intervention in affairs of other free and independent nations.) (See also Item No. 11)

(5) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.

(6) Willing to contribute funds to the project of program.

(7) Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.

B. Are above factors taken into account in the furnishing of the subject assistance?

Treatment of U.S. Citizens and firms.

3. FAA § 620(c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) asuch citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?

There are at present no claims meeting the criteria for termination of assistance pursuant to this Section. However, Syria is now discussing with the U.S.G. and private creditors the status of all remaining outstanding debts of Syria, in order to reach a negotiated settlement.

4. FAA § 620(e) (1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?

Syria, has taken action in the past which without appropriate action on Syria's part would call for 620(e) sanction. Syria is now discussing the resolution of these claims with the U.S.G. and private creditors. A determination has been made that it is taking appropriate steps to discharge its obligations.

5. FAA § 620(o); Fisherman's Protective Act § 5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters,

a. has any deduction required by Fishermen's Protective Act been made?

b. has complete denial of assistance been considered by A.I.D. Administrator?

No instance of any such seizure or imposition of such penalty or sanctions is now known.

Relations with U.S. Government and Other Nations.

6.	FAA § 620(a). Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba.	No instance of such conduct is known.
7.	FAA § 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?	The Secretary of State has determined that Syria is not controlled by the international communist movement.
8.	FAA § 620(d). If assistance is for any productive enterprise which will compete in the United States with United States enterprise, is there an agreement by the recipient country to prevent export to the United States of more than 20% of the enterprise's annual production during the life of the loan?	The purpose of the contemplated program is not to assist the conduct or operation of a productive enterprise within the meaning of 620(d).
9.	FAA § 620(f). Is recipient country a Communist country?	The recipient is not a communist country.
10.	FAA § 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression?	The President has not determined that the recipient country is involved in such conduct.
11.	FAA § 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property?	There is not reason to believe that Syria will fail to take adequate measures to prevent the recurrence of mob action which may result in damage or destruction to U.S. property within Syria. Negotiations pertaining to settlement of old claims pertaining to such damage will take place soon.
12.	FAA § 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, in convertibility or confiscation, has the the A.I.D. administration within the past year considered denying assistance to such government for this reason?	The institution of an investment guaranty program is now under review. A.I.D. has not considered denying assistance for this reason.

13. FAA § 620(n). Does recipient country furnish goods to North Viet-Nam or permit ships or aircraft under its flag to carry cargoes to or from North Viet-Nam?	Syria is not known to be engaged in such a course of conduct.
14. FAA § 620(q). Is the government of the recipient country in default on interest or principal of any A.I.D. loan to the country?	The Administrator has determined that assistance to Syria is in the national interest, despite the prohibition contained in Section 620(q).
15. FAA § 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?	Syria broke diplomatic relations with the U.S. in 1967. Diplomatic relations have now been resumed, and the two governments are actively negotiating an updated bilateral assistance agreement to replace the earlier agreement still in effect.
16. FAA § 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the A.I.D. Administrator in determining the current A.I.D. Operational Year Budget?	Syria is up to date in payment of its U.N. obligations.
17. FAA § 481. Has the government of recipient country failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?	The President has made no determination under Section 481 that Syria is in violation of this section.
18. FAA § 659. If (a) military base is located in recipient country, and was constructed or is being maintained or operated with funds furnished by U.S., and (b) U.S. personnel carry out military operations from such base, has the President determined that the government of recipient country has authorized regular access to U.S. correspondents to such base?	Inapplicable.

Military Expenditures

19. FAA § 620(s). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (Consideration of these points is to be coordinated with the Bureau for Program and Policy Coordination, Regional Coordinators and Military Assistance Staff (PPC/RC).)	A.I.D. is taking into account each of the listed considerations and has determined that considerations as to current military expenditures by the Syrians do not inhibit economic aid but rather that the projected program contributes to the underlying intent of the FAA which seeks to reduce arms costs and to stimulate economic development.

CONDITIONS OF THE LOAN

General Soundness

20. FAA § 201(d). Information and conclusion on reasonableness and legality (under laws of country and the United States) of lending and relending terms of the loan.	Items 20,21,22, and 23 of this section of the checklist are inapplicable because the proposed loan will be provided from Security Supporting Assistance funds.
21. FAA § 201(b)(2); § 201(e). Information and conclusion on activity's economic and technical soundness. If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds $100,000, has country submitted to A.I.D. an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?	Inapplicable.

22. FAA § 201(b)(2). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.	Inapplicable.
23. FAA § 201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.	Inapplicable.
24. FAA § 611(a)(1). Prior to signing of loan will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the United States of the assistance?	(a) These have been completed. (b) This has been completed.
25. FAA § 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 the purpose of the/loan	No further legislative action is required to implement the project other than the ratification action pertaining to the signed loan agreement which in past cases requires no more than 90 days and has not delayed project implementation.
26. FAA § 611(e). If loan is for Capital Assistance, and all U.S. assistance for project now exceeds $1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?	Yes. A copy is attached as an exhibit to the Project Paper.

Loan's Relationship to Achievement of Country and Regional Goals

27. FAA § 207; § 113. Extent to which assistance reflects appropriate emphasis on: (a) encouraging development of democratic, economic, political and social institutions; (b) self-help in meeting the country's food needs; (c) improving availability of trained manpower in the country; (d) programs designed to meet the country's health needs; (e) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (f) integrating women into the recipient country's national economy.	Items 27, 28, 29, 30, 31, 32, 33, 34, 35,, and 36 of this checklist are not applicable because the proposed loan will be provided from Security Supporting Assistance funds.

28. FAA § 209. Is project susceptible of execution as part of regional project? If so, why is project not so executed?	**Inapplicable.**
29. FAA § 201(b)(4). Information and conclusion on activity's relationship to, and consistency with, other development activities, and its contribution to reliable long-range objectives.	**Inapplicable.**
30. FAA § 201(b)(9). Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth.	**Inapplicable.**
31. FAA § 209. Information and conclusion whether assistance will encourage regional development programs.	**Inapplicable.**
32. FAA § Section 111. Discuss the extent to which the loan will strengthen the participation of the urban and rural poor in their country's development, and will assist in the development of cooperatives which will enable and encourage greater numbers of poor people to help themselves toward a better life.	**Inapplicable.**
33. FAA § 201(f). If this is a project loan, describe how such project will promote the country's economic deveopment taking into account the country's human and material resource requirements and the relationship between ultimate objectives of the project and overall economic development	**Inapplicable.**

34. FAA § 281(a). Describe extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the country, through the encouragement of democratic, private, and local governmental institutions.	**Inapplicable.**
35. FAA § 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 civic education and training in skills required for effective participation in governmental and political processes essential to self-government.	**Inapplicable.**
36. FAA § 201(b)(3). In what ways does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities?	**Inapplicable.**
37. FAA § 601(a). Information and conclusions whether loan 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.	**The loan will involve large amounts of U.S.-made equipment and is also directly related to efforts to improve the technical efficiency of irrigated agriculture in an important agricultural zone.**

38. FAA § 619. If assistance is for newly independent country; is it furnished through multilateral organizations or plans to the maximum extent appropriate?	Syria is not a newly independent country.
Loan's Effect on U.S. and A.I.D. Program	
39. FAA § 201(b)(6). Information and conclusion on possible effects of loan on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving the U.S. balance of payments position.	Items 39 and 40 are not applicable because the proposed loan will be provided from Security Supporting Assistance funds.
40. FAA § 202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources.	Inapplicable.
41. FAA § 601(b). Information and conclusion on how the loan will encourage U.S. private trade and investment abroad and how it will encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).	The loan will finance foreign exchange costs of goods and services from the United States.
42. FAA § 601(d). If a capital project, are engineering and professional services of U.S. firms and their affiliates used to the maximum extent consistent with the national interest?	Yes.

43. FAA § 602. Information and conclusion whether U.S. small business will participate equitably in the furnishing of goods and services financed by the loan.	The U.S. will be advised of proposed procurements and will notify Small Business of the opportunities.
44. FAA § 620(h). Will the loan promote or assist the foreign aid projects or activities of the Communist-Bloc countries?	No, the project is a discrete project in an area where donors from many countries are financing projects.
45. FAA § 621. If Technical Assistance is financed by the loan, information and conclusion whether such assistance will be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis. If the facilities of other Federal agencies will be utilized, information and conclusion on whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.	Technical assistance required to implement the project will be provided by the U.S. private sector on a contract basis. If such assistance is obtained from other Federal Agencies it will be only on the basis that such services are not competitive with the private sector, are in fact the most suitable and will not unduly interfere with U.S. domestic programs.

Loan's Compliance with Specific Requirements

46. FAA § 110(a) ; § 208(e). In what manner has or will the recipient country provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the loan is to be made?	Items 46, 48, 49, 50, and 51 of this checklist are inapplicable because the proposed loan will be provided from Security Supporting Assistance funds.

47.	FAA §660. Will loan be used to finance police training or related program in recipient country?	No.
48.	FAA § 114. Will loan be used to pay for performance of abortions or to motivate or coerce persons to practice abortions?	Inapplicable.
49.	FAA § 201(b). Is the country among the 20 countries in which development loan funds may be used to make loans in this fiscal year?	Inapplicable.
50.	FAA § 201(d). Is interest rate of loan at least 2% per annum during grace period and at least 3% per annum thereafter?	Inapplicable. (Loan will in fact provide for such interest rate).
51.	FAA § 201(f). If this is a project loan, what provisions have been made for appropriate participation by the recipient country's private enterprise?	Inapplicable.
52.	FAA § 604(a). Will all commodity procurement financed under the loan be from the Untied States except as otherwise determined by the President?	Yes. The loan authorizes procurement only from the United States.
53.	FAA § 604(b). What provision is made to prevent financing commodity procurement in bulk at prices higher than adjusted U.S. market price?	Bulk commodity procurement is not contemplated by the project.

54. FAA § 604(d). If the cooperating country discriminates against U.S. marine insurance companies, will the loan agreement require that marine insurance be placed in the United States on commodities financed by the loan?	Syria has indicated that there will be no discrimination against U.S. marine insurance companies. This provision will be covered by the loan agreement.
55. FAA § 605(c). 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?	No procurement of agricultural commodities will be undertaken under the Project.
56. FAA § 604(f). If loan finances a commodity import program, will arrangements be made for supplier certification to A.I.D. and A.I.D. approval of commodity as eligible and suitable?	Inapplicable.
57. FAA § 608(a). Information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.	Efforts will be made to utilize excess property to the maximum extent possible.
58. FAA § 611(b), App. § 101. If loan finances water or water-related land resource construction project or program, is there a benefit-cost computation made, insofar as practicable, in accordance with the procedures set forth in the Memorandum of the President dated May 15, 1962?	Inapplicable.
59. FAA § 611(c). If contracts for construction are to be financed, what provision will be made that they be let on a competitive basis to maximum extent practicable?	A.I.D. regulations requiring competition will be applicable to the Loan.
60. FAA § 612(b); § 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	Since the loan will finance U.S. foreign exchange costs only, Syria will provide local currencies needed for the project.

owned by the United States are utilized to meet the cost of contractual and other services.

61.	Section 30 and 31 of PL 93-189 (FAA of 1973). Will any part of the loan be used to finance directly or indirectly military or paramilitary operations by the U.S. or by foreign forces in or over Laos, Cambodia, North Vietnam, South Vietnam, or Thailand?	No.
62.	Section 37 of PL 93-189 (FAA of 1973); App. § 111. Will any part of this loan be used to aid or assist generally or in the reconstruction of North Vietnam?	No.
63.	FAA § 612(d). Does the United States own excess foreign currency and, if so, what arrangements have been made for its release?	Discussions are in progress, as part of an overall settlement of U.S. claims, regarding Syrian currency owned by the U.S. in amounts nearly in excess to U.S. needs.
64.	FAA § 620(g). What provision is there against use of subject assistance to compensate owners for expropriated or nationalized property?	The scope of the loan project will prohibit use of loan funds for any such purpose.
65.	FAA § 620(k). If construction of productive enterprise, will aggregate value of assistance to be furnished by the United States exceed $100 million?	Not applicable.
66.	FAA § 636(i). Will any loan funds be used to finance purchase, long-term lease, or exchange of motor vehicle manufactured outside the United States, or any guaranty of such a transaction?	No, procurement is limted to the United States.
67.	App. § 103. Will any loan funds be used to pay pensions, etc., for military personnel?	No.
68.	App. § 105. If loan is for capital project, is there provision for A.I.D. approval of all contractors and contract terms?	Yes. (If this statutory provision is removed from this year's legislation, this section is to be deleted).

69.	App. § 107. Will any loan funds be used to pay UN assessments?	No.
70.	App. § 108. Compliance with regulations on employment of U.S. and local personnel. (A.I.D. Regulation 7).	The loan agreement will require compliance with A.I.D. Regulation 7. (If this statutory provision is removed from this year legislation this section is to be deleted).
71.	App. § 110. Will any of loan funds be used to carry out provisions of FAA § 209(d)?	No.
72.	App. § 112. Will any of the funds appropriated or local currencies generated as a result of AID assistance be used for support of police or prison construction and administration in South Vietnam or for support of police training of South Vietnamese?	No.
73.	App. § 113. Describe how the Committee on Appropriations of the Senate and House have been or will be notified concerning the activity, program, project, country, or other operation to be financed by the Loan.	Congressional notification will be made concerning A.I.D. plans to commit these loan funds to this project activity. (If this statutory provision is removed from this year's legislation, this section is to be deleted).
74.	App. § 601. Will any loan funds be used for publicity or propaganda purposes within the United States not authorized by Congress?	No.
75.	App. § 604. Will any of the funds appropriated for this project be used to furnish petroleum fuels produced in the continental United States to Southeast Asia for use by non-U.S. nationals?	No.
76.	MMA § 901.b; FAA § 640C. (a) Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk	The loan agreement will so require.

carriers, dry cargo liners, and tankers) financed with funds made available under this loan shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates.