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INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

AGENCY FOR INTERNATIONAL DEVELOPMENT

WASHINGTON, D.C. 20523

PROJECT PAPER

JORDAN: INDUSTRIAL DEVELOPMENT  
(278-0265)

September 29, 1986

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INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, DC. 20523

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JORDAN: INDUSTRIAL DEVELOPMENT PROJECT

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<b>AGENCY FOR INTERNATIONAL DEVELOPMENT</b> <b>PROJECT DATA SHEET</b>	1. TRANSACTION CODE <input type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	Amendment Number _____	DOCUMENT CODE <b>3</b>
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2. COUNTRY/ENTITY JORDAN	3. PROJECT NUMBER 278-0265
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4. BUREAU/OFFICE Bureau for Asia- Near East	5. PROJECT TITLE (maximum 40 characters) INDUSTRIAL DEVELOPMENT
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6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 09 30 92	7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4) A. Initial FY 86 B. Quarter <input type="checkbox"/> C. Final FY 87
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8. COSTS (\$000 OR EQUIVALENT \$1 = )						
A. FUNDING SOURCE	FIRST FY 86			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	\$3,572	\$ 428	\$4,000	\$8,272	\$1,228	\$ 9,500
(Grant)	(\$3,572)	(\$ 428)	(\$4,000)	(\$8,272)	(\$1,228)	(\$ 9,500)
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S.						
1.						
2.						
Host Country		\$1,128	\$1,128		\$4,613	\$4,613
Other Donor(s)						
<b>TOTALS</b>	\$3,572	\$1,556	\$5,128	\$8,272	\$5,841	\$14,113

9. SCHEDULE OF AID FUNDING (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) ESF	750	830				\$9,500		\$,9500	
(2)									
(3)									
(4)									
<b>TOTALS</b>									

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each) 840      870      690	11. SECONDARY PURPOSE CODE
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12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)									
A. Code									
B. Amount									

13. PROJECT PURPOSE (maximum 480 characters) %

To improve the ability of Jordanian private sector manufacturers to produce and market quality products at competitive prices.

14. SCHEDULED EVALUATIONS	15. SOURCE/ORIGIN OF GOODS AND SERVICES
Interim MM YY 10 8 8      MM YY 04 8 9      Final MM YY 08 9 2	<input type="checkbox"/> 000 <input type="checkbox"/> 941 <input type="checkbox"/> Local <input type="checkbox"/> Other (Specify) _____

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

The methods of financing to be used in this project are in conformity with AID's Policy Statement on financial and administrative management and USAID's comprehensive general assessment.

*[Signature]*  
Contract Manager

17. APPROVED BY	Signature <i>[Signature]</i> L. P. Reade	Title Director, USAID/JORDAN	Date Signed MM DD YY 10 9 29 92	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY
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ANNEXES

ACRONYMS

AID	The United States Agency for International Development, Washington, D.C.
CDSS	Country Development Strategy Statement
FET	Faculty of Engineering and Technology
GOJ	Government of Jordan
HC	Host Country
IDB	Industrial Development Bank
IDP	Industrial Development Project
IE	Industrial Engineering
JIM	Jordan Institute of Management
MMIS	Manufacturing and Marketing Improvement Section
MOP	Ministry of Planning
UOJ	University of Jordan
USAID	The United States Agency for International Development, Jordan

PROJECT DESIGN AND REVIEW MEMBERS

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Nimalka Wijesooriya	Controller's Office
George Ishaq	Program Office
Mark Kraczkiewicz	Regional Economist
Abdullah Ahmed	Engineering Office

Senior Review Committee:

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Richard Johnson	Deputy Director
Richard Brown	Program Office
Thomas Rishoi	Private Enterprise Office
Donald Masters	Project Development Office
Frank Donovan	Commodity Import Program
Lyle Weiss	Engineering Office
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Knut Meyer	Consultant-Marketing
William Van Vorst	Consultant-Industrial Engineering

PROJECT SUMMARY AND RECOMMENDATIONS

- A. Grantee: The Government of the Hashemite Kingdom of Jordan (GOJ)
- B. Implementing Agencies: The Ministry of Planning, the Amman Chamber of Industry, the Jordan Institute of Management, and the Faculty of Engineering and Technology of the University of Jordan.
- C. Amount: The Project is authorized for \$9,500,000 of ESF grant funds, of which \$4,000,000 will be obligated in FY 1986. The remainder of project funding will be obligated in FY 1987.
- D. Total Project Costs: The total cost is estimated to be \$14,113,000 including GOJ and private sector contributions of \$4,613,000 over the life of project.
- E. Project Goal and Purpose: The project goal is to transform the Jordanian private sector into the principal force for sustained economic growth, employment, and foreign exchange earnings. The project's purpose is to improve the ability of Jordanian private sector manufacturers to produce and market quality products at competitive prices.
- F. Summary Project Description:

Project Components

1. Amman Chamber of Industry:

The overall objective is to revitalize and augment the Amman Chamber of Industry as a means of assisting Jordanian manufacturers to improve quality, productivity, and sales. The following are intended accomplishments:

- To upgrade the capacity of the Chamber to provide services which will improve the performance of its members by:
  - expanding and professionalizing research and programs.
  - acting as a source of information and a forum for information sharing.
  - building awareness of the need to improve product quality, productivity, local content and value added, and exporting.
  - creating demand and clients for the Manufacturing and Marketing Improvement Section (MMIS)
- To help develop the Chamber's capability to influence the

formulation of public policies conducive to the private sector and to economic growth by:

--organizing a practice research and consensus building function, rather than only reacting to government initiatives.

--engaging and involving a broad cross-section of members in the policy process.

--monitoring the activities and assessing the intentions of key Ministries.

--organizing an educational program on private sector requirements for government officials who implement policies.

AID will fund the services of a U.S. consultant who is experienced in associations development to work on a day to day basis with the Chamber's executive staff and Board of Directors. Technical assistance will also be provided to conduct studies of Government policies which constrain the growth of the private sector manufacturing sector. The studies would be followed with seminars involving both representatives of the public and private sectors. By the end of the project the Chamber would be expected to finance further studies and seminars through member contributions. Several members of the association's staff will be sent to the U.S. for training and observational visits to U.S. associations. The Chamber will contribute physical facilities, and staff for this component of the project.

## 2. Manufacturing and Marketing Improvement Section

The objective of this component is to assist private sector Jordanian manufacturers in resolving problems of production, efficiency, quality, cost, product definition, marketing and management through the use of consulting services. This will be accomplished through the creation of a Manufacturing and Marketing Improvement Section (MMIS) within the Jordan Institute of Management (JIM). This organization will create a demand for consulting services within medium and small private sector manufacturing companies. It will serve as a mechanism to locate, partially finance and administer these consulting services. The organization will employ and train Jordanians in capabilities not currently available in Jordan and will establish a data base of proven consultants, both local and foreign, in areas of manufacturing, marketing and management. At least 200 manufacturing/marketing interventions will be carried out by MMIS. These interventions will assist Jordanian manufacturing companies in improving productivity and quality, and expanding exports and output. Each intervention should realize measurable

improvements in the first year after implementation equal to its cost. Fees collected from clients of the MMIS will be deposited in a special account which will be available to fund additional consulting services and ongoing operating expenses. An additional output expected from the project is the strengthening of the Jordanian consulting industry to support manufacturers.

AID will fund the services of a U.S. technical assistance organization which will provide the staff of the MMIS during the first phase of the project and will also provide services to manufacturers either directly or through a wide array of qualified U.S. and Jordanian organizations. Training will be provided for local counterparts who will take over the complete operation of MMIS in the second phase of the project. The Jordan Institute of Management will contribute to the local costs of MMIS by providing facilities and staff which will be at least partially funded by fees collected from the users of MMIS.

### 3. Industrial Engineering Program

AID will provide funding to establish a long term contract with a U.S. institution, which will provide faculty support to the University of Jordan Engineering School over the life of the project component. In addition, funding will be made available by USAID for the use of U.S. faculty in the early stages of the IDP industrial engineering program to handle the development and administration of the graduate programs and to send Jordanian faculty to the U.S. to acquire expertise in the different specializations of industrial engineering. A scholarship program will be established for entering diploma and masters students. The scholarship would be renewable for a second year upon successful completion of the first year course work. Program funding will also allow for the procurement of specialized equipment and commodities to establish needed laboratories for effective instruction in problem-solving techniques, design and testing procedures. Further, the library facility will be updated through the introduction of recent publications and educational materials. The Government of Jordan will provide funds for local professional staff and facilities.

- G. Recommendation: The project is recommended for FY 1986 authorization in the amount of \$9,500,000 with an obligation of \$4,000,000 in FY 1986 and the remaining \$5,500,000 to be obligated in FY 1987.

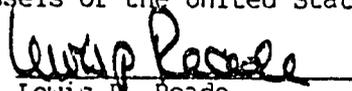
PROJECT AUTHORIZATION

NAME OF COUNTRY: JORDAN

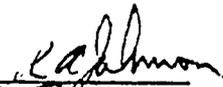
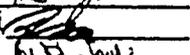
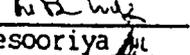
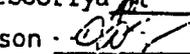
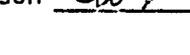
NAME OF PROJECT: INDUSTRIAL DEVELOPMENT

NUMBER OF PROJECT: 278-0265

1. Pursuant to Part II, Chapter 4, Section 531 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a Grant to the Hashemite Kingdom of Jordan (the "Cooperating Country") not to exceed Nine Million and Five Hundred Thousand United States Dollars (\$9,500,000) over a six year period from date of authorization, subject to the availability of funds in accordance with A.I.D. allotment and OYB Procedures, to help in financing certain foreign exchange and local currency costs of goods and services required for the project as described in the following paragraph. The planned life of the Project is six years from date of initial obligation.
2. The Project consists of assisting the Cooperating Country and Jordanian private sector manufacturers in their efforts to improve the production and marketing of quality products at competitive prices.
3. The Project Agreement which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority shall be subject to the following essential terms and covenants and major conditions; together with such other terms and conditions as A.I.D. may deem appropriate.
4. Source of Origin of Commodities, Nationality of Services  
Commodities financed by A.I.D. under the project shall have their source and origin in the Cooperating Country or in the United States except as A.I.D. may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have Cooperating Country or the United States as their place of nationality, except as A.I.D. may otherwise agree in writing. Ocean shipping financed under the Grant shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United States.

  
Lewis R. Reade  
Director, USAID/Jordan  
Date: 9/29/86

Clearance:

DD:RJohnson   
PEO :TRishoi   
PRM :RBrown   
A/CONT:Nwiji sooriya   
RLA:DRobertson 

## I. PROJECT RATIONALE AND DESCRIPTION

### A. Relationship to Host Country Priorities

The Industrial Development Project is an important element in USAID/Jordan's overall strategy of relieving constraints facing the Jordanian private sector. Its purpose is to improve the ability of Jordanian private sector manufacturers to produce and market quality products at competitive prices. As such, the project is directly supportive of the goals, policies, and programs of the Government's recently completed 1986-1990 Five Year Plan. On the macroeconomic level the project will contribute to the GOJ's goals of a 5% per annum growth rate, the creation of over 200,000 new jobs, and an annual growth rate of 8.3% in exports. On the sectoral level the project will directly contribute to the plan's goals for the commodity producing sectors: increases in output, plant capacity utilization, and management efficiency, and a decrease in production costs.

In order to achieve the goals outlined above, the Five Year Plan places significant, although admittedly not exclusive, emphasis on the private sector. According to the Plan, "The free enterprise system which implies private initiative, an effective private sector role, and the free play of market forces will be the basis of the development process". The public sector is to be restricted to the development of appropriate policies, provision of infrastructure, and the creation of "initial momentum" for large scale enterprises where private initiative is lacking. In recent macro-economic policy dialogue discussions held by USAID and the Ministry of Planning, GOJ representatives confirmed that the Government intends to create a new investment climate to stimulate the growth of the private sector.

The Five Year Plan foresees the commodity producing sectors, including manufacturing, as important instruments for the achievement of the Plan's goals. During the Plan period it is envisaged that income generated from the manufacturing sector will grow from JD 166.4 million to JD 232.9 million and that 11,000 new jobs will be created within the sector. In order to achieve these targets the Plan places special emphasis on increasing capacity utilization of existing projects and expanding small and medium sized manufacturing industries. The GOJ will attempt to strengthen public and private institutions involved in science and technology in an effort to "reduce the cost of production, improve quality standards and productivity."

Finally, given the expected increase in unemployment over the plan period, the Government will attempt to stimulate the demand for labor as described above, while adjusting the composition of supply in order to make skills more compatible with priority needs. To this end the Government will review

and revise policies regarding education, training, and scholarships, especially those affecting technical specializations at the college and university level.

B. Relationship to the A.I.D. Strategy Statement (CDSS)

The centerpiece of USAID/Jordan's recently revised Country Development Strategy Statement is the effort to develop the private sector manufacturing and service sectors into the new "engines" of Jordan's income and employment growth. Such an effort is necessary, according to the CDSS, because of the current and expected stagnation in the traditional sources of past growth, namely worker remittances, Arab donor aid, phosphate and fertilizer exports, and exports of light manufacturers and transit services to the neighboring Gulf countries. The proposed project directly supports this new private sector emphasis, which addresses two of the most serious problems expected to face Jordanian economy during the CDSS period: unemployment and weaknesses in the balance of payments.

Along with several other ongoing or new USAID initiatives, the proposed project will focus on the achievement of the following CDSS objectives for the private sector:

1. "Establishment of a policy framework conducive to private sector growth": The proposed project will strengthen the role of the Amman Chamber of Industry in the policy making process. Technical Services and Feasibility Studies (TSFS V) and Private Enterprise Technical Resources Assistance (PETRA) will fund studies to support USAID's policy dialogue efforts, while Fiscal Policy Analysis, among other things, will focus on the impact of fiscal policy on investment and production decisions. Development Administration Training (DAT) will train policy makers and business leaders in areas directly related to the private sector. Finally, CIP mandated policy discussions will provide a forum for the AID/private sector/COJ policy dialogue.

2. "Development of private sector business organizations": Along with PETRA the proposed project will strengthen or create business organizations that represent members interests in the policy making process, provide technical assistance and training to members, and provide information exchange and referral services.

3. "Assisting firms in developing new products, improving product quality, and reducing costs": The proposed project will address product quality and productivity problems. As such, it will complement the ongoing Management Development Project, whose objective is to increase the quantity of qualified business managers through the strengthening of degree and non degree programs at the University of Jordan and the Jordan Institute of Management. The Private Sector Services Project, planned for FY 1987, will

focus on technical constraints in the services sector, which is identified in the CDSS as the second "engine of growth" for the Jordanian economy. The Private Sector Development Bank Project, proposed for FY 1988, will include a venture capital fund which will finance the development of new products and new technologies.

4. "Improve the ability of the private sector in marketing and promotion of Jordanian products and services: The proposed project will address marketing problems through assistance to the Chamber of Industry and the creation of a Manufacturing and Marketing Improvement Organization. Such activities will complement feasibility studies being financed under PETRA, the creation of an Exporters Association under PETRA, and marketing courses being developed under the Management Development Project.

C. Project Rationale

1. General Conditions

The Jordanian economy is highly dependent on the Arab Gulf countries for employment (and the resulting remittances), investment capital in the form of Arab donor aid, and as markets for exports. During the five year period from 1975-1980, a time of rapid expansion in the Gulf countries, Jordan experienced annual growth rates of 10% in GDP. Developments in the 1980's, however, have generally been unfavorable to both the Gulf states and Jordan. With the decline in oil earnings, which started in 1981 and the prolongation of the Iraq-Iran war, Arab Gulf states have scaled back investment plans as well as donor contributions to their less wealthy neighbors. This slowdown has affected Jordan in several ways: 1) a decline in Arab donor receipts from a peak of \$1.2 billion in 1980 to less than half that amount in 1985; 2) a levelling off of remittances in the 1980-1984 period and then an actual decline in 1985; 3) a levelling off in the rate of new jobs created for Jordanians in the Gulf countries; and 4) stiffer competition in the export of manufactured goods and agricultural products to and increased protection by traditional Arab markets. The results of these trends are clearly evident in most measures of Jordanian economic performance. In real terms GDP growth has dropped to about 5% per annum from 1981 to 1982, and 3% or less in the period from 1983 to 1985. In per capita terms, growth has been negative in the last two years. These developments have also affected the local job market where unemployment has increased to as much as 9% in 1985. A 1983 World Bank report predicted that unemployment could rise to as much as 30% by 1990 depending largely on the rate of return of workers from the Gulf states and the effectiveness of the Government's effort to restructure the economy.

2. Need for the IDP Project

In the face of these developments the Jordanian government has

identified an expansion and diversification of private sector manufacturing as one of the principal driving forces for future growth in GDP, exports, and employment. The project is designed to overcome several problems which currently inhibit the sector from becoming such a driving force:

a) Restrictive Government Policies and Ineffective Public Services: While the GOJ has generally voiced its support for the development of private sector manufacturing, there are a number of policies, regulations, and organizations which unduely restrict the growth of the sector. Among these are:

- i. licensing requirements that not only restrict entry of prospective manufacturers but also restrict the freedom of companies to change product lines or significantly expand output of an approved product.
- ii. an incentive structure that tends to encourage import substitution over exports and to direct investment away from the productive sectors.
- iii. government guaranties on loans to public sector companies and other controls on financial markets that restrict the flow of capital to private sector manufacturers
- iv. government monopolies in the importation of certain commodities and government sourcing requirements that hamper the ability of local manufacturers to produce quality products.

Unfortunately, private sector manufacturers, the group that perhaps understands best the detrimental effects of these policies and regulations, do not have the resources available to have an effective role in public policy making.

b) Poor Quality and Low Productivity: In their 1985 survey C&L found that product quality and productivity in Jordanian firms is generally low by international standards. C&L estimated that labor efficiency ranges from 10% to 75% below those standards. Such findings have generally been confirmed by other consultants such as Dr. Jordan Baruch, an expert in industry and technology transfer. These experts, as well as others, share the view that dramatic improvements will be required in production management, product quality, and cost control, if Jordanian companies are to compete successfully in international markets. The problems can be broken down as follows:

i. Poor Product Design and Adaptation: Original product design and product adaptation are lacking in many

companies, especially the smaller ones. While larger companies have been able to partly overcome this problem through licensing agreements and imported designs, the lack of in-house skills may inhibit their ability over the long run to adapt original designs to changing consumer preferences.

ii. Production Management Problems: Problems on the production floor can be attributed to: poor plant design and layout; a lack of modern management systems for production planning, cost analysis, quality assurance, and maintenance planning; poor safety and environmental conditions; and poor execution of plant maintenance. Few companies have developed compensation packages, such as piece-rate pay or bonuses, which would encourage increased labor productivity. It was noted by C&L that only a few companies employed industrial engineers on the shop floor to ensure maximum labor utilization.

- d) Lack of Marketing Orientation and Skills: Jordanian companies generally sell their products and services rather than market them. Few local companies perform detailed analysis of market characteristics and the requirements of customers prior to market entry. As a significant portion of recent growth in the manufacturing sector can be attributed to sales to the regional Arab market, where bilateral trade agreements predominate, many Jordanian manufacturers have not felt the need to develop a strong marketing orientation. As these traditional markets dry up, the shortage in marketing skills has become more acute.

There are at least three factors operating in the Jordanian environment that inhibit the delivery of outside technical assistance and training needed to alleviate these conditions:

- a) the lack of awareness of the need for managerial and technical services.
- b) the unavailability of qualified local institutions to either immediately provide the services or develop the required talent over the long term.
- c) the lack of appropriate financing mechanisms for services.

D. Project Goal and Purpose

The project goal is to transform the Jordanian private sector into the principal force for sustained economic growth, employment, and foreign exchange earnings. The project's purpose is to improve the ability of Jordanian private sector manufacturers to produce and market quality products at competitive prices.

E. Project Components - Overview

The project includes three components:

1. Strengthening and expanding the role of the Amman Chamber of Industry in public policy making and provision of services to members.
2. Creating a Manufacturing and Marketing Improvement Section (MMIS) within the Jordan Institute of Management (JIM) to help create a demand for consulting services and to serve as a mechanism to obtain and finance such services.
3. Creating an Industrial Engineering Department within the Faculty of Engineering and Technology at the University of Jordan to generate the industrial engineering support vital to the development of manufacturing and to retrain the current oversupply of engineers from other branches of engineering.

While the initial stages of the project will concentrate on the establishment or strengthening of these institutions, it is anticipated that the organizations will commence services delivery well before the conclusion of AID involvement. It is expected that the institutions will continue to provide services long after AID funding is exhausted. Taken as a whole, the components will provide complementary skill and service outputs that will make the project function as an integrated program of assistance to Jordanian industry.

AID will contribute \$9.5 million on a grant basis over the expected six year life of project. AID's contribution will finance: technical assistance to initially establish and/or strengthen target organizations, to perform studies and analyses for the Chamber, to meet the technical and managerial advisory needs of individual manufacturers, and to teach courses in Industrial Engineering at the University; training for staff and faculty of the target organizations; and commodities such as computer hardware and software (including technical data bases) and testing equipment.

The private sector and the University will contribute physical facilities, salaries of faculty and staff, and other operating expenses. The value of these contributions is approximately \$5 million.

F. Project Components - Detailed Description

1. Chamber of Industry

a. Objective

The overall objective is to revitalize and augment the Amman Chamber of Industry (The "Chamber") as a means of assisting Jordanian manufacturers to improve quality, productivity, and sales. Within this overall objective the project will attempt

to achieve the following: 1) upgrade the capacity of the Chamber to provide services to its members; and 2) develop the Chamber's capability to influence the formulation of public policies conducive to the private sector and to economic growth.

b. Implementing Agency:

The Amman Chamber of Industry, which operates by law only in the Amman area with almost 3000 members and an annual budget of roughly \$600,000, is the implementing agency for this component. The Chamber's executive staff and Board of Directors have been actively involved in the design of this project component, providing input to successive drafts of the project documents. Section V, Project Analyses - Administrative, provides additional background information on the Chamber.

c. Outputs

The major outputs of this component are defined as follows:

i. Restructured Organization.

A fundamental and necessary condition for the improved performance of the Chamber is the restructuring of the current organization to accommodate new activities. This involves improving internal management, facilitating the design and delivery of programs and services, and focusing resources on areas of priority need. The suggested new organization calls for four departments that would report to the General Manager through newly designated department heads. The four departments are: 1) Programs/Services; 2) Policy Studies; 3) Member Relations and Support; and 4) Finance and Administration. The present organization and suggested new organization are depicted in Annex 5.1 and 5.2

ii. Trained Chamber Staff:

The internal Staff of the Chamber will receive training in modern management methods, practices and systems that will facilitate increased effectiveness. This training will be accomplished through the involvement of technical assistance available either locally or from abroad or through training in appropriate U.S. institutions.

iii. Public Policy Positions Developed:

The newly created Policy Studies Department will develop at least six position papers on various policy that are of immediate concern to its members.

iv. Improved and Expanded Services:

The Programs/Services Department will provide Chamber members with a wide array of services during the course of the project including: monthly seminars and conferences on issues related to improved productivity, product development, marketing, and management techniques; surveys; case studies; trade shows; annual conferences for all Chamber members; and ongoing referrals.

d. Primary Activities:

There are two broad sets of activities to be undertaken in this component. One set is substantive and programmatic, meeting the expectations of the Chamber's members. The second set is administrative, process-oriented and related to the implementation of the component. The programs and activities are related to the suggested reorganization of the Chamber into new departments. No programs and activities offered in the past have been eliminated. Instead, new programs and services have been added, along with the resources to enable the higher level of activity to be achieved. Annex 5-3 provides the suggested new organization chart.

i. Programs/Services Department

The reorganized Chamber will be structured to provide an array of services to the private sector. These will include:

Seminars, Workshops and Conferences

The Chamber will organize 12 meetings annually on issues related to improved productivity, marketing, product development and management systems and techniques. These meetings will build awareness, rather than provide actual technical assistance. They will be structured to create demand for JIM/MMIS services and will be planned in conjunction with JIM and the Engineering College at the University of Jordan. In addition, the Chamber will continue to organize meetings as it has done in the past. The subject matter will vary widely and include such topics as trade opportunities in export markets, meetings with foreign guests, and issues suggested by members. Such events will continue to occur 2-3 times a month.

Research/Analysis

This activity will involve basic data collection, analysis and dissemination on a number of topics that are of interest to the Chamber's members, other project components, and the national economy.

- Surveys: The Chamber will organize periodic surveys and analyses. A priority survey will result in the creation of a data base of member profiles, which will provide the Chamber with better information on the membership in order to facilitate communications, to target members for program marketing, and to refine planning of services. The survey will be coordinated with other project components to maximize needed data. Additional surveys may be undertaken on compensation packages offered by members, the impact of trade shows, and attitudes of the Jordanian society towards topics of importance to manufacturers and the national economy.
  
- Case Studies: The Chamber will use its access to members to highlight and illustrate the methods and sources of business operations improvement, as well as their costs and benefits. The cases could support the awareness building required among Jordanian manufacturers to integrate quality and productivity in their operations. The purpose is to market the concepts, while delivery of services would be the responsibility of JIM/MMIS.
  
- Market Research and Data Collection: The Chamber will study export opportunities and approaches for those Jordanian industries that have superior potential for growth and exports. This study will serve to develop an export strategy, plans and programs for individual industries and target markets. In support of this effort the Chamber will utilize existing data on the export performance of Jordanian manufacturers. The Chamber of Industry has an agreement with the 6 Chambers of Commerce outside Amman to aggregate all certificate of origin invoices in order to measure annual exports. The Chambers have the most up-to-date data which will be published regularly.

#### Trade Shows and Fairs

Trade shows and fairs are presently arranged through the Commercial Centers Corporation, an organization which is owned jointly by the Chambers of Industry and Commerce and the Government of Jordan. The Chamber will perform an evaluation of these trade fairs and, if found to be beneficial, will encourage additional manufacturers to participate for the purpose of obtaining product ideas, quality comparisons, pricing information and so forth. If weaknesses are discovered, then the Chamber will work with the Corporation to overcome them.

#### Annual Conference

The Chamber of Industry has conducted an annual meeting for the last two years and has decided to institutionalize the

event. As this meeting is an excellent opportunity to assemble private sector manufacturers, attempts will be made to improve its form and content. For example, a notable figure/speaker will be considered as a way to increase participation. Reports of the previous year's accomplishments and plans for next year's activities will also be made.

#### Referrals

The Chamber estimates that it currently handles nearly 1,800 membership requests annually, although it keeps no official record of these requests. In order to better respond to member and non-member needs for information, the Chamber will develop a system to record the substance of these referrals. A gauge of the success of this activity is the number of requests regarding productivity and production that are received by both the Chamber and JIM/MMIS.

#### A Social Action Program

As part of its ongoing social action program, the Chamber will develop a proposal for the creation of a Junior Achievement program on a national level. This is one means of fostering entrepreneurship and private enterprise among Jordan's next generation of managers. Funding will be sought from a U.S. foundation interested in the promotion of private enterprise.

#### ii. Policy Studies Department

The Chamber will establish a new Policy Studies Department which will perform the following functions.

##### Proactive Program of Policy Influence:

The Department will develop a proactive program of policy influencing based on the model outlined in Annex 5.4 and summarized below:

- identification of issues based on member inputs.
- research of issues including impacts on business.
- formulation of the Chamber's position.
- continuing contact with government until resolution.

This process is appropriate for the policy issues which government initiates and those issues which the Chamber may wish to promote.

##### Monitoring of Key Government Offices:

The Department will develop a system to formally monitor the activities of key governmental offices. This monitoring would constitute the Chamber's early warning system and would be the basis for regular communications between the Chamber and the Government.

Educational Program:

The Department will undertake an educational program aimed at those government officials below the level of Undersecretary. The staff will design a program incorporating information from members on aspects of doing business, which also involve government administration and regulation. The "faculty" would be selected Chamber members. The purpose is to reduce administrative burdens which impose costs and delays on business. The Chamber will organize at least 6 programs annually on customs procedures, licensing procedures, standards setting, paperwork requirements, and others.

iii. Member Relations and Support Department

The Chamber will organize a new department to handle member relations and to support the activities of the Departments of Programs/Services and Policy Studies. This department will initiate the following activities:

- provide support to the Programs/Services and Policy Studies departments in promoting their meetings and other events.
- write, design and publish (either internally or under outside contract) a newsletter, brochures and other Chamber promotional materials.
- under the direction of the General Manager, develop other methods of substantive communications with members, such as phone interviews, when appropriate.
- computerize all relevant member data to facilitate communications with members and to update on a regular basis.
- begin to build a data base that will support other activities as required.

iv. Finance and Administration Department

The existing Finance and Administration Department will relinquish its current membership function to the Department of Member Relations and Support. The Chamber will review and upgrade remaining financial and administrative functions, including the issuance of certificates of origin to exporters, internal accounting, record keeping, personnel data, filing of documents, and messenger service. Accounts will be computerized and variance analysis (budget versus actual) will be provided to the General Manager on a timely basis. Other functions will also be automated to the extent feasible.

e. Inputs

- i. USAID will provide \$1.3 million to help carry out the

activities described above; the following are USAID financed inputs:

- Technical Assistance: A long-term, expatriate advisor experienced in all aspects of normal representational organizations functions will work closely with the President and General Manager in the installation of new staff, their training and effective implementation of programs, activities and administration. Short-term local and expatriate consultants will fill a variety of needs such as market and policy research, the definition of a management information systems and appropriate equipment, and legal consulting.

Training: In addition to the training offered on-site by a TA contractor, professional staff will attend training seminars, courses, conferences, and trade shows outside of Jordan. If possible, arrangements will be made for Chamber staff to spend short periods of time in similar U.S. representational organizations.

Commodities: Personal computers will be provided to automate existing membership, financial, and administrative functions. In addition, funds will be made available to improve the existing library.

Local Staff: During the first two years after the arrival of the long term advisor described above, USAID will provide full time professional and support staff to accomplish the objectives of the additional activities in Program/Services, Policy Studies and Member Relations Departments. By the end of 1989 it is expected that these staff will be supported from increases in Chamber revenues made possible by the project (see Annex 5.4 entitled Professional Staff Requirements for a summary of job requirements).

ii. The Chamber will provide:

Local Staff: Towards the end of 1989 the Chamber will assume all costs associated with the additional local staff initially financed by AID.

Other Local Costs: The Chamber will provide funds throughout the project to cover the additional publications costs which will result from the increased activities outlined above. In addition to these out of pocket costs, the Chamber will provide its current staff and facilities to help implement the project.

## 2. Manufacturing and Marketing Improvement Section

### a. Objective

The objective of this component is to assist Jordanian manufacturers in resolving problems of production, efficiency,

quality, cost, product definition, marketing and management through the use of specialized consulting services. This will be accomplished through the creation of a Manufacturing and Marketing Improvement Section (MMIS) within the Jordan Institute of Management (JIM). This organization will promote the use of consulting services within medium and small private sector manufacturing companies, and will serve as a mechanism to locate, partially finance and administer these consulting services.

b. Implementing Agency:

MMIS will be located in the Jordan Institute of Management (JIM), which was established in 1979 as an autonomous division of the Industrial Development Bank of Jordan (IDB). Its Director reports to an Advisory Committee which is appointed by the Board of Directors of the IDB. The resolution establishing JIM outlines four objectives: 1) provide management training; 2) provide technical and managerial consultancy services; 3) undertake research (applied and empirical) for special projects; and 4) the provision of management information to the Jordanian private sector. While JIM has concentrated on providing management training to the private sector to date, its management is anxious to move into the other three areas. JIM is one of two implementing agencies for the AID-financed Management Development Project which was authorized in 1984. The purpose of that project is to improve the quality and increase the quantity of Jordanian business managers.

Section V, Project Analyses - Administrative, provides additional background information on JIM and IDB.

c. Outputs

The outputs of this component include the establishment of a manufacturing and marketing improvement organization within the Jordan Institute of Management. The organization will be staffed initially by expatriates who will train Jordanians to take over their functions. The staff will establish a data base of proven consultants, both local and foreign, in areas of manufacturing, marketing and management. At least 200 manufacturing/marketing interventions averaging 1 man month each will be arranged by MMIS. These interventions will assist Jordanian manufacturing companies in improving productivity and quality, and expand exports and output. Interventions will be targeted to realize measurable improvements that allow cost recovery in the first year after implementation. The strengthening of the Jordanian consulting industry to support manufacturers will be an important by product. Fees paid by manufacturers for consulting services will be deposited into a special account which MMIS will use to fund ongoing operating costs and additional services to manufacturers.

d. Activities

The primary activities to be undertaken within this project

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component are: the arrangement and administration of technical and managerial services for manufacturers; and the actual delivery of those services. The former will be performed by MMIS staff while the latter will be the responsibility of short term consultants. The following is a more detailed description of these activities:

i. MMIS Staff Functions:

The primary function performed by MMIS in Jordan (excluding the interventions) is a "middleman" function between Jordanian private sector manufacturers and technical consultants (both local and foreign but predominately foreign). This middleman function does not exist in the United States but is required in Jordan for the following reasons: 1) there are functions that U.S. manufacturers do in-house that Jordanian manufacturing companies have difficulty in performing, namely problem diagnosis, problem resolution, locating qualified technical consultants, paying for U.S. consulting fee rates; and 2) there are functions that U.S. technical consultants do in the U.S. which they are not willing to do in Jordan, namely maintain offices near manufacturers, market themselves to manufacturers, and direct invoices to manufacturers. MMIS staff will attempt to bridge this gap by undertaking the following activities:

-Create Demand: the development of manufacturers' awareness of needs and the marketing of MMIS services.

-Identify Problems and Create Scope of Work: initial and detailed diagnostic analysis with the objective of identifying a scope of work for technical assistance services.

-Subcontracting Activities: the creation of a database of appropriate sources of consulting services; the matching of an individual manufacturer's needs with the appropriate sources of technical assistance; and the awarding of a contract to provide the services.

-Financial Management/Administration: the administration of MMIS including budget oversight, contract and billing procedures, reporting requirements and daily operations management.

-Monitoring and Evaluation: follow-up with the manufacturer to ensure the implementation of recommendations provided by the technical assistance services and the monitoring of actual benefits realized.

-Revenue Generation/Fund Raising: the collection of fees from manufacturers receiving technical assistance and the generation of funding from other sources.

-Coordination with Other Institutions: interface with Jordanian institutions concerned with private sector development.

-Training: the development of a local staff capability during the initial phase of the project.

The staffing of MMIS is very important for carrying out the successful implementation of the project. The total staffing of MMIS includes a section manager, an industrial engineer, a marketing specialist, an accountant and a secretary. Initially a prime contractor will fill all these positions with the exception of the accountant and secretary with expatriate staff. The expatriates will in turn hire and train local counterparts to eventually take their place during the second phase of the project.

The section manager position within the MMIS unit is critical and should be filled with an expatriate individual possessing a broad based general management and industrial engineering academic background. Ideally, this individual would have a combined M.S. engineering/MBA degree but more importantly, must have extensive multifunctional experience (manufacturing, design, marketing, finance and administration) in the manufacturing industry. The section manager will be principally responsible for managing the entire project and therefore must possess strong general management, leadership and communicative skills as well as other consulting skills such as defining problem areas, scoping and implementation of consulting interventions.

The section manager, like other individuals assigned to MMIS, will be responsible for recruiting and training local Jordanian counterparts who will eventually take over the functions and responsibilities during the second phase of the project.

The industrial engineer and marketing specialist will act as account managers and will support the MMIS section manager in carrying out the contract management activities. These positions will initially be filled by expatriates who will hire and train their local replacements. These two individuals will be heavily involved in creating demand, client servicing and subcontracting arrangements.

A major question within this component is whether Jordanian manufacturers are willing to pay for consulting services. The fact that many manufacturing companies are currently employing consulting services does not answer this question. Current consulting utilized is either local, foreign and paid by a foreign partner, or foreign and funded by some outside agency. Many of the consulting services required are foreign services whose rates are significantly higher than local Jordanian services. Given the hesitancy to invest in consulting (see Social Analysis), the project will provide supplemental funding and/or financing mechanisms. This funding is needed to: 1) prove credibility/usefulness of MMIS and consulting services; and 2) defray MMIS overhead costs.

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As Jordanian manufacturers in-house capability improves and the Jordanian technical consulting industry grows, the need for the MMIS function diminishes.

ii. Delivery of Technical/Managerial Services: The consultancy-related functions in MMIS are performed by a prime contractor and subcontractors, both local and foreign. However, the prime contractor will be limited to performing 50% of the total foreign consulting assignments, as measured on a monetary basis. This will involve detailed diagnostic analysis and actual problem resolution. Consultancies will be undertaken in manufacturing, marketing, product design, general management, cost accounting, and data processing. In manufacturing this can be sub-divided into five areas:

- Methods engineering-operations analysis, motion study, materials handling, production planning, safety, standardization, and producibility
- Work measurement- time study, predetermined elemental time standards, work sampling, rate determination, data collection and analysis.
- Control determination- production control, inventory control, quality control, cost control, and budgetary control.
- Wage and job evaluation- wage incentives, profit sharing, job descriptions and evaluations, merit rating, wage and salary administration, contract negotiations, and employee motivation.
- Plant facilities and design-plant layout, equipment procurement, maintenance and replacement, product design, tool and gage design, and numerical control programs.

In marketing, this can be sub-divided into five areas:

- Market research- determining market size, potential, coverage, trends, profitability, marketing program effectiveness, and competition studies.
- Product- product line maintenance (adding new, modifying existing and dropping old products), developing specifications, packaging, prices, guarantees and service policies.
- Distribution- determining direct or indirect sales, determining type, number, size, and location of distribution or dealers, managing transportation and warehousing.
- Sales force management- organization, recruitment, training, compensation and direction.

- Advertising and sales promotion- develop and implement plans for media, sales promotions aids, publicity and special promotions (exhibits, shows, conferences).

Both manufacturing and marketing need assistance in determining objectives, developing plans and budgeting sales and expenses.

Many of the product design functions are covered in marketing. In addition to those listed above under marketing, the following skills are needed: producibility engineering, cost engineering, standardization, packaging engineering and prototyping.

Services will be obtained from both foreign and local firms. At least initially, however, the majority of these services will be obtained from the U.S., as companies who offer services in manufacturing and product design engineering are virtually non-existent in Jordan, while local marketing, cost accounting and management consulting companies only very rarely service manufacturing companies. A 1986 study by Coopers & Lybrand of the private services sector in Jordan indicates that Jordanian manufacturers who have sought consulting services in these areas have usually gone to foreign consultants. In the area of computer consulting, however, Jordanian firms have developed basic accounting, administration and inventory control systems which are in use by local manufacturers.

A more detailed description of MMIS activities can be found in Annex 6-2.

e. Inputs

i. USAID will provide \$4.373 Million to help carry out the activities described above; the following are USAID financed inputs.

-Technical Assistance: U.S. advisors will be provided for total of 84 person months to staff MMIS during Phase I and to carry out the MMIS functions described above. In addition, AID will fund up to 204 person months of short term technical and managerial advice to manufacturers.

-Training: AID will provide a limited amount of U.S. based training for MMIS local staff. The local marketing specialist, industrial engineer, and financial specialist would each travel to the U.S. once during Phase I to work with companies providing similar services to U.S. manufacturers.

-Local Staff: During Phase I USAID will fund the costs of the local industrial engineer, marketing specialist, financial specialist, and secretary. This will amount to approximately

125 person months of staff time. The MMIS organization will also require secretarial support to be provided locally.

ii. The Jordan Institute of Management will provide:

Local Staff: During Phase II, which is expected to begin in July, 1990, JIM will assume all of the local staff costs that had been paid by AID during Phase I.

Other Local Costs: Throughout the Project JIM will furnish office facilities, and make the other sections of JIM (training, computer and administration) available for use by MMIS. JIM training facilities and courses will promote the services of MMIS, and JIM trainers may do some initial diagnostic/problem definition work for MMIS. The Computer Section will provide software and hardware capability to MMIS for data base establishment, client development, consulting intervention tracking, and MMIS financial administration.

### 3. Industrial Engineering Program

#### a. Objective

The objectives of this component are:

- To generate the industrial engineering support vital to the development of manufacturing activities in Jordan.
- To retrain available over-supply of engineers from different disciplines for careers addressing major constraints to productivity and manufacturing.

In order to accomplish these objectives, a new Department of Industrial Engineering will be created within the Faculty of Engineering and Technology at the University of Jordan. The following two post graduate programs in Industrial Engineering will be the primary focus of the Project: 1. Diploma of Industrial Engineering; and 2. Master's Degree-Industrial Engineering .

#### b. Implementing Entities

The new diploma and post graduate program in industrial engineering will be implemented by the University of Jordan's Faculty of Engineering and Technology (FET). FET has a staff of 130 professors and a student body of some 1,300, or 10% of all students at the University. The curriculum of the Faculty consists of programs in the classical branches of civil, chemical, electrical and mechanical engineering, and architecture. Section V, Project Analyses - Administrative, provides additional background information on the University of Jordan and FET.

c. Outputs

Expected outputs have been identified as follows:

- A new Department of Industrial Engineering at the University of Jordan offering graduate level programs.
- New industrial engineering courses which will provide practical approaches to increased productivity in the manufacturing sector. The details of the courses are covered in Annex 7.
- 120 students graduated from the new Department with Masters degrees or Diplomas over a six year period (i.e. 30 per year beginning around 6/89).
- Four new faculty members educated in Ph.D. programs in the U.S. Nine new or existing faculty members trained in various IE specializations.
- New laboratory facilities, and upgraded library and computer facilities.
- Two lab technicians trained in the installation, operation and maintenance of new lab equipment.
- Increased awareness of industry and service firms of the need for graduate training in industrial engineering.

d. Primary Activities

The project component requires a number of activities to take place in Jordan and the U.S.:

- i. Jordan Activities: Over a period of four academic years starting in September 1987 experienced U.S. professors of Industrial Engineering will be brought to Jordan to develop new curriculum and teaching methods, to teach IE courses, and to help develop an awareness in Jordan of the need for industrial engineering in manufacturing enterprises. These professors will also assist in the specification of laboratory, computer, and library facilities needed to support the program. They will also become involved in the identification of FET professors for short term training in the U.S. and the selection of appropriate U.S. based programs.

Once equipment has been shipped to Jordan experienced technicians will assume to install it and to provide training to two local technicians in operation and maintenance.

Finally, activities in Jordan also include selection of incoming students for scholarship awards and the evaluation of their performance during the period of assistance. It is anticipated that scholarships will be made available on a yearly basis with performance determining whether the award will be renewed.

- ii. U.S. Activities: The primary activity is the enrollment of

four new FET staff members in recognized Ph.D. programs in industrial engineering and nine current staff members in short term programs. The latter might be based in universities or in major U.S. companies with strong industrial engineering application, or a combination of the two.

e. Inputs:

i. AID will provide \$3.826 million to finance the following inputs:

- Technical Assistance: Close to 145 person months (PM) of U.S. TA will be provided over the project life. The majority of TA, i.e. 98 PM will be in the form of the U.S. faculty described previously. Remaining TA will cover two areas: the installation of lab equipment and the training of local lab technicians (12 PM), and project administration (35 PM).
- Training: AID will finance up to four PhD. programs in the U.S. in specialized areas of Industrial Engineering. In addition nine members of the current FET staff will be sent to the U.S. during their sabbaticals to update themselves in their areas of specialization or to master new specializations required by the program.
- Commodities: AID funding will also allow for the procurement of specialized equipment and commodities to establish an Industrial Engineering laboratory and a numerical control/materials handling laboratory which will give students the opportunity for practical instruction in problem solving techniques, and design and testing procedures. Further, the library facility will be updated through the introduction of recent publications and educational materials.
- Scholarship Fund: Scholarships will be made available to approximately 60 students over the life of the project to cover the cost of tuition.

ii. The University of Jordan will provide \$ 2.580 million equivalent in local currency towards the following:

Local Staff: FET will hire approximately six new faculty members to be assigned specifically to the IE Department. Of these, four will be trained in PhD. programs in the U.S. An additional seven current professors will be made available for short term training and for teaching assignments in the IE Department.

Other Local Costs: FET will make existing classrooms available for the IE Department. In addition, existing facilities will be adapted for new laboratory equipment to be financed by AID.

G. Beneficiaries

The targeted beneficiaries of the project are the owners, managers and employees of small, medium, and large private sector manufacturing companies. The general characteristics of these companies are as follows:

--Small: 4-25 employees, family owned, hired labor, low to medium tech, light manufacturing.

--Medium: 25-100 employees, family to public ownership, hired labor, medium tech, light manufacturing.

--Large: Over 100 employees, public ownership, hired labor and often professional managers, modern technology, light and heavy manufacturing (N.B. The number of truly private sector companies of this size is small, as the government controls most large companies).

Companies which have greater than 10% government ownership and/or where government has effective control are not within the target beneficiary group. In the case of the MMIS it will be possible to direct project financed assistance to these targeted beneficiaries. However, in the case of the Chamber of Industry and Industrial Engineering Department, government as well as private companies will directly benefit.

The improved Chamber of Industry will benefit Jordanian manufacturers by: enhancing their ability to influence key government policies; and by giving the manufacturers a much broader base of knowledge concerning markets, technology and other matters directly affecting their operations. In addition, JIM and MMIS will benefit by having a partner in the Chamber not only willing, but also able to create a demand for services. Finally, the Jordanian Government will benefit because it will be able to rely to a greater extent on the policy advice and research provided by the Chamber.

The new MMIS will benefit manufacturers by immediately making available a reliable source of technical and managerial advice. Beneficiaries will also include the Jordanian professional service firms who, as a result of cooperation with foreign experts, will receive increased technical and managerial problem-solving experience, and an increase in their market.

Manufacturers will also accrue major benefits from the Industrial Engineering Department which will increase the availability of local engineers with the practical problem solving skills needed to improve production processes.

Finally, indirect benefits will accrue to the general public who can be expected to consume higher quality and possibly lower priced manufactured goods. In addition, as manufacturing firms expand output in response to new market opportunities, it can be expected that additional workers will be required.

II. IMPLEMENTATION PLAN

A. Overview

The activities described in Section I, Project Rationale and Description, will be carried out by the three principal implementing agencies, each with the assistance of a host country contractor. The contractors will be responsible for providing most of the AID financed project inputs as well as assisting with the procurement of Jordanian financed inputs, such as local staff.

B. Component Implementation

1. Chamber of Industry

a. Schedule of Activities/Procurement:

<u>Action</u>	<u>Start/Complete Dates</u>
AID/GQJ sign PROAG	9/30/86
Chamber prepares information to satisfy CP's. AID reviews/approves.	10/1/86-12/15/86
Chamber prequalifies firms for long term contract, & obtains AID approval.	10/1/86-1/15/86
Chamber solicits proposals from prequalified firms, selects top ranked firm, & obtains AID approval.	1/15/87-4/15/87
Chamber negotiates & signs contract, & obtains AID approvals.	4/15/87-6/15/87
Long term(LT) advisor mobilizes.	5/15/87-7/15/87
Chamber & LT advisor recruit & hire local staff.	7/15/87-10/1/87
LT advisor arranges for first round of policy studies	10/1/87-1/31/88
Contractor procures & delivers commodities.	1/1/88-6/30/88
LT advisor arranges for second round of policy studies.	8/1/88-10/30/88
Chamber & AID contract for first evaluation, & evaluation contractor executes.	1/189-4/15/89
LT advisor arranges for third round	

of policy studies.	3/1/89-5/31/89
LT advisor departs.	7/15/89
Short term advisor visits Chamber	4/1/90-4/30/90
Chamber arranges fourth round of policy studies.	4/1/90-6/30/90
Short term advisor visits Chamber.	4/1/91-4/30/91
Chamber arranges fifth round of policy studies.	4/1/91-6/30/91
Short term advisor visits Chamber.	4/1/92-4/30/92
Chamber arranges sixth round of policy studies.	4/1/92-6/30/92
Chamber & AID arrange for final evaluation, & evaluation contractor executes	5/15/92-9/30/92

A detailed implementation schedule for Chamber activities/procurement is presented in Annex 5-9.

b. Procurement of Project Inputs:

As described in Section I, AID will provide technical assistance, training, commodities, and local staff for the Chamber of Industry. The first three categories of inputs will be delivered through a single, host country contract between the Chamber and a U.S. organization; local staff will be obtained through individual personal services contracts between the individuals and the Chamber. Procedures outlined in AID Handbook 11, Host Country Contracting, will be utilized.

The U.S. organization will be contracted initially for a period of approximately two years with an option at that point to renew the contract to cover the entire term of the project. The decision on whether to renew the contract would be made in conjunction with the first evaluation, scheduled for April 1989. Responsibilities of the contractor are as follows:

- **Technical Assistance:** The contractor will provide a long term expatriate advisor who will be stationed at the Chamber for two years. The advisor will not only provide technical advice on matters related to the new organization and functions of the Chamber, but will also act as the contractor's project director with full authority and responsibility designated to him for all contractual matters. The long term advisor will subcontract both U.S. and Jordanian advisors for short term assignments related to GOJ policies, comparison of business policies of various Middle East countries, market intelligence, legal reviews of Chamber by-laws, and internal management and financial informations systems.

The long term advisor will play a key role in the selection of new Chamber staff. However, the new staff will be employees of the Chamber, not of the contractor.

-Training: The contractor will arrange for staff attendance at training seminars, courses, conferences, and trade shows.

-Commodities: The contractor will develop specifications, solicit quotations, sign contracts, and arrange for equipment delivery and installation.

Should it be decided to renew the contract in 1988, then the contractor would continue to be responsible for arranging short term technical advice and training during the remainder of the project life.

2. Manufacturing and Marketing Improvement Section (MMIS)

a. Schedule of Activities/Procurement:

The implementation of MMIS will be divided into two phases. During Phase I the operations of the MMIS unit will be contracted to a prime contractor who will be responsible for both the staffing of MMIS and arranging for consulting services to manufacturers. JIM will assume responsibility for Phase II of the project by directly employing MMIS staff who by that time will be all Jordanians. JIM will also be responsible for managing the short-term consultancies during Phase II.

The following schedule outlines the action plan for MMIS.

<u>Action</u>	<u>Start/Complete Dates</u>
AID/GOJ sign PROAG	9/30/86
JIM prepares information to satisfy CP's. AID reviews/approves.	10/1/86-12/15/86
JIM prequalifies firms for long term contract, & obtains AID approval.	10/1/86-1/15/86
JIM solicits proposals from prequalified firms, selects top ranked firm, & obtains AID approval.	1/15/87-4/15/87
JIM negotiates & signs contract, & obtains AID approvals.	4/15/87-6/15/87
Contractor staff (General Manager, IE, Marketing Expert) mobilizes.	5/15/87-7/15/87
Contractor recruits & hires local staff.	7/15/87-11/15/87

Local marketing specialist receives training in U.S.	6/1/88-6/30/88
JIM & AID contract for Phase I mid-term evaluation, & evaluation contractor executes.	8/1/88-11/15/88
Local financial specialist receives training in U.S.	9/1/88-9/30/88
U.S. Marketing Expert departs.	11/15/88
Local IE receives training in U.S.	6/1/89-6/30/89
JIM & AID contract for Phase I evaluation, & evaluation contractor executes.	12/1/89-2/15/90
U.S. IE departs	1/15/90
U.S. General Manager Departs.	7/15/90
PHASE II begins; operation of MMIS becomes full responsibility of JIM; local IE or marketing specialist becomes MMIS Coordinator.	7/15/90
JIM & AID contract for final evaluation, contractor executes.	5/15/92-9/30/92

A detailed implementation schedule for MMIS activities/procurement is provided in Annex 6-5.

b. Procurement of Project Inputs

Overview: A contract will be awarded for approximately \$4.025 million to a prime contractor to carry out overall component management in Phase I and the short-term technical assistance to manufacturers in both Phase I and Phase II. Except for programmed evaluation costs, this in essence represents USAID's total financial inputs to the MMIS component.

The role of the prime contractor is to implement and operate MMIS in Phase I of the project (3/1/87 to 3/1/90). In this role, the prime contractor reports directly to JIM. This includes staffing MMIS, carrying out the functions described in the component description, and administering the contract with JIM.

Phase I Mechanism - Prime Contract: MMIS needs to provide a wide array of short-term consulting services to Jordanian private sector manufacturers. As such, during Phase I, the prime contractor must be able to access a multitude of talents and resources beyond those any one organization or individual can adequately offer. Since the exact mix of skills and disciplines for short-term TA cannot be forecasted precisely at this time, and will not be until specific interventions are

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undertaken during the course of the project, it will be necessary to implement a contracting mechanism which allows the prime contracting organization sufficient flexibility to enter into subcontracting arrangements with as many other firms and individuals as will be necessary.

The contract will allow the prime contractor to charge a negotiated general and administrative rate and fee on outside consultants and subcontractor firms. This will give the prime contractor the incentive to search beyond his own resources for the most appropriate talents to assign to individual work orders.

Subcontracts: Immediately after the contract is awarded, the prime contractor will enter into general agreements with subcontracting firms. These agreements will outline the conditions by which technical assistance will be provided and procedures to be followed for reporting, invoicing, and other administrative matters. The level of effort will not be fixed in the individual agreements but may be referenced for planning purposes.

Work Order Processing: All short term consulting assignments for manufacturers will be handled on a work or job order basis. As such, each of the MMIS technical assistance assignments for manufacturers can be considered as separate and distinct work orders to be individually scoped, staffed, performed, and managed. The following procedures will be followed for planning and implementing individual short-term TA assignments:

#### Scoping

The prime contractor will develop terms of reference (TOR) in all situations where consulting services are desired. The TOR need not necessarily be elaborate, however they must clearly state the nature of the problem, the type and amount of consultancy services to be offered, and the outputs and benefits to be expected by the intervention. Based on the TOR, the account manager will identify qualified consultants from the available pool of resources for staffing the work order.

#### Rate Negotiation

Once potential consultants or firms have been identified, the prime contractor will negotiate fees and rates to be applied. For firms, these would be based on the guidelines initially established in the overall subcontractor agreements. The prime contractor is expected to recover a certain portion of the costs associated with the services performed. While guidelines are established for how much should be recovered, actual charges will vary and would be negotiated on a case by case basis.

The establishment of a special account to capture fees generated for services, provides a natural incentive for JIM to assure that the contractor fulfills its responsibilities in this regard. As an incentive it is recommended that any fees recovered by the prime contractor during Phase I beyond those originally estimated in the financial plan would go towards increasing the total contract amount of the prime contractor. This in essence would increase the total level of effort in which the prime contractor may apply his negotiated overheads, general and administrative expenses and fees.

Work Order Approval:

The technical specifications and budget will require the approval of the MMIS section manager and the JIM Deputy Director prior to implementation of the work order. As the amount of any one individual consulting assignment is not expected to exceed \$50,000, specific AID approval will not be required.

Implementation

Once all approvals are obtained, the assigned consultants can begin their tasks. Work order activities will be overseen by the assigned MMIS account manager, who also will provide technical inputs to the tasks.

Reporting

The prime contractor will be expected to establish a reporting system that adequately informs both JIM and AID on the consulting activities of the MMIS unit.

Phase II Mechanism:

The Phase II mechanism will be similar to Phase I except for the following:

- The local staff of the prime contractor will become employees of JIM, which will assume full responsibility for the arrangement of short term consultancies.
- The prime contractor may continue to provide short term consulting services to manufacturers under its original contract through either: 1) AID funding remaining in the contract at the end of Phase I; or 2) funds, collected by the contractor and deposited in the special account, that are above targeted amounts.
- Fees recovered in Phase II will accrue in the special account and will be used by JIM for its own operations and for financing additional consulting services.
- JIM will provide incentive bonuses to MMIS staff for charging and collecting fees in Phase II beyond those estimated in the financial plan.

3. Industrial Engineering Program

a. Schedule of Activities/Procurement

<u>Action</u>	<u>Start/Complete Dates</u>
AID/GOJ sign PROAG	9/30/86
FET prepares information to satisfy CP's. AID reviews/approves.	10/1/86-12/15/86
FET recruits & hires 6 new staff members	10/1/86-12/31/86
FET prequalifies firms for long term contract, & obtains AID approval.	10/1/86-1/15/86
FET & AID place 4 candidates in PhD. programs in the U.S.	1/1/87-8/31/87
FET solicits proposals from prequalified firms, selects top ranked firm, & obtains AID approval.	1/15/87-4/15/87
FET negotiates & signs contract, & obtains AID approvals.	4/15/87-6/15/87
Contractor's Project Director visits Jordan to develop first year work plan, including equipment specifications.	6/15/87-7/15/87
Contractor solicits equipment quotes	7/15/87-9/15/87
Four PhD. candidates study in U.S.	9/1/87-9/1/91
Three professors go for short term training in U.S.	9/1/87-6/1/88
Two U.S. professors teach IE courses in Jordan.	9/1/87-6/1/88
Contractor evaluates equipment quotes & signs contracts.	9/15/87-11/15/87
Equipment suppliers deliver.	11/15/87-2/15/88
Project Director visits Jordan to update workplan.	4/1/88-4/30/88

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Three professors go for short term training in U.S.	9/1/88-6/1/89
Three U.S professors teach IE courses in Jordan.	9/1/88-6/1/89
FET & AID contract for interim evaluation; evaluation contractor executes.	2/15/89-6/1/89
Project Director visits Jordan to update workplan.	4/1/89-4/30/89
Three professors go for short term training in U.S.	9/1/89-6/1/90
Three U.S. professors teach IE courses in Jordan.	9/1/89-6/1/90
Project Director visits Jordan to update workplan.	4/1/90-4/30/90
Three U.S. professors teach IE courses in Jordan.	9/1/90-6/1/91
FET & AID contract for final evaluation; evaluation contractor executes.	5/15/92-9/30/92

b. Procurement of Project Inputs

AID financed project inputs will be provided through three different mechanisms: 1) a host country contract between FET and a U.S. organization; 2) through issuance of PIO/P's to AID's International Training Division in Washington; and 3) through direct reimbursement of local costs. The following is a more detailed description of each of these mechanisms:

i. Host Country Contract: A single host country contract will be awarded by the University to a U.S. organization, such as a university, company, or joint venture to provide or arrange for most of the AID financed inputs described in Section I. Procedures outlined in AID Handbook 11, Host Country Contracting, will be utilized. In solicitation documents issued by the University, bidders will be encouraged to utilize a wide variety of U.S. universities to provide the necessary faculty and training opportunities. The long term contractor's responsibilities will be as follows:

-Technical Assistance:

---Project Management/Administration: Over a six year period, the contractor will provide a project director and administrative support staff to arrange for all required faculty advisors, training, and commodities. The Director will visit the University of Jordan approximately once a year

to provide guidance in the implementation and management of the new program. During each visit the contractor will work with the faculty to identify the U.S. faculty, training, and equipment needs for the coming semester and academic year.

---Provision of U.S. faculty to teach course and develop curriculum.

-Training: The contractor will design the short-term training programs for FET faculty members going on sabbaticals in the U.S., using a combination of academic and industrial facilities.

-Commodities: The prime contractor will arrange, either directly or through a subcontract with an engineering firm or other qualified organization, to procure: computer hardware and software; library materials; and the specialized equipment and services needed to establish new laboratory facilities and train two Jordanian technicians.

ii. Direct Placement: Since the contractor will not be on board until July 1987 and Ph.D. candidates must start their programs in September 1987, FET and AID will work together to place the four Ph.D. candidates through normal AID participant training channels.

iii. Direct Reimbursement: AID and FET will jointly select entering Master's and Diploma candidates for award of scholarships to pay tuition costs. It is anticipated that AID will advance local currency to FET on the basis of documentation on each of the scholarship candidates.

C. Methods of Implementation and Financing

The "U.S. Direct Reimbursement/Payment Method" with appropriate modifications (i.e. advances to consultants for local currency costs when beneficial to the Government) will be the primary method of financing. USAID follows the same payment verification procedures for vouchers processed under Direct L/COM's as it does for vouchers under Direct Payment/Reimbursements. Direct L/COM's will be used when necessary to provide the guarantee required by suppliers and contractors. USAID does not anticipate the use of Bank L/COM's. However, a Bank L/COM will be used if circumstances so dictate. The Fixed Amount Reimbursement will not be used as the project does not lend itself to this procedure. USAID will also not use Federal Reserve Letters of Credit (FRLC's), as it believes the Direct Payment/Reimbursement mode provides greater control.

As mentioned above, USAID expects to use a cash advance mechanism for various local cost components under the project. The advance mechanism will be used only when its use is determined to benefit the government (i.e. reduction or elimination of General and Administrative (G & A) costs pertaining to local costs etc.). It is anticipated that in most cases the advance will cover the cash requirements for a ninety (90) day period as thirty (30) day advances recommended by USAID's Cash Management Policies would impede and interrupt timely project implementation.

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METHODS OF IMPLEMENTATION AND FINANCING

<u>PROJECT ELEMENT</u>	<u>ORGANIZATION</u>	<u>METHOD OF IMPLEMENTATION</u>	<u>METHOD OF FINANCING</u>	<u>APPROXIMATE AMOUNT</u>
1. Technical Assistance				
- Foreign Exchange Costs	Chamber MMIS FET	H/C Contract	Reimbursement Under Direct L/Comm	481 2,814 <u>1,732</u>
Total				<u>5,017</u>
- Local Currency Costs	Chamber MMIS FET	H/C Contract	Reimbursement under Direct L/Comm or 90 day revolving cash Advance	94 513  <u>47</u> <u>654</u>
Total				<u>654</u>
2. Training				
- Long Term	FET	PIO/P	Payment to Master Disb. A/C	337
Total				<u>337</u>
- Short Term	Chamber MMIS FET	H/C Contract	Reimbursement under Direct L/Comm (may use unfunded PIO/P's to Master Disb. A/C)	111 11 <u>189</u> <u>311</u>
Total				<u>311</u>
3. Commodities	Chamber FET	H/C Contract	Reimbursement under Direct L/Comm	89 549 <u>638</u>
Total				<u>638</u>

D. Planned Audit Coverage

In accordance with the provision of Policy Statement No.6 as outlined in State 263872 dated September 5, 1984, USAID has evaluated the potential risks, assessed USAID's vulnerability, and considered the need for special audit coverage unnecessary, as USAID will be auditing all the invoices under the direct payment/reimbursement financing mode. Should an unanticipated critical need for an audit emerge during project implementation, we will fund it through the contingency element of the project or utilize the guidelines recommended in State 263872 to request assistance. However, as we believe that the probability that an audit will be required is very low, we have decided that project funds should not be set aside for this purpose.

E. Gray Amendment

The Industrial Development Project, and in particular the MMIS component, will provide a large number of relatively small contract actions. Many of these, will be susceptible to the use of small, socially, and economically disadvantaged companies. It is impossible at this time to assign a contracts, but the Mission will, as the opportunities arise, use so-called Gray Amendment firms.

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<u>PROJECT ELEMENT</u>	<u>ORGANIZATION</u>	<u>METHOD OF IMPLEMENTATION</u>	<u>METHOD OF FINANCING</u>	<u>APPROXIMATE AMOUNT</u>
4. Local Staff	Chamber	H/C Contract/Employee	Direct Payment/Reimb. or monthly advance to to Chamber	<u>192</u>
Total				<u>192</u> =====
5. Scholarship Fund	FET	Memorandum of Agreement with FET and/or University	Direct Payment to University, and/or recipient or periodic advance to FET.	<u>120</u>
Total				<u>120</u> =====
6. Evaluation	Chamber MMIS FET	Direct or Host Country Contract	Reimbursement/Payment Direct L/Comm may be used.	70
Total				70 <u>56</u> <u>196</u> =====

### III. COST ESTIMATE AND FINANCIAL PLAN

#### A. Overview

The total project cost is estimated at \$14.1 million. AID financed inputs total \$9.5 million in grant funds over the six year life of the project, \$4.0 million of which will be obligated in FY 86 and the remaining \$5.5 million in FY 87. AID funds will be used for technical assistance, training, commodities, local cost support, and a scholarship fund. Jordanian institutions are expected to contribute approximately \$4.3 million equivalent in local currency to fund local staff salaries, and other local costs such as the cost of renting physical facilities.

Foreign exchange costs total \$8.3 million, or 59% of the total project cost. AID funds will support all necessary foreign exchange as well as \$1.2 million in local currency expenditures.

An allowance for contingencies is included in the budget at a flat rate of 10% over the project life. In addition, all base year estimates are increased at an annual rate of 5% to allow for inflation.

The Summary Cost Estimate and Financial Plan is presented in Table 3-1 and the First Funding Increment in Table 3-2.

#### B. Cost Estimates and Financial Plans of Institutional Components

The cost estimate and financial plan for each project component is provided below. A detailed break-down of the cost estimates for each component, including the estimated man-months and related costs per man-month is provided in Annexes 5, 6, and 7.

##### 1. Chamber of Industry

As shown in Table 3-3, the total estimated cost of this component is \$2.2 million of which AID will contribute \$1.3 million, while the Chamber of Industry will fund \$.861 million.

AID funds will support both long term and short term technical assistance, training, local staff costs and commodities. The Chamber of Industry will fund local staff costs, and other local costs such as the increase in publications expenses expected to result from the project. It should be noted that the budget for the Chamber inputs shows only the marginal costs that result from the project.

Foreign exchange costs for this project component are estimated at \$.942 million, or 43% of the component total. AID will fund all of this total as well as \$.358 million in local currency costs.

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2. Manufacturing and Marketing Improvement Section (MMIS)

As indicated in Table 3-4, the total cost of the MMIS component is \$5.5 million of which AID will finance \$4.4 million while the Industrial Development Bank, JIM and private sector manufacturers are expected to contribute the equivalent of \$1.1 million in local currency. As discussed previously in Section II contributions from manufacturers will be deposited into a special account which will be available for MMIS local operating costs and for additional consulting service.

AID will fund the Phase I staffing costs of MMIS, short term technical assistance to manufacturers, and a limited amount of training in the U.S. Manufacturers will fund a portion of the direct technical assistance costs. IDB contributions will consist largely of in-kind facilities and support.

Foreign exchange costs for this project are estimated at \$3.715 million or 68% of the project component total. AID will fund all of this total as well as \$.659 million in local currency costs.

The prime contractor will manage and be responsible for completing the Phase I component of the contract which is now estimated at 323 person months of TA totaling \$2.558 million. JIM will administer the Phase II MMIS component, of which the short-term technical assistance portion is currently estimated at 90 person months at a cost of \$.769 million, or 23% of the total contract. Of the \$3.327 million allocated to the prime contractor for technical assistance, approximately \$1.261 million will be earmarked for MMIS staff functions described in Section II. The remaining \$2.066 million will fund short-term consultancy, of which a minimum of 50% will be earmarked to both foreign and local subcontractors and independent consultants.

JIM will separately fund the requirements for the local staff through the collection of fees from manufacturers. The IDB will fund the remaining project cost for facilities, commodities, and in-kind cost elements.

3. Industrial Engineering Program

As indicated in Table 3-5, the total estimated cost of this component is \$6.4 million. AID input will fund \$3.8 million in technical assistance, short term training, PHD programs, commodities, and and a scholarship program. It is anticipated that the GOJ will pay an additional \$2.6 million for local professional staff, facilities preparation, and international travel for Jordanian participants.

Foreign exchange costs for this project component are estimated at \$3.6 million, or 56% of the component total. AID will fund all foreign exchange costs as well as \$.211 million in local currency costs.

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SUMMARY COST ESTIMATE AND FINANCIAL PLAN  
(000s of USD)

TABLE 3-1

	CHAMBER (A)			MMIS (B)			FET (C)			TOTAL F.X.	TOTAL L.C.	TOTAL PROJECT
	F.X.	L.C.	TOTAL	F.X.	L.C.	TOTAL	F.X.	L.C.	TOTAL			
<b>AID INPUTS</b>												
1. TECHNICAL ASSISTANCE	481	74	574	2814	513	3327	1722	47	1769	5017	654	5670
2. TRAINING	111	-	111	11	-	11	526	-	526	647	0	647
3. COMMODITIES	89	-	89	-	-	0	549	-	549	638	0	638
4. LOCAL STAFF	-	192	192	-	-	0	-	-	0	0	192	192
5. SCHOLARSHIP FUND	-	-	-	-	-	-	-	120	120	0	120	120
6. EVALUATION	70	-	70	70	-	70	56	-	56	196	0	196
SUBTOTAL	751	236	1036	2895	513	3408	2353	167	3019	6498	965	7463
7. CONTINGENCY	75	29	104	289	51	341	285	17	302	650	97	746
8. INFLATION	116	44	161	531	94	625	477	28	505	1124	166	1290
TOTAL AID INPUTS	942	358	1300	3715	657	4373	3615	211	3826	8272	1228	9500
<b>JORDANIAN INPUTS</b>												
LOCAL STAFF	-	531	531	-	246	246	-	1834	1834	0	2611	2611
OTHER LOCAL COSTS	-	97	97	-	605	605	-	175	175	0	877	877
SUBTOTAL	0	628	628	0	851	851	0	2009	2009	0	3488	3488
CONTINGENCY	0	63	63	0	85	85	0	201	201	0	349	349
INFLATION	-	170	170	-	194	194	-	413	413	0	777	777
TOTAL JORDANIAN INPUTS	0	861	861	0	1130	1130	0	2623	2623	0	4614	4614
PROJECT TOTAL	942	1219	2161	3715	1788	5503	3615	2834	6449	8272	5842	14113

SUMMARY COST ESTIMATE AND FINANCIAL PLAN: FIRST FUNDING INCREMENT  
(000s of USD)

	CHAMBER (A)			NMIS (B)			FET (C)			TOTAL F.X.	TOTAL L.C.	TOTAL INCREMENT
	F.X.	L.C.	TOTAL	F.X.	L.C.	TOTAL	F.X.	L.C.	TOTAL			
<b>AID INPUTS</b>												
1. TECHNICAL ASSISTANCE	325	51	376	1196	113	1309	599	14	603	2110	179	2289
2. TRAINING	18	-	18	4	-	4	206	-	206	228	0	228
3. COMMODITIES	71	-	71	-	-	0	488	-	488	559	0	559
4. LOCAL STAFF	-	135	135	-	-	0	-	-	0	0	135	135
5. SCHOLARSHIP FUND	-	-	-	-	-	-	-	45	45	0	45	45
6. EVALUATION	42	-	42	28	-	28	14	-	14	84	0	84
SUBTOTAL	456	186	642	1228	113	1341	1297	59	1357	2981	358	3340
7. CONTINGENCY	46	19	64	123	11	134	130	6	136	298	36	334
8. INFLATION	40	16	56	117	11	128	136	6	142	293	33	326
TOTAL AID INPUTS	542	220	762	1468	136	1603	1563	72	1634	3572	428	4000
<b>JORDANIAN INPUTS</b>												
LOCAL STAFF	-	47	47	-	0	0	-	598	598	0	645	645
OTHER LOCAL COSTS	-	20	20	-	215	215	-	75	75	0	310	310
SUBTOTAL	0	67	67	0	215	215	0	673	673	0	955	955
CONTINGENCY	0	7	7	0	22	22	0	67	67	0	95	95
INFLATION	-	7	7	-	17	17	-	54	54	0	78	78
TOTAL JORDANIAN INPUTS	0	81	81	0	254	254	0	794	794	0	1128	1128
TOTAL FIRST INCREMENT	542	301	843	1468	389	1857	1563	865	2428	3572	1556	5128

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CHAMBER OF INDUSTRY  
SUMMARY COSTS  
(000s of USD)

TABLE 3-3

	1986	1987	1988	1989	1990	1991	1992	TOTAL
	----	----	----	----	----	----	----	-----
<u>AID INPUTS</u>								
<u>TECHNICAL ASSISTANCE</u>								
-U.S.	0.0	96.2	178.0	121.8	28.0	42.0	14.0	480.5
-Local	0.0	31.2	19.5	11.7	7.8	15.6	7.8	93.6
TOTAL TA	0.0	128.0	197.5	133.5	35.8	57.6	21.8	574.1
TRAINING	0.0	0.0	18.0	41.0	18.0	18.0	16.3	111.3
COMMODITIES	0	0	71	6	5	4	3	89
LOCAL STAFF	0.0	20.9	114.0	57.0	0.0	0.0	0.0	191.9
EVALUATION	0.0	14.0	28.0	0.0	0.0	28.0	0.0	70.0
SUBTOTAL	0.0	162.9	428.5	237.5	58.3	107.6	41.1	1036.3
CONTINGENCY	0.0	16.3	42.9	23.7	5.9	10.8	4.1	103.6
INFLATION	0.0	9.0	47.1	41.8	14.2	33.1	15.4	160.6
TOTAL AID INPUTS	0.0	188.1	518.5	303.0	78.2	151.5	60.5	1300
<u>CHAMBER INPUTS</u>								
LOCAL STAFF	0.0	11.3	36.0	35.1	158.4	158.4	132.0	531.2
OTHER LOCAL COSTS	0.0	0.0	20.0	20.0	20.0	20.0	16.7	96.7
SUBTOTAL	0.0	11.3	56.0	55.1	178.4	178.4	148.7	627.8
CONTINGENCY	0.0	1.1	5.5	5.5	17.8	17.8	14.9	62.8
INFLATION	0.0	0.6	6.2	9.7	43.2	54.9	55.6	170.2
TOTAL CHAMBER INPUTS	0.0	13.0	67.8	70.3	239.4	251.2	219.1	860.8
TOTAL USAID & CHAMBER	0.0	201.1	586.2	373.3	318.3	402.7	279.6	2161.3

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TABLE 3-4

MMIS SUMMARY COSTS (000s of USD)		1986	1987	1988	1989	1990	1991	1992	TOTAL
		----	----	----	----	----	----	----	-----
AID INPUTS									
-----									
TECHNICAL ASSISTANCE									
-FOR MMIS STAFF									
--U.S. Staff	0.0	296.3	443.8	300.0	100.0	0.0	0.0		1050.0
--Local Staff	0.0	14.9	63.5	75.2	57.4	0.0	0.0		210.9
-TOTAL FOR MMIS STAFF	0.0	221.1	507.2	375.2	157.4	0.0	0.0		1260.9
-FOR MANUFACTURERS									
--U.S. Consult.	0.0	112.0	434.0	462.0	350.0	294.0	112.0		1764.0
--Local Consult.	0.0	3.9	31.2	46.8	64.4	81.9	74.1		302.3
-TOTAL FOR MANUF.	0.0	115.9	465.2	508.8	414.4	375.9	186.1		2066.3
TOTAL TA	0.0	337.0	972.4	884.0	571.7	375.9	186.1		3327.1
TRAINING	0.0	0.0	3.5	3.5	3.5	0.0	0.0		10.5
EVALUATION	0.0	14.0	14.0	0.0	0.0	0.0	42.0		70.0
SUBTOTAL	0.0	351.0	989.9	867.5	575.2	375.9	228.1		3407.6
CONTINGENCY @ 10%	0.0	35.1	99.0	86.8	57.5	37.6	22.8		340.8
INFLATION	0.0	19.3	108.9	156.2	139.2	115.3	85.3		624.7
TOTAL AID INPUTS	0.0	405.4	1197.8	1132.5	772.0	529.3	336.2		4373.1
JIM/IDB INPUTS									
-----									
LOCAL STAFF	0.0	0.0	0.0	42.0	72.0	72.0	60.0		246.0
OTHER LOCAL COSTS	0.0	115.0	100.0	99.0	97.0	97.0	97.0		605.0
SUBTOTAL	0.0	115.0	100.0	141.0	169.0	169.0	157.0		851.0
CONTINGENCY @ 10%	0.0	11.5	10.0	14.1	16.9	16.9	15.7		85.1
INFLATION	0.0	6.3	11.0	24.9	40.9	52.1	59.7		193.8
TOTAL JIM/IDB INPUTS	0.0	132.8	121.0	179.9	226.8	238.0	231.4		1129.9
TOTAL AID & JIM/IDB	0.0	538.2	1318.8	1312.4	998.7	767.2	567.6		5503.0

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TABLE 3-5

FET SUMMARY COSTS (000s of USD)		1986	1987	1988	1989	1990	1991	1992	TOTAL
		----	----	----	----	----	----	----	----
<b>AID INPUTS</b>									
-----									
<b>TECHNICAL ASSISTANCE</b>									
-U.S.	0.0	163.0	426.0	557.0	349.0	199.0	28.0		1722.0
-Local	0.0	3.6	10.8	10.8	10.8	10.8	0.0		46.8
TOTAL TA	0.0	166.6	436.8	567.8	359.8	209.8	28.0		1768.8
<b>TRAINING</b>									
-PhD Programs	0.0	28.8	86.4	86.4	86.4	48.6	0.0		336.6
-Sabbaticals	0.0	28.0	63.0	63.0	35.0	0.0	0.0		189.0
TOTAL TRAINING	0.0	56.8	149.4	149.4	121.4	48.6	0.0		525.6
COMMODITIES	0.0	0.0	549.0	0.0	0.0	0.0	0.0		549.0
SCHOLARSHIP FUND	0.0	15.0	30.0	30.0	30.0	15.0	0.0		120.0
EVALUATION	0.0	14.0	0.0	14.0	0.0	0.0	28.0		56.0
SUBTOTAL	0.0	252.4	1165.2	761.2	511.2	273.4	56.0		3019.4
CONTINGENCY @ 10%	0.0	25.2	116.5	76.1	51.1	27.3	5.6		301.9
INFLATION	0.0	13.9	128.2	134.0	123.7	84.2	20.9		504.9
TOTAL AID INPUTS	0.0	291.5	1409.9	971.3	686.0	384.9	82.5		3626.2
<b>FET INPUTS</b>									
-----									
LOCAL STAFF	0.0	288.0	309.6	331.2	331.2	331.2	243.0		1834.2
OTHER LOCAL COSTS	25.0	25.0	25.0	25.0	25.0	25.0	25.0		175.0
SUBTOTAL	25.0	313.0	334.6	356.2	356.2	356.2	268.0		2009.2
CONTINGENCY @ 10%	2.5	31.3	33.5	35.6	35.6	35.6	26.8		200.9
INFLATION	0.0	17.2	36.3	62.7	86.2	109.7	100.2		412.9
TOTAL FET INPUTS	27.5	361.5	404.9	454.5	478.0	501.5	395.0		2623.0
TOTAL AID & FET	27.5	653.0	1814.8	1425.8	1164.1	886.5	477.6		6449.2

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#### IV. MONITORING PLAN

##### A. Overall Monitoring Procedure

USAID's Private Enterprise Office will be responsible for monitoring project implementation and the timely reporting and resolution of problems. The U.S. Project Officer in charge of the project will be assisted by a Jordanian Program Assistant who will be hired in the first quarter of FY 1987. The objectives of the monitoring plan are: 1) to assure that project inputs arrive in a timely fashion; and 2) to assure that continued progress is made towards project objectives.

The following types of monitoring activities will be undertaken for each project component:

1. Meetings with Project Participants: The Project Officer will meet on a regular basis, at least once a month, with those responsible for each of the project components. In addition, the Project Officer, the Section Manager of MMIS, the Director of the Chamber of Industry, and the Director of Industrial Engineering graduate program at the University of Jordan will meet together on a quarterly basis in order to facilitate coordination among project components. These meetings will also serve as a brief formal review of each component's status. The Project Officer will also meet as often as possible with the manufacturing firms that are supposed to benefit from project activities.
2. Reports from Implementing Agencies: During the initial stages of the project the implementing agencies will be responsible for submitting reports to AID on the status of contracting activities. Once U.S. organizations are contracted the bulk of formal reporting requirements will shift to the contractors. Throughout the life of the project each implementing agency will submit annual financial statements and budgets to AID.
3. Contractor Reports: An extremely important source of information for AID monitoring activities is the reporting system to be set up by each of the host country contractors described in Section II, Implementation Plan. Contractors will submit to the implementing agencies and AID the following types of reports: monthly reports; annual project implementation plans; end of tour reports; and final reports.
4. Internal AID Reports: There are two types of internal USAID/Amman reports which will assist in the monitoring of the project: quarterly implementation reports prepared by the Project Officer for AID Management in Amman and Washington; and quarterly financial reports prepared by the USAID Controller.

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5. Quarterly Project Reviews: The AID reports described above form the basis for quarterly reviews of the entire USAID/Amman portfolio by the Mission's Senior Review Committee.

B. Component Monitoring Requirements

1. Chamber of Industry:

The Project Officer will pay particular attention to the assumptions outlined in the Logframe for achieving project outputs. The critical question is whether the Chamber can expand its revenue base to continue the programs initiated with AID funds. The following types of information will be reviewed: summaries of new member registrations, increases in dues, members' participation in meetings, research completed, and analysis of referrals.

2. Manufacturing and Marketing Improvement Section

The Project Officer will closely monitor the willingness of manufacturers to purchase the services offered through MMIS and the appropriateness of the prices charged for those services. Through the methods described above the Project Officer will monitor the activities of each staff member for each function of MMIS, including the companies contacted for demand creation, status and results of each company project, status of data bank development, and status of staff development.

3. Industrial Engineering Program:

The Project Officer will pay particular attention in the early stages of project implementation to the following areas: the hiring of new staff for the IE Department, an activity which is critical to the timely implementation of the overall program; and the willingness of Jordanians to enroll in the new IE program. As the project progresses it will be important to keep close tabs on the Ph.D. candidates being trained in the U.S., as they will form the nucleus of the new department once the U.S. professors depart.

## V. PROJECT ANALYSES

### A. Administrative Analysis

#### 1. Chamber of Industry:

##### a. Assessment of Capabilities

###### i. Organization/Financing:

The Amman Chamber of Industry was organized in 1961 in accordance with the Chamber of Commerce and Industry Law No. 41 of 1949, as amended by Law No. 21 of 1961. Up until that time manufacturers in Amman were represented by the Amman Chamber of Commerce. The Chamber has roughly 3000 members within the Amman area of which 2200 are small businesses employing less than 10 persons. Participation in the organization is mandated by Jordanian law for all industrial firms in the Amman area (outside of Amman firms can join local chambers of commerce). Annual dues are established by law and range from 10 JD to 300 JD depending on a firm's capital. The Chamber is currently trying to change the existing law so that dues can be increased and membership can be mandated nationwide.

###### ii. Management:

The Chamber's overall direction is provided by a 12 member Board of Directors which is elected every four years. Interestingly, only firms with 10 or more employees and capital of JD 2500 or more have the right to participate in elections. The Board has organized a number of special committees which handle special issues such as research and development. In addition, the Chamber has recently organized its members into fourteen industrial product groups, each of which has elected 6 members to represent the interests of that group. Day to day operations of the Chamber are in the hands of the Executive Director, a full time professional who reports to the Board of Directors. The current director, Mohammed Jaber, was appointed within the last two years; he has received an MBA from Cornell University in the U.S.

###### iii. Staffing:

The Chamber has a staff of about twenty persons, seven of whom are professionals. Recently the Chamber hired two new university graduates with degrees in law and economics to improve its analysis capabilities. A current organization chart is provided in Annex 5-2.

##### b. Feasibility of Implementation Plan:

There appear to be two key questions in relation to the

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feasibility of the implementation plan: 1) does the Chamber have the ability to contract for the U.S. organization that will assist in the implementation of the activities described in Section II; and 2) will the Chamber have sufficient human, physical, and financial resources during the Project life to support the proposed improvement and expansion of its programs. With respect to the first question, it is anticipated that the Executive Director will initially take the lead in developing solicitation documents, reviewing proposals and making recommendations to the Board. It has been concluded that this plan is feasible provided that some expert technical assistance is provided by AID at the proposal evaluation stage; this is included in the budget. With respect to the second question, the Chamber's existing organization, augmented by the resources to be provided by the project, can support the improved and expanded activities outlined in Sections II and III.

2. Manufacturing and Marketing Improvement Section (MMIS)

a. Assessment of Capabilities

i. Organization/Financing

The Jordan Institute of Management (JIM), was established in 1979 as an autonomous division of the Industrial Development Bank of Jordan (IDB). Its Director reports to an Advisory Committee which is appointed by the Board of Directors of the IDB. The IDB in turn was established in 1965 by a special GOJ decree in order to provide investment capital to local industry. The Government holds approximately 16% of the bank's authorized capital while the remainder is owned by Jordanian commercial banks and the Housing Bank. The eleven person Board of Directors includes three Government representatives.

JIM covers approximately 49% of its total operating costs from fees charged for its training courses. The remainder of financing comes primarily from the Industrial Development Bank, which in 1985 contributed 39% of JIM's budget. For additional information on JIM's finances, see Part B, Financial Analysis. Major decisions affecting JIM's finances, such as the proposed creation of MMIS must be approved by the Board of Directors of the IDB.

Existing and proposed organization charts are shown in Annexes 5-3 and 6-4.

The resolution establishing JIM stated four objectives: training; consultancy; research - both applied and empirical; and information center for private sector. Due to Jordan's priorities, the training objective is the only one currently being undertaken. In 1985 JIM offered over 50 short term courses, ranging in duration from one to four weeks, in a variety of subject areas, including management, marketing,

production management, and accounting and finance. There were over 800 participants from 137 companies, mainly from the business sector. JIM also occasionally draws participants from other Arab countries and holds courses in the Gulf. JIM has also acted as a clearing house or facilitator of consulting services, but this has not been a sought-after activity.

ii. Management

The Director of JIM is Dr. Mohammad Malallah, who holds a PhD. in Management from the Wharton School of the University of Pennsylvania. Dr. Malallah has directed JIM since its inception and has proven himself to be a first rate manager. JIM's Deputy Manager, Mr. Mounir Zaghloul, has been with JIM for several years now, bringing with him solid credentials in accounting and finance from the private sector. It is JIM's policy to delegate authority and responsibility for decision making to the greatest extent possible.

iii. Staff

JIM's existing staff is devoted to training activities, and therefore will not be involved in a major way in the initial operations of MMIS. However, as mentioned in Section II, some of JIM's trainers may occasionally participate in the diagnostic activities of MMIS. In addition, the new computer department, which has been developed with assistance from AID's Management Development Project, will service the MMIS function. Over time it is expected that there will be significant cross fertilization between the MMIS and the Training Section.

b. Feasibility of Implementation Plan

JIM has clearly established itself within the eyes of the private sector as a reputable training organization. However, because JIM is now heavily involved in an effort financed by AID's Management Development Project to improve and expand the Training Section, the MMIS component has been designed to minimize to the greatest extent possible any additional administrative burden. This is one of the primary reasons for contracting out the entire MMIS function during Phase I. By the beginning of Phase II, JIM will have completed most of the activities under the Management Development Project. At this point, when the day to day operations of MMIS become a JIM responsibility, JIM's management will be able to focus additional attention on MMIS.

As JIM's management time will be at a premium during contracting for the Phase I contractor, the budget includes time for expert assistance in proposal review and contracting.

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3. Industrial Engineering

i. Organization/Financing

The University of Jordan was established by a Royal Decree issued in September 1962 as the first institution of higher learning within Jordan. It has a student body of some 13,000, approximately 10% being in the Faculty of Engineering and Technology, one of 13 faculties now established. The "Faculty" designation parallels the "College" or "School" in the United States- the latter being used very loosely. The facilities are modern and functional. The comparative youth of the University has made for the most modern equipment. Laboratories are probably superior to those of many Universities in the United States and Europe.

The Faculty of Engineering and Technology began in 1974 and presently offers programs in the classical branches of civil, chemical, electrical and mechanical engineering. All are five year, ten semester, programs leading to the B.S. and requiring 167 credit hours. Architecture is also offered but will not be of concern to the implementation of the industrial engineering program. Graduate programs (M.S.) have recently been introduced, usually requiring 36 credit hours including a thesis. All in all, it can be said that the curricula at the University of Jordan are strong and would in all probability be readily recognized by the Accreditation Board for Engineering and Technology (ABET) in the United States.

The bulk of University financing comes from GOJ budget allocations although students do pay as much as \$1,000 per year in tuition. Within the University the Dean's Council makes allocations to the various faculties, which have a reasonable degree of flexibility in dividing funds among departments.

ii. Management

The President of the University is appointed by the Council of Ministers. He is assisted in the management of the University by the Deans' Council, which is comprised of the deans of the various faculties and the deans of specialized areas, such as Graduate Studies. The Dean of the Faculty of Engineering and Technology is Dr. Bassam Abu Ghazala, who holds a PhD. in Civil Engineering from the University of California at Berkley. Both the Dean and the Chairmen of the Departments of Mechanical Engineering and Electrical Engineering were actively involved in the design of the Industrial Engineering Program through a specialized senior committee which was formed by the President of the University.

iii. Staff

The faculty, still comparatively young, appears well qualified, possessing PhDs earned at recognized universities around the world. A general problem might result from the dependence of the faculty appointment on obtaining the PHD in contrast to industrial, or other experience. Thus, it may become increasingly difficult to impart any industrial flavor

to subjects via the instructor's experience. This may be alleviated in part if faculty develop appropriate consulting contacts.

b. Feasibility of Implementation Plan

Given the relative autonomy which is exercised by FET and the high quality of management and staff, the implementation plan as proposed is considered quite feasible. The FET will take the lead in developing a scope of work for the long term contractor, reviewing proposals, and selecting an organization. The University President will actually sign the contract on behalf of the University. However, day to day implementation will be left to the Dean of FET and the new head of the IE Department.

B. Financial Analysis

1. Chamber of Industry

a. Current and Historical Financial Performance: The Chamber of Industry is in sound financial shape. It closed FY 85 with a surplus of 6,000 JD, and it consistently operates within its means. The fact that the Chamber is self-sustaining with only 42% of total revenues derived from membership dues indicates that there is ample room for growth. In the United States, most associations' dues comprise at least 60% of total annual revenues. Another indicator of financial soundness is the ratio of total salaries and wages to total expenditures. Again, in the U.S. 50-60% is the accepted range. The Chamber's staff to total expense ratio is 35-40%. This indicates the likelihood of greater service output as a result of professional staff additions. Annex 5-11 provides the Chamber's financial statements for 1984 and 1985.

b. Financial Projections: As part of the project's cost-sharing requirements, the Chamber must generate new monies ranging from \$13,000 in 1987 to as much as \$251,000 by 1991, i.e. about a 41% increase over current revenues (see Table 3-1 in Section III, Cost Estimate and Financial Plan). At the moment, fees for services (beyond membership dues) are not a likely source of income, since Chamber members expect all services to be covered by their annual dues. However, during the project the Chamber will introduce new programs for which it may be able to derive additional income. The quality and perceived value of the activity is, of course, key. The greatest potential increase in revenues will derive from new members enlisted through the proposed national expansion drive and revised dues structure. This will, however, require agreement of the GOJ to changes in the current law governing the Chamber. The Grantee and the Chamber are being encouraged to revise and update the law to allow such changes in membership and funding provisions.

2. Manufacturing and Marketing Improvement Section (MMIS)

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a. Current and Historical Financial Performance:

In the eight years since its inception JIM has managed to slowly but steadily increase the percentage of its total operating costs that are covered by training fees. From 1983 to 1985 such fees increased both in absolute and relative terms, rising from 38% of total expenses to 49% of total expenses, which amounted to JD 166,000, or close to \$.5 million. The remainder of JIM's operating expenses are largely covered either directly or indirectly by JIM's parent organization, the IDB. In 1985 the IDB covered 39% of JIM's total expenses, giving about half in the form of interest differentials on subsidized international loans and the other half in the form of a direct subsidy. It is worth noting that the subsidy is not a fixed amount. Rather, it represents that balance of JIM expenses that cannot be covered from other sources. For the first time since JIM's inception, the IDB contribution declined in both relative and absolute terms in 1985. Finally, the remainder of JIM's funding is provided through membership fees (6%) that were instituted in 1985 and from the Chamber of Industry (6%) which has contributed an even 10,000 JD over the last three years. Annex 6-7 provides a summary of JIM's Income Statement for the last three years.

b. Financial Projections:

Table 3-2 in Section III, Cost Estimate and Financial Plan projects JIM's expected expenditures for MMIS over the life of the project. As shown there, JIM's contribution ranges from \$121,000 in 1988 to \$238,000 in 1991. The latter amount represents a 48% increase over JIM's current budget. Actual out of pocket costs, however, are expected to be only about 28% of the JIM contribution with the remainder representing a portion of the existing JIM overhead, and local staff costs that will be covered by fees generated from consulting assignments. Financing for MMIS is expected to be obtained from the following sources:

i. AID: A major portion of the funds that will finance the activities of MMIS will be provided by an AID grant of \$4.4 million which will cover 80% of the project cost. This grant will cover a major portion of MMIS staff costs as well as a significant portion of the costs related to short term technical assistance provided to private sector manufacturers.

ii. IDB: In addition to the AID grant, MMIS will receive support from the IDB. As the parent organization of JIM, the IDB currently funds the deficit incurred by JIM and has expressed its support for expanding JIM to include the MMIS function. Its contribution will primarily take the form of in-kind payments for facilities and support and will total approximately \$607,000.

iii Private Sector Manufacturers: Private sector manufacturing companies that use the consulting services provided by JIM will be charged for a percentage of the cost of services

provided. This percentage will be flexible however, and will be largely determined by market forces, as well as individual characteristics of the company requesting the services, and the type of consulting firm providing the service (local vs. foreign).

The guidelines used to determine the percentage charged to manufacturers will be agreed to by JIM and AID prior to disbursement for consulting services and will be reviewed periodically during the project life and adjusted as needed. The following conservative assumptions have been made for the purposes of making financial projections:

--For firms using local consultants: MMIS requests users to make payment on 33% of total consulting bill in the first three years of MMIS operations, and subsidizes the remainder. In the three succeeding years of operation the MMIS subsidy would be reduced progressively from 50% of the total consulting bill in year 4 to 0% by year six. Industry users who contract for local consulting services would be required to make a 25% downpayment on the non-subsidized portion of the consulting cost (i.e. 25% of 33% of the total consulting bill in years 1-3) and repay the rest of the non-subsidized portion of the bill within 30 days of completion of the engagement.

-- For firms using foreign consultants: MMIS requests users to make payment on 33% of the foreign consultants' time when priced at the local rate, plus all related international travel and per diems for the first 3 years of MMIS operations, and subsidizes the remainder. In the 3 succeeding years of operation the MMIS subsidy would be reduced progressively from 50% of the total billing basis in year 4 to 0% by year 6. Downpayment requirements and due dates for the balance will be 25% in advance and 30 days from the end of the engagement, respectively.

As indicated in the chart below, the cost for users of foreign consultants will be higher than that charged to users of local consultants, even after the inclusion of the subsidy.

Billing Bases

	<u>Local Consultant</u>	<u>Foreign Consultant</u>
Cost of time *	\$3900	\$3900
International Air Travel	—	2000
Per diems	—	3000
	<u>3900</u>	<u>8900</u>
33% of billing basis	\$ 1287	\$ 2937

\*Assume 1 man-month is length of engagement.

By offering greater subsidies to industry users in the first three years of operation, MMIS will encourage greater utilization of its services in the early years of the project, and thus accelerate implementation of needed productivity techniques in Jordan. By differentiating between the size of the payment required from users for equivalent engagements (in terms of man months) performed by local and foreign consultants, with a lower payment being required for local consulting services, a greater local consulting capability will be promoted.

MMIS will be responsible for collecting the non-subsidized portion of the total consulting bill from industry users of consulting services. These repayments will accumulate in a special account at MMIS. The following table illustrates that if the guidelines outlined above are applied, and if usage of MMIS consulting services is as follows:

<u>Year</u>	1	2	3	4	5	6	Total
<u>#</u>							
<u>Local</u>	1	8	12	17	21	19	78
<u>Foreign</u>	8	34	30	25	21	5	123
<u>Consulting Revenues Collected.</u>	25	110	104	95	89	39	462

MMIS will generate \$462,000 in fees for consulting services provided over the life of the project. These funds will be applied against local staff costs commencing in approximately the third year of the project, after the special account has grown to in excess of \$100,000. It is anticipated that the fees collected from manufacturers will be able to fund the \$246,000 in local staff costs incurred by JIM during Phase II with the remainder available for other project costs.

Any company desiring to use consulting services provided through MMIS beyond the first-time engagement will be required to be current on all payments. Companies not meeting this criteria will no longer have access to MMIS consulting services.

iv. Other Sources of Funding:

There are a number of Jordanian organizations whose objectives are at least partially supported by MMIS. These organizations are all candidates to support MMIS with funding. Some of these are the RSS, the Association of Engineering, the Chamber of Industry, and the Industrial Estates Corporation. In addition, funds may be secured from other international donor agencies.

C. Economic Analysis

1. Overview:

The three project components will contribute individually and collectively to the following types of economic benefits:

- a. Foreign exchange savings resulting from improved productivity and quality of locally manufactured goods:
- b. Foreign exchange earnings resulting from expanded exports.
- c. Increased employment opportunities.

Attempts to quantify all of these benefits, however, are quite difficult, especially in the cases of the Chamber of Industry and Industrial Engineering components. As a result, two types of analysis are presented here to demonstrate the economic soundness of the project: a cost/benefit analysis of expected increases in productivity resulting from MMIS; and a least cost analysis of the Industrial Engineering Department versus alternative approaches.

2. MMIS: Productivity Costs/Benefits:

As detailed in the Coopers and Lybrand June 1985 report, Jordanian manufacturers currently make little use of well-developed productivity and quality control techniques employed by manufacturers elsewhere in the world. These techniques include work simplification, preventive maintenance, production control systems and numerical control, among others. Each of these techniques have proven productivity and quality control benefits. Taking numerical control as an example of the benefits that can be realized, a November 1984 Business Week article estimates that the implementation of these techniques alone, which encourage output managers to carefully monitor inventory levels and shift workers from bottleneck sectors of operation to slower production areas, typically results in the reduction of excess inventory by 31% to 60% and reduces

delivery time for manufactured goods by 4 to 5 weeks.

The total cost of the MMIS component is \$5.5 million including both foreign and local costs as shown in Table 3-3 of Section III. The expected number of consulting interventions is estimated at 203.5, which is equal to the number of man months budgeted for short term advisory services to manufacturers. Therefore the average total cost per intervention is \$ 27,027. This, of course, assumes that each assignment is no more than one month long, which is the targeted length described in Section I.

Performance targets have been established for the MMIS unit to generate net economic benefits for each manufacturer such that payback of the cost of services is achieved within one year. This means that one person-month of productivity interventions by MMIS at a total cost of \$27,027 would, in the first year, have to generate at a minimum the same amount in profit for the client manufacturer. Therefore, assuming that the average size of a target company has \$2 million in sales, of which inputs accounts for 70% (the actual average for all Jordanian manufacturing firms in 1983), each intervention would have to generate about a two percent reduction in annual costs of each organization served in order to achieve the established targets. It is felt that this is realistic considering that the lack of production engineering application found in Jordan. Further, it is important to point out that most interventions by MMIS are expected to generate annual savings for a number of years.

3. Least Cost Analysis: Industrial Engineering Department:

An alternative approach for obtaining the industrial engineers required for Jordanian industry would be to send students to the U.S. for Masters degrees in established IE programs. A comparison between such an approach and the creation of Department of Industrial Engineering at the University of Jordan shows that there is a cost difference in favor of the latter.

The total cost of the Industrial Engineering component is \$6.4 million, as shown in Table 3-5. Most of these costs are incremental costs, i.e. they would not be incurred if The University of Jordan and AID decided not to establish an Industrial Engineering Department. The exception is in the area of local faculty costs where at least one third of the total estimated cost could easily be assigned to existing professors who would be on the FET staff whether an IE Department is created or not. If this net amount of \$5.8 Million were alternatively spent for Masters degree programs in the U.S., it is estimated that at current prices about 146 such programs could be financed assuming each program in the U.S. costs \$39,800. This estimate is based on the following assumptions: 1) average length of stay at 19 months; 2) cost per month for tuition, living expenses, and incidentals, etc. at \$1,800, which is the estimate provided by AID Handbook 10, Participant

Training, for long term programs in the U.S.; and 3) the cost of one round trip air fare between Jordan and the U.S. at \$2000.

As mentioned previously, the new IE Department is expected to graduate 120 Masters degree or Diploma students during the six year life of project, or 30 students per year from the time the first group is graduated. Therefore, the IE Department would only have to operate one additional year beyond the life of the AID project to match the alternative approach. While there would be managerial costs to this additional year, these would probably be offset by the fact that the costs of training in the U.S. have not been inflated. More importantly, the investment in personnel and equipment made possible by the project would be likely to continue to produce IE graduates for many additional years at marginal costs much less than those of sending students for U.S. training.

D. Technical Analysis

1. Chamber of Industry

The component requires substantial technical assistance from a U.S. contractor for long-term project overview, and from a variety of foreign and local advisors with specific functional expertise in order to carry out the activities described in Section II. Furthermore, the Chamber will create new positions to be staffed with people possessing needed new skills and there will be training throughout the organization for existing and new staff.

For each new function, there will be specialists overseeing the activities and assisting in service and program development and delivery. The component, therefore, is considered to be technically feasible.

2. Manufacturing and Marketing Improvement Section

The technical needs of Jordanian manufacturers were analyzed in Coopers and Lybrand's 1985 study. These needs are not state-of-the-art but rather basic, proven technologies. The technical analysis of the Industrial Engineering component of this paper addresses these technologies in more depth. (see No. 3 below).

The use of foreign and local consultants to resolve problems in these technologies has been utilized successfully in a number of USAID projects in developing nations such as:

--Management Development for Productivity Project in Egypt (1982-1985) implemented by Westinghouse Electric Corporation.

--Productivity and Management Center in Haiti (1984-1988).

World Bank projects have also used foreign technical consultants in this role in projects such as:

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--Industrial Export Project - Engineering Products in India (1986-1989). In the preparation/design of this World Bank project, studies were made which found a direct positive correlation between foreign technical collaboration and export performance and profit.

3. Industrial Engineering Program

Many questions as to the present utilization of engineers, rate of growth of the industry, available supply of engineers surface immediately upon consideration of the need for a program in industrial engineering at the university level. However, the main question is: "What type of engineer is most needed to support the productivity in the manufacturing industries in Jordan?"

To determine the technical viability of such a program, the most important issue is whether an industrial engineering curriculum, per se, should be introduced at this point in the economic development process of Jordan, and if so, how best to proceed.

The following definition of industrial engineering was adopted by the Institute of Industrial Engineers in 1955; "Industrial engineering is concerned with the design, improvement, and installation of integrated systems of men, materials, and equipment. It draws upon specialized knowledge and skill in the mathematical, physical, and social sciences, together with the principles and methods of engineering analysis and design, to specify, predict, and evaluate the results to be obtained from such systems." This definition was adopted when the profession was trying to break away from its image as being primarily concerned with time and motion study, work measurement, plant layout and production planning in a strictly industrial setting.

In Jordan and elsewhere it can be expected that industrial engineers will be increasingly called upon to advise management on the overall systems aspects of processes and procedures in the factory and in the office. Inevitably, in addition to ensuring the optimal operation and utilization of machine, the industrial engineer will be faced with the problem of how men, and communities, can adapt themselves to a technological environment which is changing with ever increasing speed.

The translation of the languages of science and technology is a job for the specialist and perhaps industrial engineers will play a worthy part in bridging the gap between the scientist and engineer on the one hand, and management on the other.

E. Social Analysis

The project has been designed to overcome a number of constraints to the growth and diversification of local industry. The social soundness of the project is based on manufacturers' willingness to accept and utilize new technologies and processes for improving the quality and productivity of their manufacturing facilities. Research indicates that several sociocultural factors will affect the utilization of services provided by the project and the potential for constructive policy dialogue between industry and government.

1. Sociocultural Factors

The field of manufacturing is a relatively new phenomenon in Arab culture in that productive society has been historically defined as trader-oriented. Business arrangements are often based on established personal relationships and individual trust. Decision-making is a short term process culminating in an arrangement which does not require the trader to consider future market trends. The adoption of modern production methods demands that the individual understand and anticipate those factors which may affect future profits and market viability. The use of modern methods, however, appears to be more a problem of the company owners (which are predominantly family-based) instead of the operating managers. As a result, mid-level managers often do not participate in the decision-making of the firm because of family control.

As responsibilities for growth and profit are placed in the hands of operating managers, this will become less a conflict. The use of consulting services, for example, is relatively new to owner/operators due to a lack of understanding of their contribution to future profits as opposed to immediate costs. A needs assessment of local industry indicates a growing willingness on the part of manufacturers to use consulting services for short durations. Again, as operating managers participate more fully in the decision making process, consulting assistance will be utilized more frequently.

One of the most important impacts of a business association can have on the society in which it operates is the influencing of government policy. Association "lobbying" can help shape the environment for business development and economic expansion. There is little tradition of the lobbying function in Jordan primarily because of cultural factors. These include the dominance and pervasiveness of government in Jordan's political system, the acceptance by associations of government initiative, and the intervention of government in both production and services sectors. Nonetheless, the goal of having private enterprise become Jordan's engine of growth provides a window of opportunity for the institutionalization of an aggressive, proactive policy influencing function in the Chamber of Industry.

The direction of higher education in Jordan has been primarily aimed at theoretical analysis as opposed to the practical application of technical analysis skills. This has resulted in a reluctance on the part of graduates to become involved in hands-on production activities. Future educational programs are now seeking ways in which to encourage greater problem-solving abilities in students. For this reason, the design of the industrial engineering program emphasizes the application of new skills for both practicing engineers and new graduates.

### 2. Spread Effect

The project has been designed to assist a number of target groups in the private sector. While it is difficult to define all of the potential beneficiaries of the project, it will provide a diffuse approach to assisting the population in general. To maximize the spread effect of the project, the design strategy takes into consideration the need to establish a "critical mass" of private sector individuals knowledgeable of advanced productivity techniques and willing to adopt new procedures. This critical mass is defined as:

- skilled engineering personnel prepared to participate actively in the decision-making process of the firm;
- technically informed owners and operators of firms willing to apply the lessons of technology improvement; and
- a private sector supported and encouraged through open government/industry dialogue to improve the policy environment for industrial development.

### 3. Role of Women

Although no special provisions have been made to encourage greater involvement of women in industry, women constitute a growing percentage of the educated population. As a result, women will participate more frequently in industry at all levels through the perceived benefit of increased employment opportunities and the need for specialized consulting assistance. For example, women are quite active in the field of computer services. Based on a recent service sector assessment, considerable growth in the application of computers is anticipated by industry and therefore will generate greater opportunities for the involvement of female workers in the manufacturing and service sectors.

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IV CONDITIONS AND COVENANTS

Article and section numbers are taken from the draft project agreement.

Article 4: Conditions Precedent to Disbursement

SECTION 4.1 First Disbursement. Prior to the first disbursement under the Grant, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the Grantee will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D.:

(a) An opinion of counsel acceptable to A.I.D. that this Agreement has been duly authorized and/or ratified by, and executed on behalf of the Grantee, and that it constitutes a valid and legally binding obligation of the Grantee in accordance with all of its terms; and

(b) A statement of the name of the person holding or acting in the office of the Grantee specified in Section 8.2., and of any additional representatives, together with a specimen signature of each person specified in such statement.

SECTION 4.2 Additional Disbursements for Each Implementing Institution. Prior to disbursement under the Grant or issuance by AID of documentation pursuant to which disbursement will be made for the purpose of financing assistance to any one of the implementing institutions, the Grantee will designate appropriate officials in the implementing institutions as additional representatives for their portions of the project and shall enter into a subsidiary grant agreement, or similar instrument satisfactory to AID, with that implementing institution. The subsidiary agreements shall govern the execution of the project and may be amended from time to time by the agreement of the MOP and the individual implementing institution and the concurrence of AID.

SECTION 4.3 Notification. When A.I.D. has determined that the conditions precedent specified in Section 4.1 have been met, it will promptly notify the Grantee.

SECTION 4.4 Terminal Dates for Conditions Precedent. If the conditions specified in Section 4.1 have not been met within sixty (60) days of the date of this Agreement, or those in Section 4.2 within 90 days of the date of this agreement, or such later dates as A.I.D. may agree to in writing, A.I.D., at its option, may terminate all or any portion of this Agreement by written notice to the Grantee.

Article 5: Special Covenants

SECTION 5.1 Project Evaluation. The Parties agree to establish an Evaluation Program as a part of this Project. Except as the Parties may otherwise agree in writing, the program will include, during the implementation of the Project:

(a) Evaluation of progress toward attainment of the objectives of the Project;

(b) Identification and evaluation of problem areas or constraints which may inhibit such attainment;

(c) Assessment of how such information may be used to help overcome such problems; and

(d) Evaluation, to the degree feasible, of the overall development impact of the Project.

SECTION 5.2 Fund for Technical and Managerial Services - J.I.M. Manufacturing and Marketing Improvement Section. Approximately four (4) times per year during the life of the Project, J.I.M., MOP and A.I.D. will review the terms and conditions, including fees and repayment terms, of subgrants/loans to manufacturers for technical and managerial services.

SECTION 5.3 Jordan Institute of Management Special Account - J.I.M. Manufacturing and Marketing Improvement Section.

(a) Grantee, through its authorized representative for the Manufacturing and Marketing Improvement Section component of the Project, J.I.M., will establish a Special Account in a local commercial bank and deposit therein currency of the Hashemite Kingdom of Jordan in amounts equal to proceeds accruing to J.I.M. as a result of A.I.D. financing of eligible services to manufacturers through the Manufacturing and Marketing Improvement Section, except as the Parties may otherwise agree in writing. Funds in the Special Account including any interest earned will be administered by J.I.M. and will be used to finance additional services to manufacturers or operating expenses of MMIS as agreed to in writing by AID.

(b) Deposits to the Special Account in local currency will be made in cash in accordance with the terms of payment schedules agreed to between the Jordan Institute of Management and individual manufacturers.

SECTION 5.4 Jordan Institute of Management (J.I.M.) - Advisory Board. As the authorized representative of the Grantee for the Manufacturing and Marketing Improvement Section, J.I.M., in conjunction with its parent organization, the Industrial Development Bank (I.D.B.), will review the current membership of its Advisory Board, and make such changes to this Board, as in the opinions of I.D.B., and J.I.M., will promote the objectives of the Project.

SECTION 5.5 Financial Covenants.

(a) Annual Reports. The authorized representatives of the Grantee for the Project, that is, the Amman Chamber of Industry, the JIM, and the Faculty of Engineering and Technology of the University of Jordan, will submit English versions of their annual reports, including financial data, to A.I.D. as soon as possible after the close of their fiscal years.

(b) Budgets. The Chamber, J.I.M., and F.E.T. will submit on an annual basis, before the close of each of their fiscal year, budgets for the next fiscal year together with evidence that funding sources have been secured for those costs not financed by A.I.D. for that period.

## VII. EVALUATION PROCEDURE

### A. Overview:

During the life of the project three types of evaluation will be conducted: 1) interim evaluations of each project component; 2) a final evaluation of the overall project; and 3) periodic review as part of a comprehensive ongoing evaluation of the whole private sector program in Jordan. In addition, it is suggested that the project undergo an impact assessment approximately two years after completion. The latter would be financed from the Private Enterprise Technical Resources Assistance (PETRA) Project or its successor. Other evaluations will be financed from funds included in the project budget.

### B. Component Interim Evaluation

#### 1. Chamber of Industry

An interim evaluation will be conducted in April 1989 to coincide with the final period during which the long term advisor will be in "residence" at the Chamber. (The long term advisor is expected to depart in July 1989). A key question to be posed to the evaluation contractor is how to implement the remaining project activities, i.e. mainly short term consulting assignments and training in the U.S. Among the alternatives will be: 1) continuation of the services of the contractor for the project duration; or 2) assumption of remaining implementation activities by the Chamber and AID.

#### 2. Manufacturing and Marketing Improvement Section (MMIS)

This component of the project will undergo two interim evaluations. The first is a Phase I mid-term evaluation in October, 1988 to determine if MMIS is achieving the intended results in the areas of staff development, data base development, company interventions and improvements, and finances. The evaluation will also review the fee repayment guidelines. This evaluation will recommend corrective actions to resolve issues or problems which have arisen. It is estimated that this evaluation can be achieved in a two week period by a two person team. This evaluation will be funded under the project and is estimated to cost \$16,000.

The second interim evaluation is at the end of Phase I and will take place in February, 1990. This second evaluation will be similar to the first with the additional responsibility of analyzing the Phase II strategy and recommending revisions to this strategy. It is estimated that this evaluation can be achieved in a one month period by a two person team at an estimated cost of \$28,000.

### 3. Industrial Engineering Program

An interim evaluation will be conducted in the summer of 1989, i.e. after the completion of two full academic years of the new IE program. The evaluation will determine: 1) whether project funds are adequate to meet the needs of the programs; 2) whether the program curricula are resulting in the appropriate participation of the Jordanian faculty and students; 3) the status of the establishment and use of the specialized laboratory facilities; and 4) the relevance of PhD and short term training programs established by the contractor.

#### C. Final Evaluation

The final evaluation will take place in August and September, 1992. This evaluation will make a comprehensive review of all three components and will address the question of the need for any follow-on projects. It is estimated that this evaluation can be achieved by a four person team at an estimated cost of \$98,000.

#### D. Private Sector Program:

The mechanism for an on-going comprehensive review of the private sector program is expected to be established in FY 1987. This type of review would examine the extent to which USAID/Jordan is achieving its overall objective of transforming the private sector into the principal force for sustained economic growth, employment, and foreign exchange earnings.

#### E. Project Impact Assessment

Within two years after the completion of the project, it is recommended that an assessment of the impact of the project on the Jordanian business community be undertaken. The assessment would include:

- a survey of Jordanian manufacturers to examine a number of areas such as: their use of the MMIS and UOJ industrial engineering graduates and their participatory role in the Chamber of Industry.
- a survey of industrial engineering graduates of the new post graduate programs to identify their contributions to industry;
- a review of the Chamber's service activities to determine whether their efforts have expanded as a result of the project.

**ANNEXES**

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JORDAN - INDUSTRIAL DEVELOPMENT 273-0255: PID APPROVAL

1. SUMMARY: THE PRC REVIEW NOTED THAT THE SUBJECT DOCUMENT SUBSTANTIALLY ADDRESSES THE PID LEVEL ISSUES RAISED DURING PREVIOUS AID/W REVIEWS AND DISCUSSIONS RELATED TO THE INDUSTRIAL DEVELOPMENT PROJECT. THEREFORE, THE COMMITTEE RECOMMENDED THAT THE PID BE APPROVED WITHOUT CONVENING A FORMAL ANPAC REVIEW AND AGREED THAT THE MISSION SHOULD BE REQUESTED TO MOVE AHEAD WITH THE DESIGN AND APPROVAL OF THE PROJECT PAPER IN FY 86, PER THE PID SCHEDULE. HOWEVER, THE COMMITTEE NOTED THAT A NUMBER OF POINTS SHOULD BE ELABORATED UPON IN THE PP. THESE INCLUDE THE FOLLOWING: THE ESTABLISHMENT OF THE PROPOSED QUALITY AND PRODUCTIVITY CENTER ON A SELF-SUFFICIENT BASIS; THE LINKAGE OF THE CENTER'S QUALITY AND PRODUCTIVITY SUBACTIVITIES WITH APPROPRIATE MARKETING AND DESIGN STUDIES WHICH MAY BE FUNDED UNDER OTHER PRIVATE SECTOR PROJECTS (I.E. THE PETRA PROJECT); THE MAXIMIZATION OF THE PROJECT'S IMPACT ON WID; AND THE MISSION'S PLAN TO LINK PROJECT EVALUATION WITH AN OVERALL EVALUATION OF THE ENTIRE PRIVATE SECTOR PORTFOLIO. END SUMMARY.

2. THE PROJECT REVIEW COMMITTEE MET ON JUNE 26, 1986. THE COMMITTEE ENGAGED IN AN EXTENSIVE AND DETAILED DISCUSSION RELATED TO THE VARIOUS ISSUES PREVIOUSLY RAISED DURING THE AID/W REVIEWS OF THE FY 86 VERSION OF THE INDUSTRIAL DEVELOPMENT PID AND THE NPD FOR THE SUBJECT PROJECT THAT WAS SUBMITTED AND REVIEWED AS PART OF THE MOST RECENT JORDAN ACTION PLAN. THE COMMITTEE CONCLUDED THAT THE PID SUBSTANTIALLY ADDRESSED THESE PREVIOUSLY RAISED ISSUES INCLUDING: THE POSSIBILITY OF UTILIZING OR FOCUSING ON ALTERNATIVE APPROACHES TO PROMOTE THE DEVELOPMENT OF THE JORDANIAN INDUSTRIAL SECTOR; THE GOJ'S COMMITMENT TO THE PROJECT CONCEPT AND TO THE VARIOUS INSTITUTIONAL COMPONENTS OF THE PROJECT; THE NEED TO FOCUS ATTENTION ON THE IMPROVEMENT OF QUALITY CONTROL IN THE JORDANIAN CONTEXT; THE PROJECT'S EVALUATION PLAN; AND THE PROJECT'S IMPACT ON WID. SINCE NO ADDITIONAL OUTSTANDING ISSUES WERE RAISED BY THE PRC,

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IT WAS AGREED THAT AN ANPAC LEVEL REVIEW OF THE PID WAS NOT NECESSARY. THEREFORE, THIS CABLE PROVIDES IMMEDIATE APPROVAL OF THE PID AND THE MISSION IS REQUESTED TO MOVE FORWARD, PER THE PID SCHEDULE, WITH THE PP DESIGN AND APPROVAL.

3. NOTWITHSTANDING ABOVE PID APPROVAL, PRC NOTED THESE POINTS TO BE ELABORATED ON AS PART OF PP DESIGN:

(A) A SELF-SUFFICIENT QUALITY AND PRODUCTIVITY CENTER - ALTHOUGH PRC ACKNOWLEDGED THAT IN SOME VERY LIMITED, SPECIFIC INSTANCES A PARTIALLY SUBSIDIZED SUBACTIVITY MIGHT BE APPROPRIATE FOR SPONSORSHIP BY THE CENTER, THE MISSION IS STRONGLY ENCOURAGED TO ESTABLISH, EARLY ON DURING PROJECT IMPLEMENTATION, THE PRINCIPLE OF A SELF-SUFFICIENT AND SELF-FINANCING INSTITUTION. AT THE SAME TIME THE PP SHOULD DEVELOP CLEAR CRITERIA FOR THE SELECTION OF SUBSIDIZED SUBACTIVITIES WHEN DEEMED NECESSARY.

(B) LINKING THE CENTER'S QUALITY AND PRODUCTIVITY SUBACTIVITIES WITH APPROPRIATE PRODUCT DEVELOPMENT AND MARKETING - THE COMMITTEE RECOGNIZED THAT THE MAJOR FOCUS OF THE PROJECT WAS TO IMPROVE THE DESIGN AND QUALITY OF JORDANIAN PRODUCTS AND THE EFFICIENCY WITH WHICH THEY ARE PRODUCED. HOWEVER, CONCERN WAS ALSO EXPRESSED OVER WHETHER AND HOW FIRMS - BOTH NEW AND EXISTING ONES - WILL OBTAIN THE NECESSARY TECHNICAL ASSISTANCE TO IDENTIFY AND SELECT APPROPRIATE TARGET PRODUCTS WHILE PLANNING A MARKETING STRATEGY FOR SUCH PRODUCTS. IT APPEARS THAT THE CAPACITY TO PROVIDE SUCH ASSISTANCE WILL BE DEVELOPED UNDER OTHER PRIVATE SECTOR

PROJECTS SUCH AS THE PETRA PROJECT AND THE PROPOSED EXPORT DEVELOPMENT PROJECT. THE COMMITTEE ENCOURAGED THE MISSION TO ELABORATE, IN THE INDUSTRIAL DEVELOPMENT PP, HOW THE PROVISION OF SUCH MARKETING AND PRODUCTION TECHNICAL ASSISTANCE WILL BE INTEGRATED, AT THE BENEFICIARY LEVEL, INTO THE SELECTION OF THE SUBACTIVITIES OF THE INDUSTRIAL DEVELOPMENT PROJECT.

(C) THE MAXIMIZATION OF THE PROJECT'S IMPACT ON WID - NOTWITHSTANDING THE PID DISCUSSION OF THE OVERALL POSITIVE IMPACT OF THE MISSION'S PRIVATE SECTOR STRATEGY ON WOMEN IN DEVELOPMENT, THE COMMITTEE URGED THE MISSION TO FURTHER EXPAND IN THE PP UPON SPECIFIC PROJECT INITIATED AND SUPPORTED ACTIVITIES WHICH WILL FOCUS ON THE ROLE OF WOMEN IN DEVELOPING JORDAN'S INDUSTRIAL SECTOR AND ON HOW WID CONSIDERATIONS WILL BE INCORPORATED INTO THE MISSION'S OVERALL PRIVATE SECTOR STRATEGY. IN ADDITION, PRC/WID SUGGESTED THAT THE MISSION'S WID OFFICER BE INCLUDED AS A MEMBER OF THE

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MISSION'S SENIOR REVIEW COMMITTEE IN ORDER TO ENSURE THAT THE GOALS SET OUT IN THE WID SECTION OF THE PID ARE CONSISTENTLY ADDRESSED IN THIS AND OTHER PPS. PPC/WID ALSO SAID IT WOULD APPRECIATE RECEIVING AN INFORMATION COPY OF THE FINAL PP, AS IT IS INVOLVED IN AN EFFORT TO DEVELOP A COMPUTER SIMULATION ON WID ASPECTS OF VARIOUS DEVELOPMENT SECTORS AND THE SUBJECT PP WILL PROVIDE USEFUL INFORMATION IN THIS REGARD.

(D) THE MISSION'S PLAN TO LINK PROJECT EVALUATION WITH AN OVERALL EVALUATION OF THE ACTIVITIES IN THE PRIVATE SECTOR PORTFOLIO - THE COMMITTEE NOTED THAT THE PID LOG FRAME WAS A VERY USEFUL PRELIMINARY EFFORT TO OUTLINE THE PARAMETERS OF THE MISSION'S PLAN TO EVALUATE THE SUBJECT PROJECT. HOWEVER THE MISSION WAS STRONGLY ENCOURAGED TO ELABORATE IN THE PP ON HOW THIS PARTICULAR PROJECT EVALUATION WILL BE INCORPORATED INTO THE MISSION'S PLAN TO EVALUATE ITS OVERALL PRIVATE SECTOR PROGRAM.

4. PLEASE ADVISE WHEN THE PP HAS BEEN AUTHORIZED BY THE MISSION AND PROVIDE THE PROPOSED TEXT OF THE CN FOR THE SUBJECT PROJECT ASAP. SHULTZ

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5c(2) PROJECT CHECKLIST

Listed Below are statutory criteria applicable to projects. This section is divided into two parts. Part A. includes criteria applicable to all projects. Part B. applies to projects funded from specific sources only: B.1 applies to projects funded with Development Assistance Funds, B.2. applies to projects funded with Development Assistance loans, and B.3. applies to projects funded from ESP.

CROSS REFERENCES:	IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVISED FOR THIS PROJECT	Yes
-------------------	--	-----

A. GENERAL CRITERIA FOR PROJECT

1. FY 1986 Continuing Resolution  
Sec. 524; FAA Sec. 634A;

Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project.

1. Congressional Notification procedures have been satisfied as per State 305852, Sept. 29, 1986

2. FAA Sec. 611 (a) (1). Prior to obligation in excess of \$500,000 will there be (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

2. N/A

- |   |   |
|---|---|
| 3. <u>FAA Sec. 611(a)(2)</u> . If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?   | 3.No further legislative action is required   |
| 4. <u>FAA Sec. 611(b); FY 1986 Continuing Resolution Sec 501</u> . If for water or water-related land resource construction, has project met the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (see AID Handbook 3 for new guidelines.) | 4. N/A  |
| 5. <u>FAA Sec. 611 (e)</u> . If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?  | 5. N/A  |
| 6. <u>FAA Sec. 209</u> . Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.  | 6. Project is not susceptible; there is no present indication that it will contribute to regional development programs. |

7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and 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.

7. The project is expected to favorably affect (a), (b), and (e).
8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels, and the services of U.S. private enterprise).

8. The major portion of project funding will go towards contracts with U.S. Institutions. Such commercial relationships will probably continue after the project's conclusion. In addition, improvements in the operations of the Amman Chamber of Industry can be expected to have a long lasting positive effect on U.S./Jordanian trade.
9. FAA Sec. 612(b), 636(h); FY 1986 Continuing Resolution Sec. 507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.

9. The Government of Jordan (GOJ) and the Jordanian private sector will contribute not less than 25% of project costs from their own resources. The USG owns no excess currency.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

10. Jordan is not an excess currency country.
11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

11. yes.

12. FY 1986 Continuing Resolution Sec. 522. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?
13. FAA 118(c) and (d). Does the project comply with the environmental procedures set forth in AID Regulation 16? Does the project or program take into consideration the problem of the destruction of tropical forests?
14. FAA 121(d). If a Sahel Project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)?
15. FY 1986 Continuing Resolution Sec. 533. Is disbursement of the assistance conditioned solely on the basis of the policies of any multilateral institution?
16. ISDCA of 1985 Sec. 310. For development assistance projects, how much of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities black colleges and universities, and private and voluntary organizations which are controlled by individuals who are black Americans, Hispanic Americans, or Native Americans or who are economically or socially disadvantaged (including women)?

12. The project will assist a number of private sector manufacturers, some of whom may export. However, such assistance is unlikely to cause any injury to U.S. producers of similar products.

13. The project will have no significant impact on the environment. The project qualifies for categorical exclusion under AID regulation 16.

14. N/A

15. No.

16. N/A

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance  
Project Criteria

1. N/A

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

- b. FAA Sec. 103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used?
- c. FAA Sec. 107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?
- d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed country)?
- e. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

f. FAA Sec. 128(b). If the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or if it attempts to stimulate scientific and technological research, has it been designed and will it be monitored to ensure that the ultimate beneficiaries are the poor majority?

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

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2. Development Assistance Project  
Criteria (Loans Only) 2. N/A
- a. FAA Sec. 122(b).  
Information, an conclusion on  
capacity of the country to  
repay the loan, at a  
reasonable rate of interest.
- b. FAA Sec. 620(d). If  
assistance is for any  
productive enterprise which  
will compete with U.S.  
enterprises, is there an  
agreement by the recipient  
country to prevent export to  
the U.S. of more than 20% of  
the enterprise's annual  
production during the life  
of the loan?
3. Economic Support Fund Project  
Criteria 3.
- a. FAA Sec. 531(a). Will this  
assistance promote economic  
and political stability? To  
the maximum extent feasible,  
is this assistance  
consistent with the policy  
directions, purposes, and  
programs of part I of the  
FAA? a. Yes
- b. FAA Sec. 531(c). Will  
assistance under this  
chapter be used for  
military, or paramilitary  
activities? b. No
- c. ISDCA of 1985 Sec. 207.  
Will ESF funds be used to  
finance the construction of,  
or the operation or  
maintenance of, or the  
supplying of fuel for, a  
nuclear facility? If so,  
has the President certified c. No

that such country is a party to the Treaty on the Non-Proliferation of Nuclear Weapons or the Treaty for the Prohibition of Nuclear Weapons in Latin America (the "Treaty of Tlatelolco"), cooperates fully with the IAEA, and pursues nonproliferation policies consistent with those of the United States?

d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

d. N/A

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### 5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

#### A. Procurement

- |   |        |
|---|--------|
|   | A.     |
| 1. <u>FAA Sec. 602.</u> Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed?   | 1. Yes |
| 2. <u>FAA Sec. 604(a).</u> Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him?  | 2. Yes |
| 3. <u>FAA Sec. 604(d).</u> If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? | 3. N/A |
| 4. <u>FAA Sec. 604(e); ISDCA of 1980 Sec. 701(a).</u> If offshore procurement of agricultural commodity or product is to be   | 4. N/A |

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financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)

5. FAA Sec. 604(c). Will construction or engineering services be procured from firms of countries otherwise eligible under Code 941, but which have attained a competitive capability in international markets in one or these areas? 5. N/A

6. FAA Sec. 603. Is the shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates? 6. NO

7. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? If the facilities of other 7. Yes

Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

8. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available? 8. Yes

9. FY 1982 Appropriation Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States? 9. N/A

3. Construction B. N/A Entire Section

1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services to be used?
2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable?

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the CP)?

C. Other Restrictions

- |  |               |
|--|---------------|
| 1. <u>FAA Sec. 122(b)</u> . If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter?  | 1. N/A        |
| 2. <u>FAA Sec. 301(d)</u> . If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights?   | 2. N/A        |
| 3. <u>FAA Sec. 620(h)</u> . Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? | 3. Yes        |
| 4. Will arrangements preclude use of financing:  | 4.            |
| a. <u>FAA Sec. 104(f); FY 1952 Appropriation Act Sec. 525</u> : (1) To pay for performance of abortions as a method of family  | a.<br>(1) Yes |

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planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; (4) to lobby for abortion?

(2) Yes

(3) Yes

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

b. Yes

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

c. Yes

d. FAA Sec. 662. For CIA activities?

d. Yes

e. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained?

e. Yes

f. FY 1982 Appropriation Act, Sec. 503. To pay pensions, annuities, retirement pay, or

f. Yes

adjusted service compensation for military personnel?

g. FY 1982 Appropriation Act, Sec. 505. To pay U.N. assessments, arrearages or dues?

g. Yes

h. FY 1982 Appropriation Act, Sec. 506. To carry out provisions of FAA section 209(d) (Transfer of FAA funds to multilateral organizations for lending)?

h. Yes

i. FY 1982 Appropriation Act, Sec. 510. To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields?

i. Yes

j. FY 1982 Appropriation Act, Sec. 511. Will assistance be provided for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?

j. No

k. FY 1982 Appropriation Act, Sec. 515. To be used for publicity or propaganda purposes within U.S. not authorized by Congress?

k. Not to be so used

11. FY 1983 Continuing Resolution. various restrictions concerning assistance to Syria, El Salvador, Guatemala, Haiti, PLO, SWAPO.

1. All N/A

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

THE HASHEMITE KINGDOM  
OF JORDAN  
MINISTRY OF PLANNING  
AMMAN

Tel. { 644466 - 644470  
644381 - 644385

Tlx. 21319 - P.O. Box 555  
Teleg. NPC - Amman



المملكة الأردنية الهاشمية

وزارة التخطيط

عمان

هاتف { ٦٤٤٤٧٠ - ٦٤٤٤٦٦  
٦٤٤٣٨٥ - ٦٤٤٣٨١

تلكس ٢١٣١٩ - ص.ب. ٥٥٥

NO. 58/1/1/4937

DATE 24/9/1986

REF. \_\_\_\_\_

Mr. L.P. Reade  
Director  
USAID/Jordan  
Amman.

_____	الرقم
_____	التاريخ
_____	الموافق

PD 0

Dear Mr. Reade,

Subject: Industrial Development Project

I would appreciate it if \$4 million from the AID Supplemental Program to Jordan be allocated for the FY 1986 increment of the proposed \$9.5 million Industrial Development Project.

Sincerely yours,

Minister of Planning

INDUSTRIAL DEVELOPMENT PROJECT  
LOG FRAME

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The Broader objective to which this project contributes:</p> <p>To transform the Jordanian private sector into the principal force for sustained economic growth, employment, and foreign exchange earnings.</p>	<p>Measures of Goal Achievement:</p> <p>Increases in the relative and absolute contributions of the private sector to Gross Domestic Product, employment, and net foreign exchange earnings</p>	<p>National Income accounts, employment information, and balance of payments data from the Department of Statistics, and other government agencies</p>	<p>Assumptions for Achieving Goal:</p> <ol style="list-style-type: none"> <li>1. Government attitude towards the growth of the private sector remains generally favorable.</li> <li>2. General public opinion regarding the private sector remains generally favorable.</li> <li>3. Successful execution of other AID and donor community efforts in the private sector.</li> <li>4. The technology transferred directly through project spreads to other local firms.</li> </ol>
<p>Project Purpose: To improve the ability of private sector manufacturers to produce and market quality products at competitive prices.</p>	<p>Conditions that will indicate purpose has been achieved: Brief of Project Status:</p> <ol style="list-style-type: none"> <li>1. A sustained increase in sales of target firms.</li> <li>2. Increases in productivity of target firms.</li> <li>3. Improvements in quality of target firms.</li> <li>4. Increase in employment of target firms.</li> <li>5. Increase in exports of target firms.</li> </ol>	<ol style="list-style-type: none"> <li>1. Financial records and other information from targeted firms.</li> <li>2. Quality, productivity and financial information gathered at the beginning and end of project by TA contractors MALS, and the Chamber of Industry.</li> </ol>	<p>Assumptions for Achieving Purpose:</p> <ol style="list-style-type: none"> <li>1. Investment and working capital available to private sector.</li> <li>2. Public services and facilities remain reasonably efficient.</li> <li>3. Government responds positively to policy changes proposed by private sector.</li> <li>4. Manufacturers effectively utilize services made available through project.</li> <li>5. Sufficient income available in export and domestic markets for purchase of Jordanian products.</li> <li>6. Private sector manufacturers willing to employ newly graduated industrial engineers.</li> </ol>

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs: Chamber	Magnitude of Outputs Necessary and Sufficient to Achieve Purpose		Assumptions for Achieving Outputs
1. Chamber of Industry restructured.	1. Representation and service delivery to at least 300 companies	1. Records of Chamber of Industry and TA contractor.	- Chamber continues to support project concept.
2. Current and new members of professional staff trained.	2. General Manager Deputy General Manager 4 Department heads 2 Researchers	2. Same as 1.	- Chamber able to attract qualified staff.
3. Policy function of Chamber fully functional linkage/contact mechanisms established.	3. At least 6 policy positions developed, presented to GOJ, GOJ positive action initiated.	3. Records of Chamber and TA cont. Published GOJ laws and regulations.	- Chamber expands to national level and becomes focal point for manufacturers' concerns.
4. Service unit, referral, training/development provided effectively in response to market needs.	4. At least 12 seminars/year on production and quality; demand for MMS services.	4. Records of Chamber of Industry, MMS, and TA contractors for each.	- Chamber has continued access to GOJ information/statistics.
5. Periodic development of case studies and studies of targeted industries and markets.	5. At least 6 case studies/year, research studies on 5 target industries, and 3 market research reports.	5. Published case studies, industry and market studies.	- Chamber able to increase revenues.
6. Continuous trade show and professional activities for manufacturers.	6. At least 4 trade shows in traditional markets/year. Participation of at least 100 manufacturers on continuous basis.	6. Published trade show materials, number of business inquiries, and list of participants.	- Commercial Centers Corporation continues to cooperate with Chamber in sponsoring trade shows.

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs: MMS	Magnitude of Outputs Necessary and Sufficient to Achieve Purpose:		Assumptions for Achieving Outputs:
1. MMS established.	1. One center in Amman serving manufacturers in Jordan.	1. Quarterly and annual reports from MMS and JTM.	- Manufacturers are willing to purchase services offered.
2. Technical assistance provided to Jordanian manufacturers.	2. 300 projects at an average of one person month each.	2. Same as 1.	
3. Data base established.	3. One central (and) data base of foreign and local consultants.	3. Same as 1.	- Manufacturers willing to adopt modern, scientific methods.
4. Special account created.	4. \$500,000 special account created by end of project.	4. Same as 1.	
5. Local consulting services strengthened.	5. 60% of productivity TA at end of project is local.	5. Surveys of manufacturers and local consultants.	

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NARRATIVE SUMMARY	OBJECTIVELY MEASURABLE INDICATORS	MEANS OF VERIFICATION	THEORETICAL ASSUMPTIONS
Outputs: Industrial Eng.	Magnitude of Outputs Necessary and Sufficient to Achieve Purpose		Assumptions for Achieving Outputs
1. IE Department established	1. One IE Dept. at the University of Jordan serving Jordan and Middle East.	1. Records of the University and contractor.	-Students will enroll in the program
2. New IE curriculum.	2. 18 new courses.	2. Same as 1.	
3. Faculty members and technicians trained	3. 4 faculty members receive Ph.D's and 9 receive short term training; two technicians receive short term training.	3. Same as 1.	
4. New equipment installed.	4. \$549,000 for library, computers, and labs.	4. Same as 1.	
5. Seminars to increase awareness of the need for IE's.	5. 3 seminars during project life.	5. Same as 1.	

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Inputs: Charter	Implementation Target (Type, Quantity)		
1. From AID	1.		
a. Technical Assistance	a. 1 long term advisor for 2 years, and 36 person months of local and U.S. short term advisors.	a. Contractor and USAID records.	
b. Training	b. 25.5 person months.	b. Same as la.	
c. Commodities	c. \$89,000.		
d. Professional Staff	d. 101 person months.	c. Same as la.	
2. From Charter of Industry	2.		
a. Local Staff	a. Existing staff members plus 324 person months for new staff.	Contractor and Charter records.	
b. Facilities and Other Local Costs	b. Existing facilities.		
Inputs: MMIS	Implementation Target:	Quarterly and Annual Reports from MMIS and invoices from prime contractor	
1. From USAID	1.		
a. Technical Assistance	a. For Manufacturers Local - 78 man months Foreign - 126 man months Total - 204 man months MMIS Staff Local - 125 man months Foreign - 84 man months Total - 209 man months		
b. Training	b. 3 man months		
2. From JIM	2.		
a. Local Staff	a. 164 man months in Phase II		
b. Facilities and other local costs	b. Additional space for MMIS staff		

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Inputs: Industrial Eng.	Implementation Target		
1. From USAID	1.	Records of FEI, ADI, and Contractors	
a. Technical Assistance	a. Project administration 87 EM Technicians 12 EM U.S. Faculty 98 EM		
b. Training	b. PhD Programs (4) 187 EM Short Term Training (9) 51 EM		
c. Commodities	c. \$549,000		
d. Scholarship Fund	d. 60 at full tuition for 2 years		
2. From University of Jordan			
a. Local Staff	a. Faculty (12) 760 EM Lab Technicians (2) 104 EM Secretary (1) 71 EM		
b. Facilities and other local costs	b. Existing facilities and preparation for new lab equipment.		

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Chamber of Industry

5-1 Component Alternatives

The decision to integrate the functions and activities of a manufacturers association into the Amman Chamber of Industry followed a rationale and process as outlined below. Three primary alternatives were considered during the assessment of existing business and professional associations to determine how to augment the functions of a manufacturers association in Jordan. The alternatives included the following:

--to incorporate the necessary functions and activities in an existing organization.

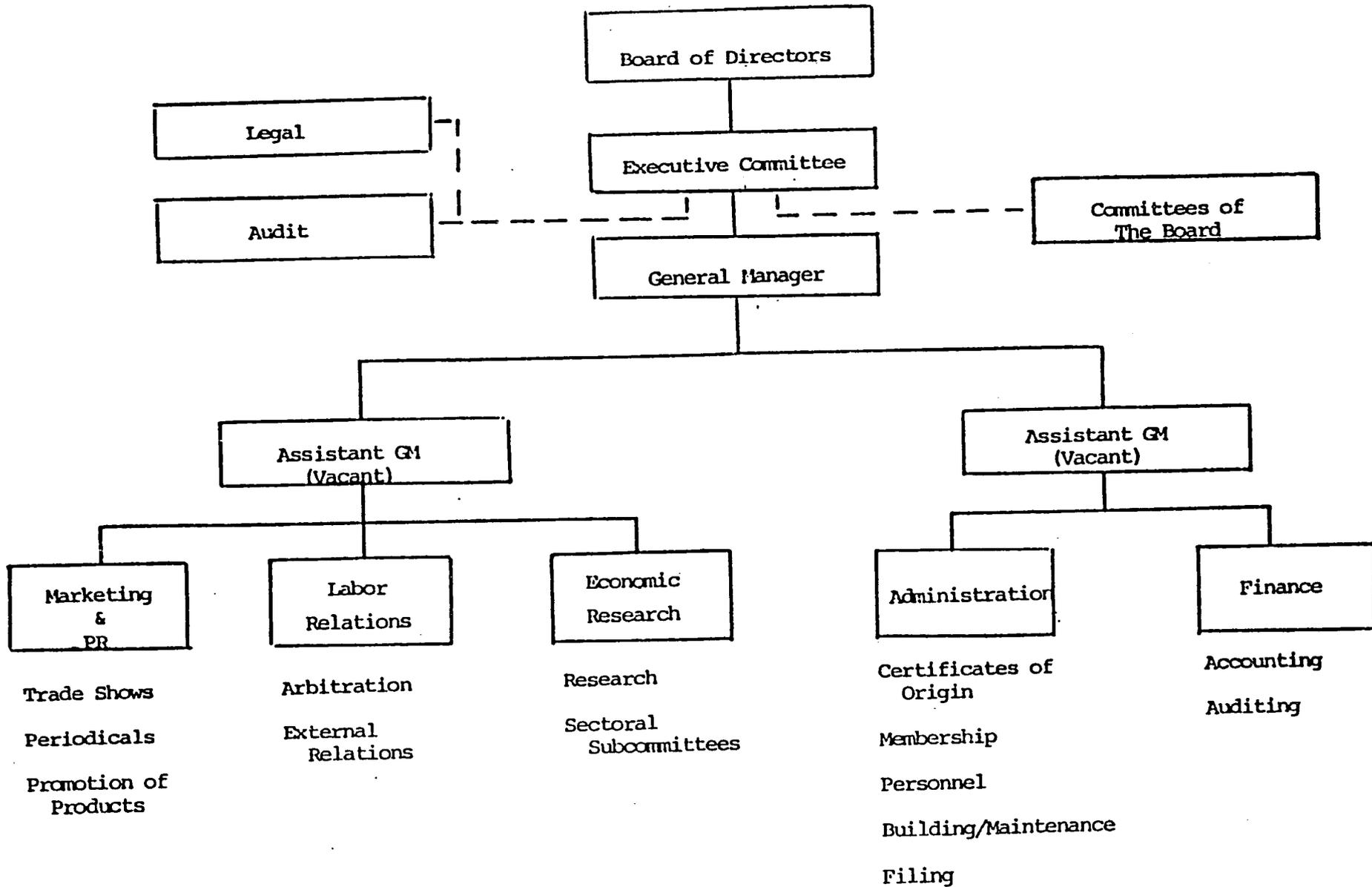
--to establish a new manufacturers association.

--to allocate certain functions to appropriate existing and new organizations, i.e. a combination of alternatives 1 and 2.

Certain criteria were used in considering the value of each alternative. These included the capacity to deliver services, legitimacy and credibility in the opinions of business and government, interest in developing the expansion of Jordan's manufacturing base, realization of the importance of exporting, relative costs of the alternatives, attitudes of opinion leaders, and political effects of the alternatives. Evaluation of these criteria led to the decision to incorporate the functions and activities of a manufacturers association into the Amman Chamber of Industry.

PRESENT CHAMBER ORGANIZATION

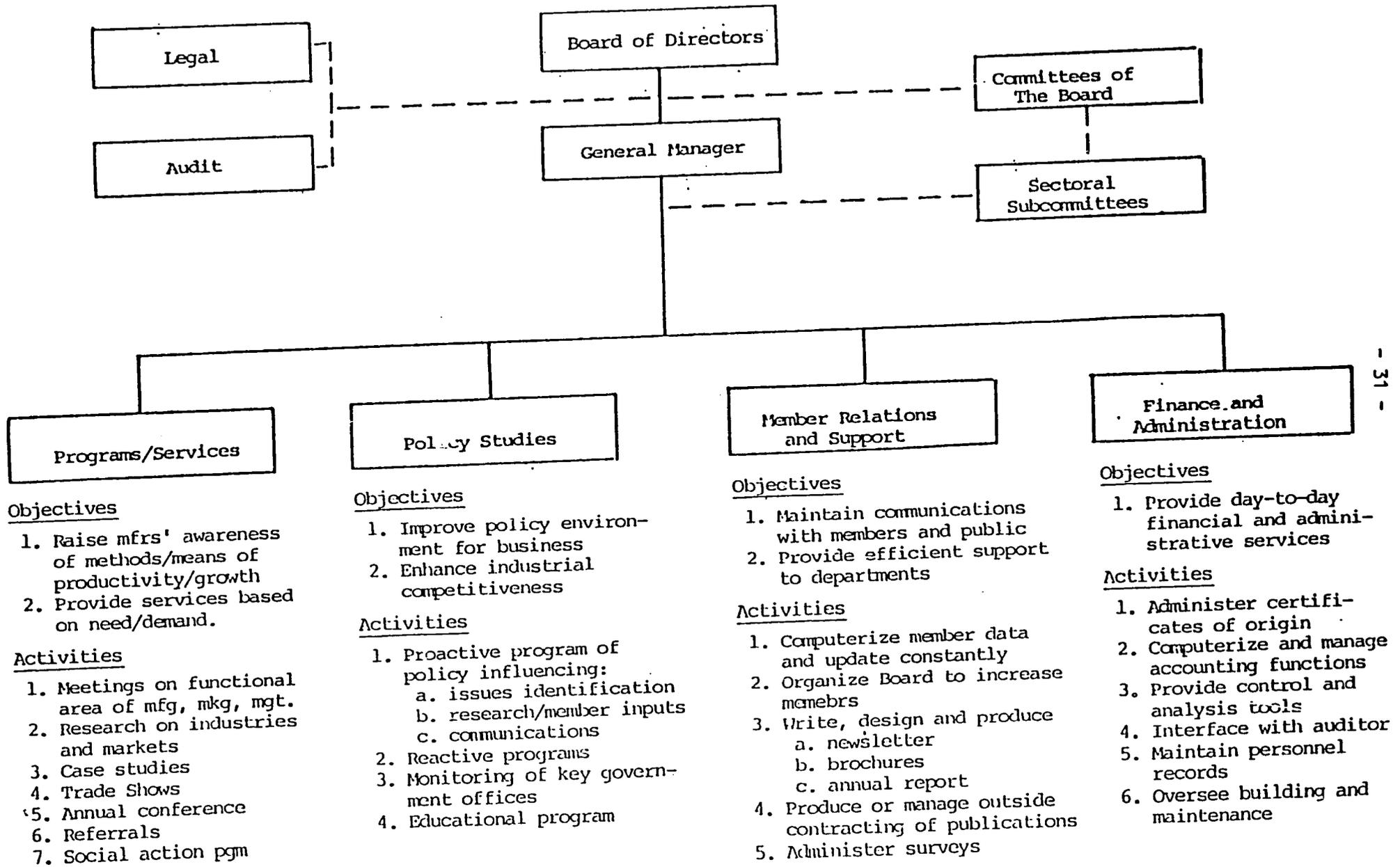
ANNEX 5-2



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DEPARTMENTAL OBJECTIVES/ACTIVITIES

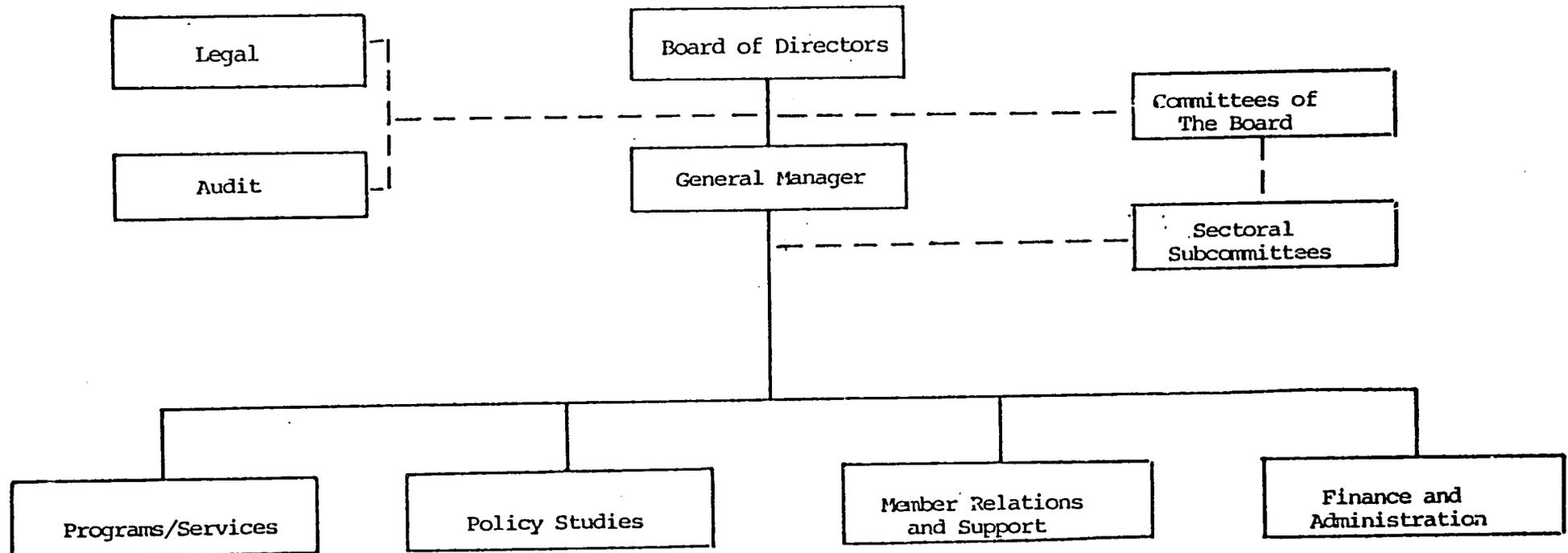
ANNEX 5-3



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PROFESSIONAL STAFF REQUIREMENTS

ANNEX 5-4



Requirements

Head of Department

- MBA marketing
- Industry experience
- Communications skills
- Organizing/leading skills
- Self-starter
- Previous direction of staff

Researcher/Programmer

- BA Marketing/Market Research
- Market research experience
- Familiar with business operations/experience in industry or marketing

Requirements

Head of Department

- MA Political Science/Economics/Business
- Industry/Government experience
- Negotiation skills
- Leadership qualities
- Communication skills
- Survey research
- Good existing networks

Researcher/Programmer (yr. 2)

- BA Political Science/Economics
- Industry/Government experience
- Survey research

Requirements

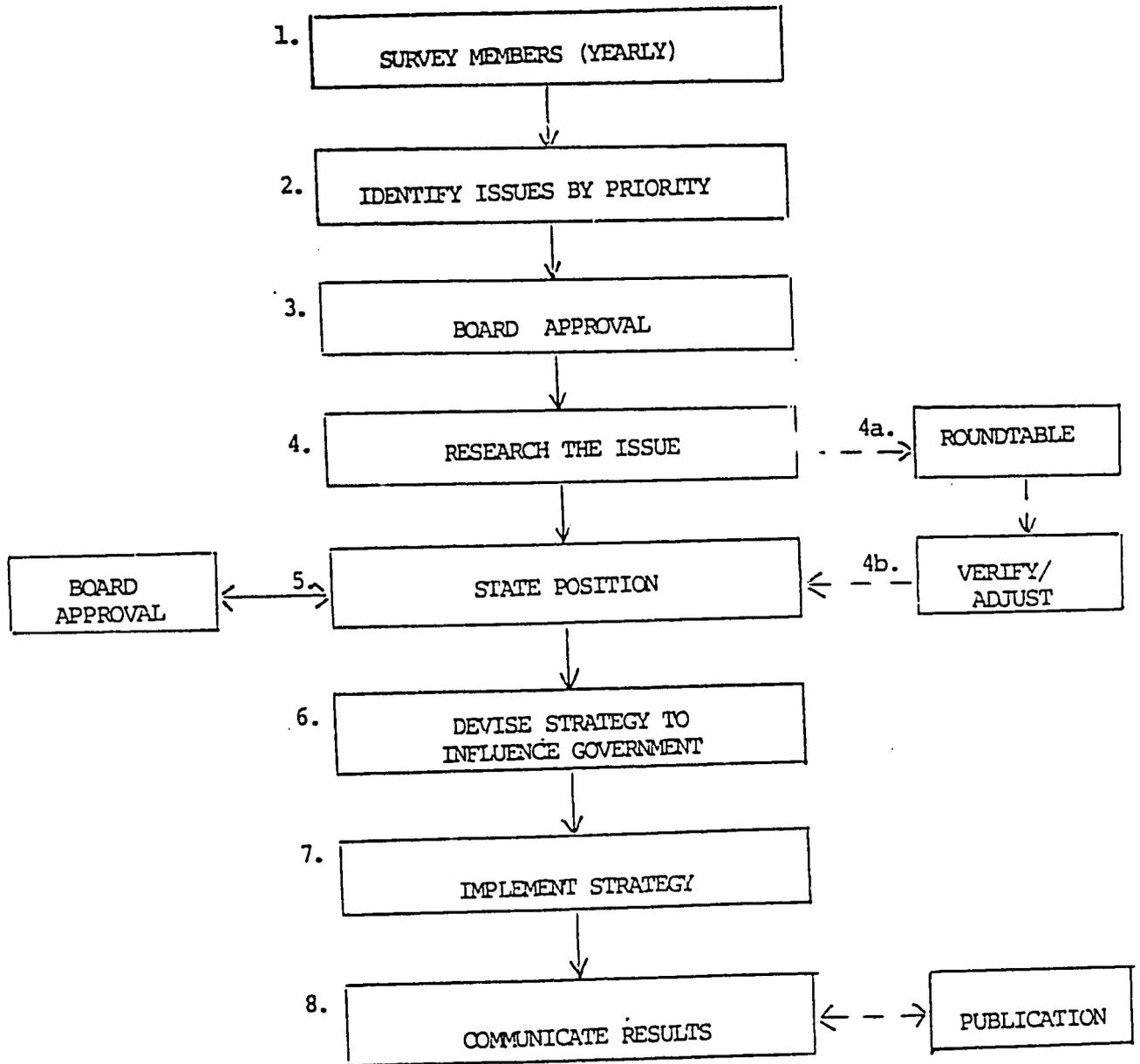
Head of Department

- BA Business/Marketing
- Public relations experience
- Organizing skills
- Publishing knowledge
- Communications skills
- Previous experience in directing staff

Note: One secretary planned for Programs/Services, Policy Studies, and Member Relations

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MODEL OF  
POLICY INFLUENCING PROCESS



A. For "proactive" agenda, steps 1-8.

B. For "reactive" agenda, steps 4-5 and 8.

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ANNEX 5-6

CHAMBER OF INDUSTRY

STATEMENT OF WORK - TECHNICAL ASSISTANCE CONTRACTOR

Qualifications

1. Management consulting firm with international practice.
2. Experience in competitive bidding and contracting.
3. Familiarity with AID contracts and procurement processes.
4. Experience in designing and installing management information systems, including hardware and software recommendations.
5. Experienced Arabic-speaking consulting staff.

Scope of Work

1. Manage competitive bidding process in the following areas:
  - Identify qualified candidates to staff long-term technical assistance advisor to the Chamber of Industry.
  - Identify short-term technical assistance in Jordan and the U.S. to provide legal, policy research, economic research and MIS advice and services to the Chamber of Industry.
  - Identify qualified local candidates for professional and support positions in the Chamber of Industry.
  - Assist in the selection and contracting for the above with AID and the Chamber of Industry.
2. Be available in Jordan for a total of five months at appropriate intervals during the course of the six-year project.
3. Collaborate closely and frequently with AID and the Chamber of Industry to meet overall objectives of the project.
4. Insure that technical assistance funds are spent effectively and efficiently.
5. Manage procurement of equipment and other facilities.

10/2

ANNEX 5-7

CHAMBER OF INDUSTRY

Statement of Work - Long Term Technical Advisor.

Qualifications

1. Chamber of Commerce experience (at least 5 years) in the United States in the following:
  - Direction of staff and line professionals.
  - Design of programs and services.
  - Financial responsibility.
  - Extensive interaction with business.
  - Extensive interaction with government.
  - Survey research design capability.
  - Interaction with Board of Directors.
2. Policy influencing experience, especially in:
  - Identification of issues.
  - Agenda setting through consensus building.
  - Direct lobbying.
3. Business experience, preferably in marketing for a manufacturing enterprise, with international responsibility.
4. Fluency in Arabic.
5. Available for 18 month uninterrupted assignment in Amman.
6. Excellent communications skills.

Scope of Work

1. Act as technical assistance advisor to Chamber of Industry in Jordan and to AID for 18 months.
2. Build Chamber's accountability and utility as objectives.
3. Review all operations of Chamber and integrate into new structure, if required.
4. Organize a marketing function and plan.
5. Provide leadership to Chamber in its expansion of members, programs, services and revenues.
6. Design a policy influencing function and institute with staff and Board.
7. Assist in hiring new professional and support staff.
8. Provide training for new and present staff.
9. Integrate short-term technical assistance in Chamber's operations.
10. Evaluate progress.

10/5

ANNEX 5-8  
JOB DESCRIPTIONS

Job specifications for new professional staff

PROGRAMS / SERVICES

Department Manager

Skill requirements:

Capability in market research and analysis, including survey and questionnaire administration. Experience in the manufacturing industry. Interpersonal and communication skills and experience in managing professional staff. Leadership and organizational qualities. Ability to develop and market programs, seminars and specific services to target industry groups. High initiative, motivation and energy and ability to interrelate with people from business, government and industry. Some exposure to developing country markets.

Background:

MBA in marketing, several years of experience as a marketing executive in an industrial environment or as an experienced consultant to the manufacturing industry. Experience of organizing trade show, seminars.

Research Analyst

Skill requirements:

Experienced in all phases of country, industry and market research on the macro and micro level, administration of surveys, questionnaires and interviews, ability to locate and generate secondary data bases, computer and systems capability, experience in research of industry and public policy issues.

Background:

BA in economics, MBA in marketing. Several years of experience as an industry analyst or in a market research position in multinational industrial firm. Background in international economic research in a banking environment.

POLICY STUDIES

Department Manager

Qualifications:

Ability in economic, political and public policy research, analysis and policy development and intervention in industry and

government. Interpersonal and communication skills as well as proven leadership and negotiation capability in the private and public sector. The candidate needs to be able to develop networks in business, industry and government circles and have capability to quickly identify key policy issues and to develop strategic and tactical plans to accomplish objectives of a large group of constituents.

Background:

BA in economics or marketing, MA in political science/business/economics. Several years of experience as a corporate relations executive, an experienced consultant for government policy and lobbying/policy influencing activity.

MEMBER RELATIONS AND SUPPORT

Department Manager

Skill requirements:

Thorough skills and experience in managing association membership relations, developing support staff and activities, undertaking public relations activities and market association services to members. Capabilities in executing targeted market research activities (survey and questionnaire mailing), experience with contractors, experience in publishing, advertising and promotion activities for associations or public/private interest groups. Organizational, communication and leadership skills and the ability to build relationships with business and government. Good marketing, technical and business expertise. Experience working with professional groups and providing multiple support services. Ability to plan and organize meeting and promotional events, to set up data bases and computerize work activities.

Background:

BA in business/economics, working experience in marketing/sales. Several years of experience as director of trade or industry association. Additional background in industrial marketing, public relations or business development activities.

FINANCE AND ADMINISTRATION

Department Manager

This position will be filled with current internal Chamber staff. Additional training will be required to provide the skill level that is considered necessary for this position.

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Skill requirements:

Thorough knowledge and experience in financial and accounting matters of industry associations. General management, reporting and organizational skills. Experience with computerized accounting systems, financial analysis capability and experience with financial systems. Capability to prepare and review financial plans and schedules. Experience of managing financial/accounting professionals, report preparation and negotiation with general management and Board.

CHAMBER OF INDUSTRY  
DETAILED IMPLEMENTATION SCHEDULE - 1986

ACTION	START/COMPLETE DATES	1/86	2/86	3/86	4/86	5/86	6/86	7/86	8/86	9/86	10/86	11/86	12/86
• AID/GOJ sign PROAG	9/30/86												
• CI prepares prequalification notice & questionnaire & submits to AID.	10/1/86-10/15/86												
• CI prepares information to satisfy conditions precedent and submits to AID.	10/1/86-11/31/86												
• AID reviews prequal. request, approves & submits to AID/M for issuance.	10/15/86-10/31/86												
• CI prepares RFP & submits to AID.	11/1/86-11/15/86												
• Bidders prepare & submit prequal. information.	11/1/86-11/30/86												
• AID reviews & approves RFP.	11/15/86-11/30/86												
• CI reviews prequal. information & requests AID approval of prequalified firms.	12/1/86-12/31/86												
• AID reviews & approves information submitted to satisfy conditions precedent.	12/1/86-12/15/86												

S = Started  
C = Completed

C  
S---C

S-----C

S---C

S-----C

S-----C

S---C

S-----C

S---C

CHAMBER OF INDUSTRY  
 DETAILED IMPLEMENTATION SCHEDULE - 1987

ACTION	START/COMPLETE DATES	1/87	2/87	3/87	4/87	5/87	6/87	7/87	8/87	9/87	10/87	11/87	12/87
• AID reviews & approves prequalified firms and issues RFP.	1/1/87-1/15/87	S---C											
• Bidders prepare & submit proposals.	1/15/87-2/28/87	S-----C											
• CI ranks proposals & requests AID approval.	3/1/87-3/31/87			S-----C									
• AID reviews & approves ranking.	4/1/87-4/15/87				S---C								
• CI negotiates draft contract & submits to AID.	4/15/87-5/15/87					S-----C							
• AID reviews & approves draft contract.	5/15/87-5/31/87						S---C						
• Contractor long term (LT) Advisor mobilizes.	5/15/87-7/15/87							S-----C					
• CI signs contract & submits to AID for final approval & L/COMH issuance.	6/1/87-6/15/87							S---C					
• AID approves final contract & issues L/COMH.	6/15/87-6/30/87								S---C				
• CI & LT Advisor recruit & hire additional local staff.										S---C			
--Secretary	7/15/87-7/31/87										S-----C		
--Director Programs/ Services Dept.	8/1/87-10/1/87											S-----C	
--Director, Policy Studies Dept.	8/1/87-10/1/87											S-----C	
• CI & LT Advisor train new staff.	8/1/87-7/15/89											S-----C	
• LT Advisor arranges for short term local expert advice on MIS, financial management, and legal questions.	8/1/87-7/15/79											S-----C	
• LT Advisor arranges for short term consultants to execute studies of GOJ policies & investment	10/1/87-1/31/88											S-----C	

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CHAMBER OF INDUSTRY  
 DETAILED IMPLEMENTATION SCHEDULE - 1988

ACTION	START/COMPLETE DATES	1/88	2/88	3/88	4/88	5/88	6/88	7/88	8/88	9/88	10/88	11/88	12/88
• LT Advisor trains local staff.	8/1/87-7/15/89												
• LT Advisor arranges for short term local expert advice on MIS, financial management, and legal questions.	8/1/87-7/15/79												
• LT Advisor arranges for short term advisors to execute studies of 60J policies & investment incentives.	10/1/87-1/31/88												
• Contractor procures & delivers commodities.	1/1/88-6/30/88												
• LT Advisor arranges for short term advisors to execute studies of 60J policies.	8/1/88-10/30/88												

CHAMBER OF INDUSTRY  
 DETAILED IMPLEMENTATION SCHEDULE - 1989

ACTION	START/COMPLETE DATES	1/89	2/89	3/89	4/89	5/89	6/89	7/89	8/89	9/89	10/89	11/89	12/89
• LT Advisor trains local staff.	8/1/87-7/15/89												
• AID & CI contract for first evaluation.	1/1/89-3/15/89												
• LT Advisor arranges for studies on 60J policies.	3/1/89-5/31/89												
• Evaluation contractor conducts 1st evaluation.	3/15/89-4/15/89												
• LT Advisor departs.													

ACTION	START/COMPLETE DATES	DETAILED IMPLEMENTATION SCHEDULE - 1990														
		1/90	2/90	3/90	4/90	5/90	6/90	7/90	8/90	9/90	10/90	11/90	12/90			
*Short term advisor visits CI.	4/1/90-4/30/90				S-----	C										
*CI with assistance of ST advisor arranges for policy studies.	4/1/90-4/30/90				S-----	C										
*Consultants execute policy studies.	5/1/90-6/30/90						S-----	C								

S = Started  
C = Completed

ACTION	START/COMPLETE DATES	CHAMBER OF INDUSTRY DETAILED IMPLEMENTATION SCHEDULE - 1991														
		1/91	2/91	3/91	4/91	5/91	6/91	7/91	8/91	9/91	10/91	11/91	12/91			
*Short term advisor visits CI.	4/1/91-4/30/91				S-----	C										
*CI with assistance of ST advisor arranges for policy studies.	4/1/91-4/30/91				S-----	C										
*Consultants execute policy studies.	5/1/91-6/30/91						S-----	C								

S = Started  
C = Completed

ACTION	START/COMPLETE DATES	DETAILED IMPLEMENTATION SCHEDULE - 1992														
		1/92	2/92	3/92	4/92	5/92	6/92	7/92	8/92	9/92	10/92	11/92	12/92			
*Short term advisor visits CI.	4/1/91-4/30/91				S-----	C										
*CI with assistance of ST advisor arranges for policy studies.	4/1/91-4/30/91				S-----	C										
*Consultants execute policy studies.	5/1/91-6/30/91						S-----	C								
* AID and CI contract for final project evaluation.	5/15/92-7/31/92						S-----	C								
									S-----	C						

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CHAMBER OF INDUSTRY  
DETAILED COSTS  
(000s of USD)

	1986		1987		1988		1989		1990		1991		1992		TOTAL		
	Cost/Unit	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost		
<b>AID INPUTS</b>																	
<b>TECHNICAL ASSISTANCE</b>																	
<b>U.S.</b>																	
-Long Term - U.S.	12.50		0.0	5.5	68.8	12.0	150.0	7.5	93.8	0.0	0.0	0.0	0.0		0.0	25.0	312.5
-Short Term - U.S.																	
--Management	14.00		0.0	0.0	0.0	1.0	14.0	1.0	14.0	1.0	14.0	1.0	14.0		0.0	4.0	56.0
--Coop. studies	14.00		0.0	1.0	14.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	14.0		0.0	2.0	28.0
--Policy studies	14.00		0.0	1.0	14.0	1.0	14.0	1.0	14.0	1.0	14.0	1.0	14.0	1.0	14.0	6.0	84.0
TOTAL U.S.		0.0	0.0	7.5	96.8	14.0	178.0	9.5	121.8	2.0	28.0	3.0	42.0	1.0	14.0	37.0	480.5
<b>LOCAL</b>																	
-Short Term																	
--MIS/Fin. Mgmt	3.90		0.0	3.0	11.7	2.0	7.8	1.0	3.9	0.0	0.0	0.0	0.0		0.0	6.0	23.4
--Legal/Org.	3.90		0.0	1.0	3.9	1.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0		0.0	2.0	7.8
--Coop. studies	3.90		0.0	2.0	7.8	0.0	0.0	0.0	0.0	0.0	0.0	2.0	7.8		0.0	4.0	15.6
--Policy studies	3.90		0.0	2.0	7.8	2.0	7.8	2.0	7.8	2.0	7.8	2.0	7.8	2.0	7.8	12.0	46.8
TOTAL LOCAL TA		0.0	0.0	8.0	31.2	5.0	19.5	3.0	11.7	2.0	7.8	4.0	15.6	2.0	7.8	24.0	93.6
TOTAL TA		0.0	0.0	15.5	128.0	19.0	197.5	12.5	133.5	4.0	35.8	7.0	57.6	3.0	21.8	61.0	574.1
<b>TRAINING</b>																	
-Short Term	3.50		0.0	0.0	0.0	4.0	14.0	10.0	35.0	4.0	14.0	4.0	14.0	3.5	12.3	25.5	89.3
-In'l Travel	2.0		0.0	0.0	0.0	2.0	4.0	3.0	6.0	2.0	4.0	2.0	4.0	2.0	4.0	11.0	22.0
TOTAL TRAINING			0.0	0.0	0.0	6.0	18.0	13.0	41.0	6.0	18.0	6.0	18.0	5.5	16.3	36.5	111.3

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COMMODITIES						6.0										6.0	
-Audiovisual						5.0										5.0	
-Photocopier						50		3		3		2		2.0		60.0	
-Computers						10		3		2		2		1.0		18.0	
-Library						71		6		5		4		3		89	
TOTAL COMMODITIES		0		0													
LOCAL STAFF																	
-Programs/Services	1.90	0.0	3.0	5.7	12.0	22.8	4.0	7.6	0.0	0.0		0.0		0.0	19.0	36.1	
-Policy Studies	1.90	0.0	3.0	5.7	12.0	22.8	4.0	7.6	0.0	0.0		0.0		0.0	19.0	36.1	
-Member relations	1.90	0.0	3.0	5.7	12.0	22.8	4.0	7.6	0.0	0.0		0.0		0.0	44.0	83.6	
-Researcher	1.90	0.0	2.0	3.8	24.0	45.6	18.0	34.2	0.0	0.0		0.0		0.0	0.0	0.0	
-Admin. Support	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	101.0	191.9	
TOTAL LOCAL STAFF		0.0	0.0	11.0	20.9	60.0	114.0	30.0	57.0	0.0	0.0	0.0	0.0	0.0	5.0	70.0	
EVALUATION	14.00		0.0	1.0	14.0	2.0	28.0		0.0		0.0	2.0	28.0	0.0	0.0	5.0	70.0
SUBTOTAL			0.0		162.9		428.5		237.5		58.8		107.6		41.1		1036.3
CONTINGENCY			0.0		16.3		42.9		23.7		5.9		10.8		4.1		103.6
INFLATION @ 5%			0.0		9.0		47.1		41.8		14.2		33.1		15.4		160.6
TOTAL AID INPUTS			0.0		188.1		518.5		303.0		78.9		151.5		60.5		1300

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CHAMBER INPUTS

LOCAL STAFF																				
-Programs/Services	1.90	0.0		0.0		0.0	3.0	5.7	12.0	22.8	12.0	22.8	10.0	19.0	37.0	70.3				
-Policy Studies	1.90	0.0		0.0		0.0	3.0	5.7	12.0	22.8	12.0	22.8	10.0	19.0	37.0	70.3				
-Member relations	1.90	0.0		0.0		0.0	3.0	5.7	12.0	22.8	12.0	22.8	10.0	19.0	37.0	70.3				
-Researcher	1.50	0.0		0.0		0.0	6.0	9.0	24.0	36.0	24.0	36.0	20.0	30.0	74.0	111.0				
-Admin. Support	1.50	0.0	7.5	11.3	24.0	36.0	6.0	9.0	36.0	54.0	36.0	54.0	30.0	45.0	139.5	209.3				
TOTAL LOCAL STAFF		0.0	0.0	7.5	11.3	24.0	36.0	21.0	35.1	76.0	158.4	96.0	158.4	80.0	132.0	324.5	531.2			
OTHER LOCAL COSTS							20.0		20.0		20.0			16.7		96.7				
-Publications Costs							20.0		20.0		20.0			16.7		96.7				
TOTAL OTHER LOCAL COSTS			0.0		0.0		20.0		20.0		20.0			16.7		96.7				
SUBTOTAL			0.0		11.3		56.0		55.1		178.4		178.4		148.7		627.8			
CONTINGENCY			0.0		1.1		5.6		5.5		17.8		17.8		14.9		62.8			
INFLATION @ 5%			0.0		0.6		6.2		9.7		43.2		43.2		55.6		170.2			
TOTAL CHAMBER INPUTS			0.0		13.0		67.8		70.3		239.4		251.2		219.1		860.8			
TOTAL USAID & CHAMBER			0.0		201.1		586.2		373.3		318.3		402.7		279.6		2161.3			

Annex 5 - 11  
The Amman Chamber of Industry  
Amman - Hashemite Kingdom of Jordan  
Balance Sheet

<u>31st December</u>		
<u>1984</u>	<u>1985</u>	
<u>JD</u>	<u>JD</u>	
18,996	131,116	<u>Assets</u>
853	853	<u>Current Assets</u>
1,178	528	At Arab Bank Ltd.
851	10,911	Deposits
<u>21,878</u>	<u>143,408</u>	Due Rents
6,000	6,000	Prepaid Expenses
<u>12,000</u>	<u>9,000</u>	Total of current assets
		Investments (clarification 3)
		Reserve (clarification 1 (d))
		<u>Fixed Assets (clarification 3)</u>
9,978	9,978	Land - at cost.
597,423	623,184	Building with improvements, Furniture & Fittings & equipment at cost.
155,958	195,323	Less: Accrued Depreciation
<u>441,465</u>	<u>427,861</u>	Net Building, Furniture & Fittings & Equip. etc.
451,443	437,839	Total of Fixed Assets.
<u>491,321</u>	<u>596,247</u>	Total Assets
=====	=====	
9,005	--	Employees Provident Fund (clarification 7)
=====	=====	

The attached clarifications are considered as part of these sheets (statements)

<u>31st December</u>	
<u>1984</u>	<u>1985</u>
<u>JD</u>	<u>JD</u>
376	—
8,993	10,054
2,728	2,728
—	3,540
<u>15,217</u>	<u>15,454</u>
<u>27,314</u>	<u>31,776</u>
<u>          </u>	<u>100,000</u>
462,603	464,007
<u>1,404</u>	<u>464</u>
(B)	
464,007	464,471
<u>          </u>	<u>          </u>
<u>491,321</u>	<u>596,247</u>
=====	=====
9,005	—
=====	=====

Liabilities  
Current Liabilities

Banks Creditors (Clarification 5)  
Sundry Creditors  
Prepaid Rents  
Prepaid Membership Fees  
Provision for termination of employment  
Total of current Liabilities  
Long Term Loan (clarification 6)  
Accrued Income  
Balance as at 1st January  
Excess of income over expenses - table  
Balance of Accrued Income.  
  
Total of Liabilities and Accrued Income  
  
Liability towards employees Provident  
Fund (Clarification 7)

The Amman Chamber of Industry  
Amman Hashemite Kingdom of Jordan

Income & Expenditure Statement as at 31st December for the years 1984 & 1985.

1984	1985	
<u>JD</u>	<u>JD</u>	<u>INCOME</u>
5,305	10,465	Registration Fees
61,440	89,105	Membership Fees
86,661	70,818	Legalizations Fees
28,661	28,660	Rents
1,250	2,575	Hall Rentals
6,418	6,525	Shares dividends & other Income
<u>189,735</u>	<u>208,148</u>	<u>TOTAL INCOME</u>
		<u>EXPENDITURE</u>
65,166	74,428	Salaries, Wages, Bonuses and Vacations
15,472	785	Provision for employees termination
1,301	723	Chamber's share in employees Provident Fund.
1,947	3,208	Cables, Post & Telephones.
3,611	4,985	Stationary & Printing
8,290	7,654	Heating, Electricity & Water.
2,965	4,846	Maintenance & Cleaning materials
533	642	Insurance for Chamber's Building
7,978	4,750	Building Taxes
1,877	1,897	University Fees
3,468	5,303	Entertainment expenses.
17,598	1,505	Conferences, Symposums & Exhibition Fees
1,994	2,215	Vocational Membership
270	422	Motorcycle Expenses
750	5,416	Chamber's Bulletins.
750	500	Auditor's Fees
600	800	Legal Consultant's Fees
11	9	Interest & Bank Rates
386	377	Miscellaneous Expenses
11,015	15,318	Participations (Educational, Scientific & social)
2,143	2,272	Provision for Furniture Depreciation
14,017	19,038	Provision for Chamber's Building Deprec.
7,304	7,304	Provision for Audio-Visual Equipment
Deprec.		
10,703	10,703	Provision for Furniture & Fittings of the Chamber, Main Office & Entrance
Depreciation.		
3,550	3,231	Advertisement
3,000	3,000	Provision for Lease termination
1,632	20,458	Travelling & Transportation expenses.
--	5,905	Participation of Chamber in Social Welfare
<u>188,331</u>	<u>207,664</u>	<u>TOTAL EXPENDITURE</u>
1,404	464	Excess of Income over
Expenditure-Statement (A)		
=====	=====	

The attached clarifications are considered as part of these statements

The Amman Chamber of Industry  
Amman The Hashemite Kingdom of Jordan

Statement of Moneys Sources & Its uses

As at 31st of December

1984	1985	
<u>JD</u>	<u>JD</u>	<u>MONEYS SOURCES</u>
1,404	464	Excess of Incomes over Expenditure
34,271	39,365	Add: Depreciation of Fixed Assets
15,471	784	Provision for Employees Termination
3,000	3,000	Rule off of part of lease compensation
--	100,000	Long Term Loan
<u>54,146</u>	<u>143,613</u>	TOTAL OF MONEYS SOURCES
		<u>USES OF MONEYS</u>
35,940	25,761	Additions to Fixed Assets
15,000	—	Lease Compensation Paid
<u>22,756</u>	547	Paid Compensations
<u>73,696</u>	<u>26,308</u>	TOTAL USES OF MONEY
(19,550)	117,305	Increase (decrease) in working capital
		The increase (decrease) in working capital
		represents changes in the following items:
( 8,384)	112,120	Cash at Bank
( 3,470)	( 650)	Rents Due
532	10,060	Prepaid Expenses
( 376)	376	Bank (creditor)
( 8,373)	( 1,061)	Deposits for others and credit balances
521	—	Pre-received Rents (rents received in advance)
--	( 3,540)	Memberships received in advance
<u>(19,550)</u>	<u>117,305</u>	
=====	=====	

Clarifications attached are considered a part of these statements

The Amman Chamber of Industry  
Amman - The Hashemite Kingdom of Jordan

Clarifications about the Statements of Accounts

1-The Basis of Accounts

- A- The Fixed Assets are shown at cost price and Depreciation was taken on fixed rate basis by yearly percentages of 2-20%.
- B- Investments are shown at cost price which is less than the market price.
- C- Rule off at 20% is accounted for, for lease compensation.

2-Prepaid Expenses

This item includes 10,000 Dinars paid to the Decoration Contractor and other civil work for the permanent exhibition and offices of the Amman Chamber of Industry as a payment of the awarded tender value which is 53,613 Dinars.

3-Investments

	<u>31st December</u>	
	<u>1985</u>	<u>1984</u>
	<u>JD</u>	<u>JD</u>
This item includes the following investments:		
Value of 1000 shares of ID3 at cost	1,000	1,000
One third of Commercial fairs Corporation's capital:	5,000	5,000
TOTAL	<u>6,000</u>	<u>6,000</u>
	=====	=====

MANUFACTURING AND MARKETING IMPROVEMENT SECTION

ANNEX 6-1  
COMPONENT ALTERNATIVES

Alternatives

A wide range of institutional options were considered and reviewed.

Royal Scientific Society

The RSS is a well established research and testing organization which serves primarily public sector needs and to a lesser degree responds to private sector service requests. Revenue is generated from requests by the government and industry (primarily importers and construction engineers) to test required materials. It was determined that the RSS was most effective in providing specialized testing services but had not established sufficient linkages with private manufacturers to warrant placement of the center under their administration.

The Chamber of Industry

The Chamber of Industry was examined as a possible location for the center as a result of its established linkages with the private sector. However, its effectiveness and credibility as a provider of services was seriously questioned by manufacturers. The IDP project, however, calls for a strengthening of the service function of the Chamber to provide assistance in building the awareness of industry to the needs for technical assistance. It remains an important potential source of expanded services to manufacturers.

Jordan Businessmen's Association

The JBA is a new organization which is currently identifying its objectives and action plan. Currently, it has not established sufficient credibility with manufacturers nor does it indicate well defined objectives to warrant the establishment of the facility at the Association. The JBA has stated its support for the project.

University of Jordan

The University currently offers consulting services through its faculty. It is respected as an institution of higher learning but has not established sufficient linkages to the private sector to adequately respond in the short term to technical assistance problem-solving needs.

Ministry of Supply, Industry and Trade

The Ministry is the prime regulating body of the manufacturing sector and as such could be in conflict with the project. The center's viability and responsiveness would not function well within the organizational framework of the government.

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DETAILED DESCRIPTION OF MMIS ACTIVITIES

I. Project Management Related Functions

The project management related functions in MMIS are as follows:

A. Create Demand for MMIS Services

One important activity of the prime contractor will be to market services offered by the MMIS organization to private sector manufacturers in Jordan. This is expected to be a considerable task involving the use of a wide range of marketing and promotional techniques.

Generic consulting services to be provided by MMIS have been listed in this annex. Additional services will be identified as a result of diagnostic activities. Although industry targeting has not been accomplished, during the initial phase of the project those industries which contribute significantly to the industrial activity of Jordan will be targeted for promotional activities in order to allow for multiclient servicing and a resource efficient method of marketing technical assistance services. Individual companies which have already expressed an interest in the project will also be identified for servicing during the initial phase of the project. Industries and companies with the greatest potential of payoff to country objectives will also be targeted.

MMIS marketing activities will initially focus on the creation of awareness of the purpose of the organization, service benefits to users and the overall need of manufacturers to focus on productivity, quality and marketing improvement issues for growth, competitiveness and domestic and foreign market success.

The development of awareness of needs with the manufacturing community and the justification of the investment to resolve problems is a very important function of MMIS. The marketing of MMIS is initially the major function of MMIS.

JIM has already created a marketing network and has established credibility as a provider of services (albeit training services). As JIM markets its training courses, MMIS can be promoted. MMIS can be described in detail at all training courses actually offered by JIM. A brochure should be developed describing MMIS and its services, plus why manufacturers should want to utilize MMIS.

MMIS will focus its marketing efforts on why manufacturers should use MMIS services, on building a strong user network, and on utilizing reciprocal referrals with JIM, the Chamber of Industry and the Industrial Engineering graduate program at the U of J. MMIS marketing activities will include the development of workshops and seminars, attendance at trade shows and exhibitions and the design of advertising and promotional programs.

A series of free one day or one-half day seminars should be offered. These can be given at JIM or using individual company conference rooms to bring in a group of manufacturers. These seminars should be taught by the Section Manager of MMIS along with the Director of JIM in order for the Section Manager to share in JIM's credibility. The objective of these seminars is to create an awareness of problems and to promote MMIS as a resource to resolve those problems.

MMIS will undertake case studies of Jordanian firms in coordination with the University of Jordan and the Chamber of Industry. Research activities, diagnostic and interface with manufacturers should raise substantially the awareness and public image of MMIS. Research studies on related topics will be undertaken simultaneously. Results may be used for publications and periodic information to MMIS users.

Trade shows and exhibitions for Jordanian products in regional, non-traditional, and industrialized markets are important sources of information for MMIS regarding product quality, packaging, market approaches of competitors and comparative situations for the market penetration of Jordanian products. This will assist in designing MMIS services and referrals necessary to make foreign competition possible.

Continuous advertising and promotional activities are necessary to create awareness of services; to inform manufacturers of events, and seminars for targeted user groups, and to create and maintain a continuous base of MMIS users. There will be a quarterly newsletter regarding general information on MMIS activities and programs, special topics and issues in such areas as productivity and quality improvements, marketing and management as well as on-going information on Jordanian industry. There will also be a particular brochure describing in detail MMIS' purpose, services, information and referral assistance. Brochures and announcements will be distributed through a structured mailing campaign.

All marketing activities during the life of the project will have to be planned and coordinated within MMIS as well as with the Chamber of Industry and the University of Jordan Industrial Engineering School to accomplish the goals and objectives of the overall project. The following is a budget for the marketing of MMIS:

Activity	Y1	Y2	Y3	Y4	Y5	Y6	Total
Attendance at Trade Shows	6	6	6	4	4	4	30
Newsletters & Brochures	20	5	5	5	5	5	45
Mail & Phone Advertising	4	4	3	3	3	3	20
Media Advertising	10	10	10	10	10	10	60
Total	<u>40</u>	<u>25</u>	<u>24</u>	<u>22</u>	<u>22</u>	<u>22</u>	155

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B. Identify Problems and Create a Scope of Work

Once a company has expressed some interest in working with MMIS, the problem identification function begins. The staff at MMIS will visit the operation to meet with top management and have an introductory tour of the facility. The purpose of the visit is for MMIS to become acquainted with the company and to begin to identify major problem areas. Subsequent trips to the plant site by a MMIS account manager who is a specialist in the problem area, will involve extensive interviews with all levels of management and workers, lengthy observations of the operations, and some data analysis. The data analysis may have to be preceded by the establishing of some data collection procedures, This may extend the length of this problem identification function from days to weeks, or even months.

The end objective of the problem identification function is to define a scope of work for a consultant specialist in the problem area to resolve the problem . This scope of work should include a detailed description of the company, the problem to be addressed, estimated level of consulting effort required and expected benefits. The manufacturing company must agree with the scope of work.

One of the challenges of this function is to identify the most important problem area in the company as opposed to undertaking a number of problem areas simultaneously. The temptation will be to write numerous scopes of work but this should be avoided so that each technical assistance intervention is implemented properly. In most cases, the manufacturer will not be able to handle numerous interventions at the same time which require significant financial input and may overburden their current management structure.

A further concern is that there will be a tendency for the MMIS staff to occasionally want to undertake the actual problem resolution for the scope of work. Given the many tasks required of the MMIS staff (see Chart at the end of this section), performing the actual scope of work has not been defined as a task of the full time staff of MMIS. Should MMIS become involved in the provision of technical assistance, it could be perceived as a competitor to local consulting companies rather than a developer of business. MMIS would also be prone to similar criticism as that leveled at Westinghouse in Egypt. The evaluation of the US AID project in Egypt entitled "Management Development for Productivity" mentions a criticism of the Westinghouse effort which is pertinent here: The services needed were very broad in range and specific in nature, Westinghouse did not have all these services in-house, but they were reluctant to go to another consultant to fill these needs. Instead, the project utilized less than appropriate staff.

Another example of this occurred in Iran. The Industrial Management Institute was established to do training, consulting and research. It failed in the area of consulting because it could not staff with a broad range of experts in specific areas.

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During the company assessment and scope of work development, the MMIS staff may see immediately implementable actions. These, of course, should be recommended to the company. These can be formalized in the scope of work as "already recommended improvements".

The outside consultants may also become involved in initial and detailed diagnostic analysis of companies.

### C. Subcontracting Activities

The initial step is to form a data base of viable consultants. An initial list of all available consultants in the required specialties must be established. For local consultants the 1986 Coopers & Lybrand Private Sector Services Assessment study will be a starting point. The RSS and the University of Jordan will be sources of potential consulting capability. In the United State, there are a variety of sources listing consulting companies and the services they offer such as the U.S. Department of Commerce, National Technical Information Service (NTIS). IESC will be a source of potential consulting capability, however, MMIS will not finance IESC as this organization will already have a source of funding through an AID grant.

The next step is to determine which consultants have potential for MMIS projects. In the US, this involves determining foreign interest, and assessing specific capabilities. In Jordan, this is merely a capability assessment. Once a gross list of consultants has been established, a mailing to these companies with information on the project and MMIS can be sent to the consultants, requesting information on their firms - if they are interested in participating. The responses to this mailing must be analyzed and accessed. Follow-up with individual companies may be required. The end result is information on capable consultants who have expressed an interest in MMIS. This task may have to be repeated during the life of the project.

The next step takes the information and computerize it so that it can be accessed through a variety of parameters (i.e., name, function, level of interest, timing windows, etc.). This data base must be periodically updated.

This function serves as the first point of searching for consultants to perform a specific scope of work. The required capabilities for the scope of work must be determined and a list of viable consultants obtained from the data base.

Once a list of viable consultants has been established, the next step is to select the best one who is available. Local Jordanian consultants will receive priority over foreign consultants. Timing, capability and cost are all important criteria in making this selection.

The next step is to coordinate negotiations between the Jordanian manufacturing company, the consulting company and MMIS. The first phase of this function involves ensuring that all parties understand and agree to the scope of work, and that the consulting company is capable of performing the scope of work.

It is at this point that any consulting joint venture arrangements must be established. These joint ventures may involve the RSS or the University of Jordan performing test or R&D functions for a U.S. research organization. They may also involve a U.S. consulting company teaming up with a Jordanian consulting company in a quasi technology transfer arrangement. The next phase is a financial one. Costs and fees must be negotiated with the consulting company.

Consulting contracts based on a contingency (demonstrated improvements in performance) are not recommended. These contracts are very difficult to administer even when the manufacturing company has an excellent cost accounting system. Given the systems in Jordan and the fact that the foreign consultants are so far away, this technique is not recommended.

#### D. Financial Management/Administration

This function involves the administering of the project and assisting the consultant with the project. The administration phase involves the fees, expenses and revenues to the project. Revenues will be received from a variety of funding sources. A very detailed cost accounting and billing system must be developed for MMIS and utilized on a project-by-project basis. This is a critical part of establishing actual cost-benefit data to be used in creating more demand among manufacturers and more funding from outside agencies. Quarterly reports will be generated for JIM and AID. These reports will detail functional and financial activity and status.

The actual assistance to the consultant involves logistical support and some in-country knowledge. MMIS can be used as a sounding board or ideas, theories and problems.

#### E. Monitor/Evaluate

After the consultant has completed his work, MMIS will work with the manufacturing company to ensure implementation of the consultant's recommendation and to act as a communication liaison between the consultant and the manufacturer on problems. MMIS will obtain feedback from both the manufacturer and the consultant for future references, and will monitor the actual benefits of the project. These tasks ensure that MMIS sponsored projects are not merely studies, but that actual quantifiable benefits are realized.

These first five functions performed by the MMIS staff in Jordan are very similar to the tasks of a country director for the International Executive Services Corp (IESC).

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## F. Fund Raising/Revenue Generation

The major portion of the funds that will finance the activities of MMIS will be provided by an AID grant. This grant will cover a major portion of the costs related to project management and a major portion of the costs related to short term TA provided to private sector manufacturers.

In addition to this grant, the Section Manager/Contractor supervising MMIS will indirectly receive funds from the Industrial Development Bank (IDB). As the parent organization of JIM, the IDB currently funds the deficit incurred by JIM (equal to 19% of JIM's total budget in 1985) and has expressed its support for expanding JIM to include the MMIS function.

In addition to the funds described above, the Section Manager/Contractor will raise funds from at least three other sources. An overview of the fund raising activities directed towards these three sources are as follows.

### 1. Private Sector Manufacturers

Private sector manufacturing companies that use the consulting services provided by JIM will be charged for a percentage of the cost of services provided. This percentage will be flexible however and will be largely determined by market forces. The guidelines that should be used in the initial years of the project are detailed in the financial analysis section of this report.

-- individual characteristics of the company requesting the services,

-- the type of consulting firm providing the service (local vs. foreign).

The evaluation of Phase I will revise the guidelines for years 4-6 of the project. Other factors that will determine the percentage to be charged include:

### 2. Jordanian organizations

There are a number of Jordanian organizations whose objectives are at least partially supported by MMIS. These organizations are all candidates to support MMIS with funding. Some of these are the RSS, the Association of Engineering, the Chamber of Industry, and the Industrial Estates Corporation.

### 3. Foreign Organizations

The following organizations have supported JIM in the past and may be willing to support MMIS: World Bank, International Labor Organization (ILO), United Nations Industrial Development Organization (UNIDO), European Economic Community (EEC), British government, Kuwait Development Fund, and the Kreditanstalt Fur Wiederaufbau.

### G. Coordination with Other Institutions

The objectives of MMIS are compatible with the objectives of many other institutions in Jordan. MMIS should work closely with the institutions listed in the fund raising function. This will assist MMIS in marketing its services. MMIS will also work with the Chamber of Industry and the University of Jordan Industrial Engineering Department in coordinating the total IDP and utilizing their services.

### H. Training

Although MMIS begins operation with three expatriates, within three years all are replaced by Jordanians. This makes training a key function for these expatriates. Within JIM, the MMIS has a sister section which does training. Occasionally the MMIS staff may be used as trainers in JIM.

## II. Consultancy-Related Functions

The consultancy-related functions in MMIS are performed by the prime contractor and subcontractors, both local and foreign. However, the prime contractor will be limited to performing 50% of the total foreign consulting assignments, as measured on a monetary basis. The functions are as follows:

--Provide technical assistance to manufacturers. This involves initial diagnostic analysis, detailed diagnostic analysis and actual problem resolution. This consultancy will be in manufacturing, marketing and product design. In manufacturing this can be sub-divided into five areas:

- Methods engineering-operations analysis, motion study, materials handling, production planning, safety, standardization, and producibility
- Work measurement- time study, predetermined elemental time standards, work sampling, rate determination, data collection and analysis.
- Control determination- production control, inventory control, quality control, cost control, and budgetary control.
- Wage and job evaluation- wage incentives, profit sharing, job descriptions and evaluations, merit rating, wage and salary administration, contract negotiations, and employee motivation.
- Plant facilities and design-plant layout, equipment procurement, maintenance and replacement, product design, tool and gage design, and numerical control programs.

In marketing, this can be sub-divided into five areas:

- Market research- determining market size, potential, coverage, trends, profitability, marketing program effectiveness, and competition studies.
- Product- product line maintenance (adding new, modifying existing and dropping old products), developing specifications, packaging, prices, guarantees and service policies.
- Distribution- determining direct or indirect sales, determining type, number, size, and location of distribution or dealers, managing transportation and warehousing.
- Sales force management- organization, recruitment, training, compensation and direction.
- Advertising and sales promotion- develop and implement plans for media, sales promotions aids, publicity and special promotions (exhibits, shows, conferences).

Both manufacturing and marketing need assistance in determining objectives, developing plans and budgeting sales and expenses. Many of the product design functions are covered in marketing. In addition to those listed above, the following skills are needed: producibility engineering, cost engineering, standardization, packaging engineering and prototyping.

As improvements are made in these three general categories, the need for vastly improved cost accounting procedures will be required.

In some cases, the manufacturing productivity, quality, or product design problems cannot be solved by industrial engineering techniques alone. In these instances, applied research in industrial process and product improvement would be required.

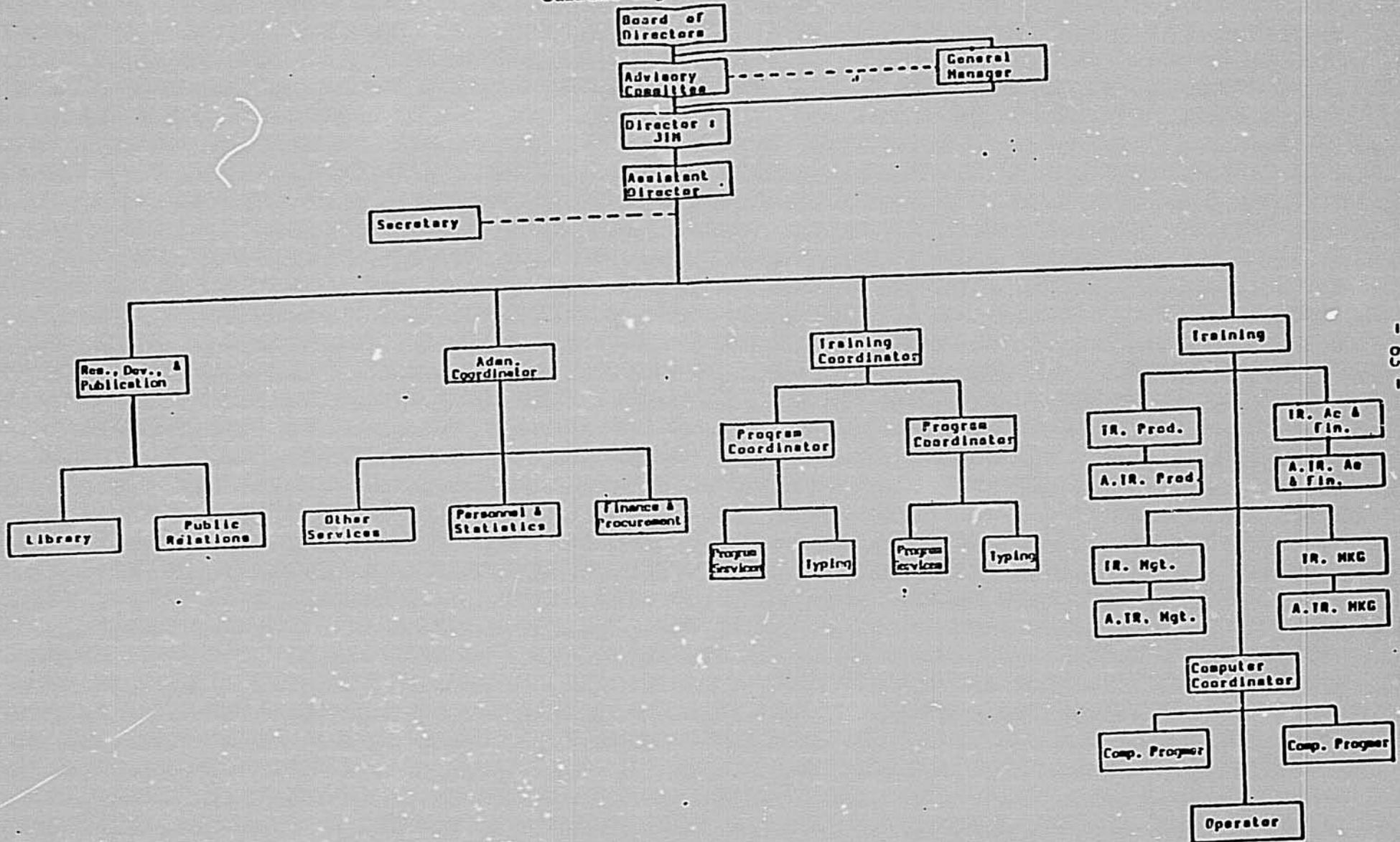
M.M.I.S. ACTIVITIES  
(% of time)

	1987	1988	1989	1990	1991	1992	TOTAL
<hr/>							
Section Manager							
Create demand	30	30	20	10	5	5	17
Define problems	5	10	15	35	40	40	23
Sub-contract	30	30	20	20	20	20	23
Fin. Mgmt./Admin.	15	5	5	5	5	5	7
Monitor	-	-	5	10	10	10	6
Fund raising	15	20	20	15	15	15	17
Co-ordinate with institution	5	5	5	5	5	5	5
Training	-	-	10	-	-	-	2
<hr/>							
Account Manager							
Industrial Engineer							
Create demand	25	20	10	5	5	5	12
Define problems	35	35	45	60	60	60	49
Sub-contract	30	20	20	20	20	20	22
Fin. mgmt.	-	-	-	-	-	-	-
Monitor	5	10	10	10	10	10	9
Fund raising	5	5	5	5	5	5	5
Co-ordinate	-	-	-	-	-	-	-
Training	-	10	10	-	-	-	3
<hr/>							
Account Manager							
Marketing Specialist							
Create demand	25	20	10	5	5	5	12
Define problems	25	35	55	60	60	60	49
Sub-contract	30	20	20	20	20	20	22
Fin. mgmt.	-	-	-	-	-	-	-
Monitor	5	10	10	10	10	10	9
Fund raising	5	5	5	5	5	5	5
Co-ordinate	-	-	-	-	-	-	-
Training	10	10	-	-	-	-	3
<hr/>							
Finance							
Create Demand	-	5	5	5	5	5	5
Define problems	-	5	5	5	5	5	5
Sub-contract	5	10	10	10	10	10	10
Fin. mgmt.	95	70	70	70	70	70	70
Monitor	-	5	5	5	5	5	5
Fund raising	-	5	5	5	5	5	5
Co-ordinate	-	-	-	-	-	-	-
Training	-	-	-	-	-	-	-
<hr/>							

Industrial Development Bank  
 Jordan Institute of Management  
 Current Organization Chart

ANNEX 6-3

August 23, 1986

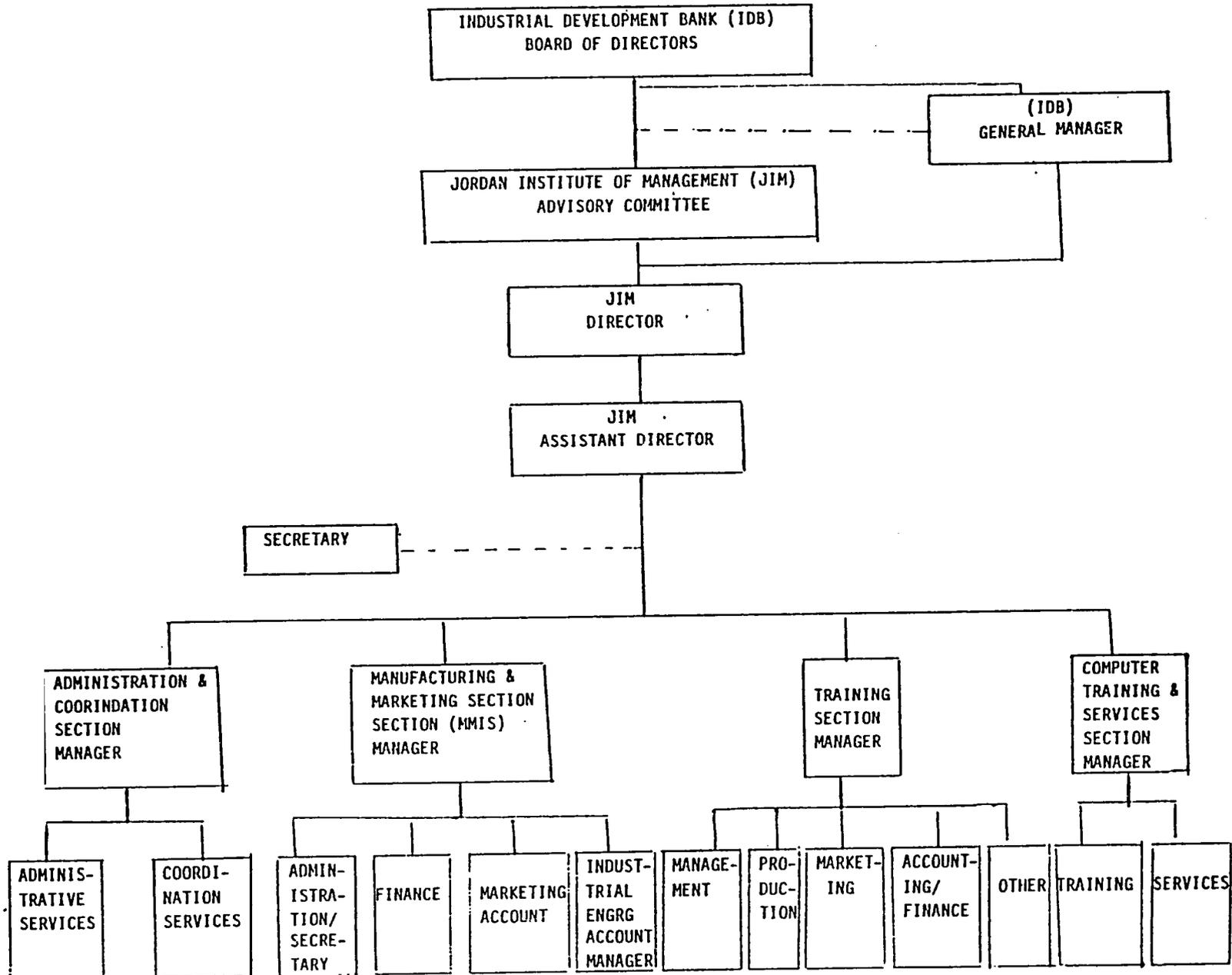


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1986

INDUSTRIAL DEVELOPMENT BANK  
 JORDAN INSTITUTE OF MANAGEMENT  
 PROPOSED ORGANIZATION CHART  
 AUGUST 23, 1986

ANNEX 6-4



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MHIS  
DETAILED IMPLEMENTATION SCHEDULE - 198

ACTION	START/COMPLETE DATES	1/86	2/86	3/86	4/86	5/86	6/86	7/86	8/86	9/86	10/86	11/86	12/86
• AID/GOJ sign PRDAG	9/30/86												C
• MHIS prepares prequalification notice & questionnaire & submits to AID.	10/1/86-10/15/86												S---C
• MHIS prepares information to satisfy conditions precedent and submits to AID.	10/1/86-11/31/86												S-----C
• AID reviews prequal. request, approves & submits to AID/W for issuance.	10/15/86-10/31/86												S---C
• MHIS prepares RFP & submits to AID.	11/1/86-11/15/86												S-----C
• Bidders prepare & submit prequal. information.	11/1/86-11/30/86												S---C
• AID reviews & approves RFP.	11/15/86-11/30/86												S-----C
• MHIS reviews prequal. information & requests AID approval of prequalified firms.	12/1/86-12/31/86												S---C
• AID reviews & approves information submitted to satisfy conditions precedent.	12/1/86-12/15/86												S---C

S = Started  
C = Completed

MHIS  
 DETAILED IMPLEMENTATION SCHEDULE - 1987

ACTION	START/COMPLETE DATES	1/87	2/87	3/87	4/87	5/87	6/87	7/87	8/87	9/87	10/87	11/87	12/87
• AID reviews & approves prequalified firms and issues RFP.	1/1/87-1/15/87	S---C											
• Bidders prepare & submit proposals.	1/15/87-2/28/87	S-----C											
• MHIS ranks proposals & requests AID approval.	3/1/87-3/31/87			S-----C									
• AID reviews & approves ranking.	4/1/87-4/15/87				S---C								
• MHIS negotiates draft contract & submits to AID.	4/15/87-5/15/87					S-----C							
• AID reviews & approves draft contract.	5/15/87-5/31/87						S---C						
• Contractor mobilizes.	5/15/87-7/15/87							S-----C					
• MHIS signs contract & submits to AID for final approval & L/COMM issuance.	6/1/87-6/15/87							S---C					
• AID approves final contract & issues L/COMM.	6/15/87-6/30/87								S---C				
• Contractor U.S. staff arrange consultancies.	7/15/87-7/15/90									S-----C			
--General Manager	7/15/87-7/15/90									S-----C			
--Industrial Engineer	7/15/87-1/15/90									S-----C			
--Marketing Expert	7/15/87-11/15/88									S-----C			
• Contractor recruits & hires local staff.													
--Secretary	7/15/87-7/31/87									S---C			
--Finance/Admin Special.	8/1/87-10/15/87									S-----C			
--Marketing Special.	9/1/87-11/15/87									S-----C			
• Contractor trains local staff.	8/1/87-7/15/90									S-----C			
• Contractor & subs execute consultancies	11/15/87-10/1/92												

S = Started  
 C = Completed

DETAILED IMPLEMENTATION SCHEDULE - 1988

ACTION	START/COMPLETE DATES	1/88	2/88	3/88	4/88	5/88	6/88	7/88	8/88	9/88	10/88	11/88	12/88
* Contractor U.S. staff arrange consultancies.	7/15/87-7/15/90												
--General Manager	7/15/87-7/15/90												
--Industrial Engineer	7/15/87-1/15/90												
--Marketing Expert	7/15/87-11/15/88											C	
* Contractor trains local staff.	8/1/87-7/15/90												
* Contractor & subs execute consultancies	11/15/87-10/1/92												
* Local Marketing Specialist receives U.S. training.	6/1/88-6/30/88						S-----						C
* MMIS & AID contract for Phase I mid-term evaluation.	8/1/88-10/15/88								S-----				C
* Local Financial Specialist receives U.S. training.	9/1/88-9/30/88								S-----				C
* Contractor recruits & hires local I.E.	9/1/88-11/15/88								S-----				C
* Evaluation contractor conducts evaluation.	10/15/88-11/15/88									S-----			C

MMIS  
DETAILED IMPLEMENTATION SCHEDULE - 1989

ACTION	START/COMPLETE DATES	1/89	2/89	3/89	4/89	5/89	6/89	7/89	8/89	9/89	10/89	11/89	12/89
* Contractor U.S. staff arrange consultancies.	7/15/87-7/15/90												
--General Manager	7/15/87-7/15/90												
--Industrial Engineer	7/15/87-1/15/90												
* Contractor trains local staff.	8/1/87-7/15/90												
* Contractor & subs execute consultancies	11/15/87-10/1/92												
* Local Industrial Eng. receives training in U.S.	6/1/89-6/30/89						S-----						C
* AID & MMIS contract for	12/1/89-2/15/90											S-----	



MMIS  
DETAILED IMPLEMENTATION SCHEDULE - 1991

ACTION	START/COMPLETE DATES	1/91	2/91	3/91	4/91	5/91	6/91	7/91	8/91	9/91	10/91	11/91	12/91
--------	----------------------	------	------	------	------	------	------	------	------	------	-------	-------	-------

PHASE II: JIM arranges  
consultancies for  
manufacturers. 7/15/90-10/1/92

MMIS  
DETAILED IMPLEMENTATION SCHEDULE - 1992

ACTION	START/COMPLETE DATES	1/92	2/92	3/92	4/92	5/92	6/92	7/92	8/92	9/92	10/92	11/92	12/92
--------	----------------------	------	------	------	------	------	------	------	------	------	-------	-------	-------

PHASE II: JIM arranges  
consultancies for  
manufacturers. 7/15/90-10/1/92

AID and MMIS contract  
for final project  
evaluation. 5/15/92-7/31/92

Evaluation contractor  
conducts evaluation. 8/1/92-9/30/92

S-----C

S-----C

S = Started  
C = Completed

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MNIS  
 DETAILED CGSTS  
 (000s of USD)

	1986		1987		1988		1989		1990		1991		1992		TOTAL		
	Cost/Unit	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost		
<b>AID INPUTS</b>																	
<b>TECHNICAL ASSISTANCE</b>																	
<b>-FOR MNIS STAFF</b>																	
--U.S. Staff																	
---GM	12.50	0.0	0.0	5.5	68.8	12.0	150.0	12.0	150.0	7.5	93.8	0.0	0.0	0.0	37.0	462.5	
---IE	12.50	0.0	0.0	5.5	68.8	12.0	150.0	12.0	150.0	0.5	6.3	0.0	0.0	0.0	30.0	375.0	
---Marketing	12.50	0.0	0.0	5.5	68.8	11.5	143.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0	212.5	
--Total U.S. Staff		0.0	0.0	16.5	206.3	35.5	443.8	24.0	300.0	8.0	100.0	0.0	0.0	0.0	84.0	1050.0	
--Local Staff																	
---IE	2.70	0.0	0.0	0.0	0.0	1.5	4.1	12.0	32.4	7.5	20.3	0.0	0.0	0.0	21.0	56.7	
---Marketing	1.80	0.0	0.0	1.5	2.7	12.0	21.6	12.0	5.0	7.5	13.5	0.0	0.0	0.0	33.0	42.8	
---Finance	1.80	0.0	0.0	3.0	5.4	12.0	21.6	12.0	21.6	7.5	13.5	0.0	0.0	0.0	34.5	62.1	
---Secretary	1.35	0.0	0.0	5.0	6.8	12.0	16.2	12.0	16.2	7.5	10.1	0.0	0.0	0.0	36.5	49.3	
--Total Local Staff		0.0	0.0	9.5	14.9	37.5	63.5	48.0	75.2	30.0	57.4	0.0	0.0	0.0	125.0	210.9	
-TOTAL FOR MNIS STAFF		0.0	0.0	26.0	221.1	73.0	507.2	72.0	375.2	38.0	157.4	0.0	0.0	0.0	209.0	1260.9	
<b>-FOR MANUFACTURERS</b>																	
--U.S. Consult.	14.0	0.0	0.0	8.0	112.0	31.0	434.0	33.0	462.0	25.0	350.0	21.0	294.0	8.0	112.0	126.0	1754.0
--Local Consult.	3.9	0.0	0.0	1.0	3.9	8.0	31.2	12.0	46.8	16.5	64.4	21.0	81.9	19.0	74.1	77.5	302.3
-TOTAL FOR MANUF.		0.0	0.0	9.0	115.9	39.0	465.2	45.0	508.8	41.5	414.4	42.0	375.9	27.0	186.1	203.5	2066.3
TOTAL TECHNICAL ASSISTANCE		0.0	0.0	35.0	337.0	112.0	972.4	117.0	884.0	79.5	571.7	42.0	375.9	27.0	186.1	412.5	3327.1
TRAINING	3.5	0.0	0.0	0.0	0.0	1.0	3.5	1.0	3.5	1.0	3.5	0.0	0.0	0.0	0.0	3.0	10.5
EVALUATION	14.0		0.0	1.0	14.0	1.0	14.0		0.0		0.0	0.0	3.0	42.0	5.0	70.0	
SUBTOTAL			0.0		351.0		989.9		887.5		575.2		375.9		228.1		3407.6
CONTINGENCY @ 10%			0.0		35.1		99.0		88.8		57.5		37.6		22.8		340.6
INFLATION @ 5%			0.0		19.3		108.9		156.2		135.2		115.8		85.3		624.7
TOTAL AID INPUTS			0.0		405.4		1197.8		1132.5		772.0		529.3		336.2		4373.1



ANNEX 6-7  
 JORDAN INSTITUTE OF MANAGEMENT  
 REVENUES AND EXPENSES  
 1983 - 1985

Description	YEAR		
	1983	1984	1985
	JD/Fils	JD/Fils	JD/Fils
<u>REVENUES</u>			
Training Programs' Fees	45815/(38%)	57990/(41%)	81297/(49%)
Institute's Membership Fees	--	--	9500/(6%)
Donation - Interest Differential/Kuwaiti Loan	9000/(8%)	9000/(6%)	9000/(5%)
Donation - Interest Differential/W.German Loan	25000/(21%)	25000/(18%)	25000/(15%)
Donation - Amman Chamber of Industry	10000/(8%)	10000/(7%)	10000/(6%)
IDB Contribution	29157/(25%)	38148/(27%)	31147/(19%)
<b>TOTAL</b>	<b>118972/100%</b>	<b>140137/100%</b>	<b>165944/100%</b>

<u>EXPENSES</u>			
Salaries & Fringe Benefits	74048/164	91403/510	108182/035
Honoraria of Guest Lecturers	8996/000	11183/000	15272/320
General Administrative Expenses	31508/882	33540/455	39062/892
Depreciation of Fixed Assets	4419/258	4010/264	3426/396
<b>TOTAL</b>	<b>118972/304</b>	<b>140137/229</b>	<b>165943/643</b>

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INDUSTRIAL ENGINEERING PROGRAM

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ANNEX 7-1  
COMPONENT ALTERNATIVES

The alternatives considered potentially viable in lieu of establishing a new post graduate program at the University of Jordan are as follows:

- Modify current engineering programs to emphasize industrial application.
- Offer industrial engineering as an option within the mechanical engineering program of the University of Jordan.

The decision to implement a new post graduate industrial engineering program at the University of Jordan is based on the need to create a specialized area of study rather than the need to integrate course work into existing curricula. This was decided upon to elevate the importance of the subject matter sufficiently to attract new students into the field of industrial engineering.

ANNEX 7-2

PROPOSED IMPLEMENTATION GUIDELINES  
FOR THE INDUSTRIAL ENGINEERING PROGRAM

This section proposes a detailed program for the design of the new industrial engineering degrees. The following guidelines are keyed to the Implementation Schedule which times implementation to begin as of the date of the funding agreement between USAID and the University of Jordan.

The two post graduate programs in industrial engineering designed for the University of Jordan School of Engineering are:

1. Diploma of Industrial Engineering
2. Master's Degree-Industrial Engineering

A. Admission Requirements for the Graduate Degree Programs

For admission to this program an applicant must:

1. Have a bachelor's degree in any engineering discipline.
2. Have above-average grades in previous work from a recognized university.
3. Submit (upon request) a brief essay describing the applicant's goals and technical interests

This conforms with admission requirements for graduate work in the Jordanian universities. While admission may be recommended by the newly established Industrial Engineering Department, the final decision is made by the Graduate College since they must endeavor to keep uniform minimum standards across the university.

B. Basic Requirements

In general, applicants come from various engineering disciplines. In all cases, an evaluation of each applicant's scholastic record is made to identify any required prerequisite work. Applicants are required to meet the following minimum prerequisite course requirements:

1. Fundamental Skills for Engineers (No graduate credit is allowed):
  - Computer programming capability at the intermediate level.
  - Knowledge of FORTRAN and BASIC is required.

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-Mathematical capability equivalent to differential and integral calculus, followed by differential equations and/or linear algebra.

2. Industrial Engineering prerequisite Skills (Graduate credit is allowed for P3 and P4 for MS students only.):

- P1 Industrial Processes
- P2 Engineering Statistics and Computations (Including Probability)
- P3 Work Measurement and Improvement
- P4 Engineering Economic Analysis

Course descriptions are shown in Appendix 7-3

3. Industrial Engineering Skills (Graduate credit is allowed):

- R1 Operations Research
- R2 Manufacturing System Design.
- R3 Industrial Quality Control
- R4 Production Planning and Control
- R5 Facility Location and Layout/Material Handling Systems
- R6 Information System for Management Decisions and Control

Course descriptions are shown in Appendix 7-4

C. Specialized Requirements

Graduate work requires the addition of Specialized courses in the Industrial Engineering curriculum. These courses are:

- S1 Quantitative foundations for Industrial Engineering
- S2 Project Management and Network Modeling
- S3 Computer Aided Manufacturing
- S4 Robotics Applications
- S5 Advanced Production and Inventory Control.
- S6 System Engineering and Management
- S7 Advanced Facility Location and Material Handling Systems.
- S8 Reliability and Maintainability
- S9 Advanced Facility Location and Material Handling Systems.
- S10 Advanced Engineering Economic Analysis
- S11 Human Factors Engineering
- S12 System Simulation
- S13 Industrial Engineering Problems
- S14 Engineering Practice
- S15 Research and Thesis

Course descriptions are shown in Appendix 7-5

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D. Program Options and Plans of Study

In accordance with the University regulations, both Diploma and Master's degree programs are authorized.

1. Diploma in Industrial Engineering

A minimum of 30 credit hours including 12-15 Graduate Level courses to be chosen from specialized courses in Appendix 7-5. These courses must contain S13-(3 credit hours)

In addition the 30 credit hours including 15-18 Senior Level courses as shown in Appendix 7-4.

2. Master's Degree - Industrial Engineering

The student can choose one of two options:

Option 1

A minimum of 36 credit hours including:

24-27 credit hours of specialized courses (Appendix 7-5)  
these hours must include S1

9-12 credit hours of research and thesis.

Option 2

- A minimum of 36 credit hours of specialized courses (Appendix 7-5).

These hours must contain S13 and S14. (Minimum 6 credit hours)

- A comprehensive examination at the end of course work.

N.B. In accordance with university regulations a student who acquired a Diploma (75% or above) may be accepted to work towards a Master's degree provided no more than 3 years have passed since he acquired the Diploma. The Course Schedule for the academic years of 1987/88, 1988/89, 1989/90 and 1990/91 is shown in Annex 7-6.

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APPENDIX 7-3  
PREREQUISITE INDUSTRIAL ENGINEERING  
COURSES

N.B. Graduate credit is not allowed for these courses.

P-1 INDUSTRIAL PROCESSES

Industrial manufacturing processes which are used to transform raw materials into finished goods. Basic metal cutting theory and process selection and planning. Field trips to manufacturing plants. Further study of additional manufacturing processes in joining, finishing, metrology, non-traditional machining, tool design, and numerical control. Includes field trips to manufacturing plants.

P-2 ENGINEERING STATISTICS AND COMPUTATIONS

Fundamental statistical measures, control charts, elementary probability, curve fitting, linear correlation and regression. Also, interactive computer techniques. Using a digital computer for engineering analysis and design. Fundamental computer concepts. FORTRAN programming

P-3 WORK MEASUREMENT AND IMPROVEMENT

Determining the most effective utilization of effort in human activity systems. Physiological and psychological factors are included with engineering concepts in the design and evaluation of work methods, environments, equipment and standards.

P-4 ENGINEERING ECONOMIC ANALYSIS

Development and use of time value of money interest formulas. Bases for comparison of alternatives, including present worth, annual worth, rate of return and payout period methods. Decision making among independent, capital-constrained and unequal-lived projects. Replacement, breakeven and minimum cost analyses. Depreciation and depletion methods and their effect on corporate income taxes, leading to after-tax cash flow analysis.

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APPENDIX 7-4  
REQUIRED INDUSTRIAL ENGINEERING COURSES

N.B. These courses are approved for graduate credit.

R-1 OPERATIONS RESEARCH

Fundamental methods, models, and techniques of operations research. Computational techniques of linear programming, integer and mixed integer programming, dynamic programming, non-linear optimization, and queueing theory.

R-2 MANUFACTURING SYSTEMS DESIGN.

Principles and procedures related to the design, implementation, documentation, and control of manufacturing systems. Consideration of transfer lines, numerical control, flexible automation, robotics, and manufacturing support activities such as cost, quality, and materials control. Introduction to basic computer aided design and computer aided manufacturing (CAD/CAM).

R-3 INDUSTRIAL QUALITY CONTROL.

Principles and practices of industrial quality control. Use of variables and attributes control charts to achieve and maintain a state of statistical control. Process capability analysis. Acceptance sampling plan design by attributes and variables. Single, double, sequential, and continuous sampling. Quality programs and management of the quality function.

R-4 PRODUCTION CONTROL.

Concepts of planning and control of production environments. Design of operation planning and control systems. Techniques used in demand forecasting, operations planning, inventory control, scheduling, and progress control. A production simulator is used to provide a realistic application experience.

R-5 FACILITY LOCATION AND LAYOUT/MATERIAL HANDLING SYSTEMS.

Facility location, facility layout, and material handling systems design with emphasis on applications in widely varying industries. Design principles and analytical solution procedures are presented with a concentration on modern practice including computerized approaches.

R-6 INFORMATION SYSTEMS FOR MANAGEMENT DECISIONS AND CONTROL.

Systems engineering methodology applied to the design of information systems for management of all types of organizations. Data base management systems. Distributed and centralized systems. Different phases of system design and implementation.

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ANNEX 7 - 5  
SPECIALIZED INDUSTRIAL ENGINEERING COURSES  
APPROVED FOR GRADUATE CREDIT

S1- QUANTITATIVE FOUNDATIONS FOR INDUSTRIAL ENGINEERING.

Fundamental quantitative methods necessary for advanced study in various areas of industrial engineering. Includes matrix algebra, real analysis, calculus of finite variables and transform methods. Application of theorems to industrial engineering and related areas.

S-2 PROJECT MANAGEMENT AND NETWORK MODELING

Critical path methodology under conditions of certainty (CPM) and uncertainty (PERT). Network cost accounting and scheduling with limited resources. Modifications and extensions of network models. Extensive use of PERT simulation and project management computer programs.

S-3 COMPUTER-AIDED MANUFACTURING/ADVANCED MANUFACTURING SYSTEMS DESIGN.

Computer-aided design (CAD) and computer-aided manufacturing (CAM). Automation, including digital machine control, industrial robots, applications of microprocessors, and sophisticated manufacturing systems. Prototype systems design, implementation and testing as well as applicable systems engineering concepts.

S-4 ROBOTICS;APPLICATIONS.

Study of the role of Robotics in modern manufacturing systems. Design and selection of appropriate end effectors and sensors to produce a reliable cost effective robotic application. Comparison of commercial and custom designs of end effectors and a study of industrial applications. Field trips to industry and work in the CAM/Robotics laboratory.

S5- ADVANCED PRODUCTION AND INVENTORY CONTROL.

Quantitative, heuristic and computer methods applied to problems of production planning, work force balancing and capacity expansion. Mathematical and simulation models for optimal sequencing and scheduling of the flow of jobs or activities through complexes of manufacturing or service facilities. Assembly line balancing methods. Measures of effectiveness for operating systems. Design of computer-based systems for effective management control of operations.

S-6 SYSTEM ENGINEERING AND MANAGEMENT

Introduction to systems methodology. Identification of major recurring problems in the systems engineering process; problem definition, systems analysis, determination of systems requirements, evaluation of alternatives and procedures for implementation. Case studies from industry.

S-7 ADVANCED INDUSTRIAL QUALITY CONTROL.

Acceptance sampling and control charting by both attributes and variables. Statistically and economically-based treatments of sampling plan and control chart design. Analysis and design of sampling under inspection and measurement errors. Experimental design and analysis of variance in quality control. Qualitative topics covering modern quality program development and work elements from engineering design through field failure analysis.

S-8 RELIABILITY AND MAINTAINABILITY.

Probabilistic failure models of components and systems. Detailed study of reliability measures, and static and dynamic reliability models. Classical and Bayesian reliability testing for point and interval estimation of exponential and Weibull failures. Reliability optimization through allocation and redundancy. Fundamentals of maintainability.

S-9 ADVANCED FACILITY LOCATION AND LAYOUT / MATERIAL HANDLING SYSTEMS

Advanced methods for performing facility location, facility layout, and material handling systems studies. Models developed for predicting and evaluating performance of such systems. Extension of material to include more analytical and computerized procedures.

S-10 ADVANCED ENGINEERING ECONOMIC ANALYSIS.

Advanced engineering economic topics, including the theory of the firm. Development of depreciation strategies; corporate income tax structure and treatment. Classification of investments as conventional, nonconventional, pure and mixed. Deterministic evaluation of single and multiple projects. The reinvestment rate problem, capital budgeting and the separation theorem. Goal programming. Preference ordering (utility) theory. Probabilistic evaluation of single and multiple projects including certainty equivalent and simulation models

S-11 HUMAN FACTORS ENGINEERING.

Basic consideration of the human factors in engineering systems with emphasis on the interface of man-machine systems. Development of human abilities and limitations in relation to equipment designs and work environments.

S-12 SYSTEM SIMULATION.

Basic concepts of simulation of discrete-event systems. Problem formulation, translation of problem to a computer model, and use of model for problem solution. Model building and the design and analysis of simulation experiments for complex systems. Application to a variety of problem areas.

S-13 INDUSTRIAL ENGINEERING PROBLEMS.

1-3 credits, prerequisite: approval of major adviser. A detailed investigation into one area of industrial engineering with a required written report.

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S-14 ENGINEERING PRACTICE.

1-6 credits. Prerequisite: approval of adviser. Professionally supervised experience in a real life problem involving authentic projects for which the student assumes a degree of professional responsibility. Activities must be approved in advance by the student's adviser. May consist of full or part-time engineering experience, on campus or in industry, or both, either individually or as a responsible group member. Periodic reports both oral and written required as specified by the adviser.

S-15 RESEARCH AND THESIS.

9-12 credits, maximum 6. Prerequisite: approval of major adviser. Research and thesis for master's students.



ANNEX 7-7

U.S. FACULTY REQUIREMENTS

Course Schedule and Professors

In order to implement the Graduate Program the following Schedule for teaching the courses is recommended. The prerequisite courses are taken into consideration. The courses schedule for the Graduate Program is shown in Annex 7-6

1. The following courses should be taught prior to the start of the Graduate Program, either in the second semester of 1986/87 academic year or during the following summer:

Industrial Engineering prerequisite Skills (No graduate credit is allowed):

- P1 Industrial Processes
- P2 Engineering Statistics and Computations (Including Probability)
- P3 Work Measurement and Improvement
- P4 Engineering Economic Analysis

These courses can be handled by the professors at UOJ. U.S. professors are not needed for these courses.

2. The following courses will be taught in the first semester of 1987/88 academic year (September 87) This is the first semester of the Graduate Program.

Industrial Engineering Skills (credit is allowed for the Diploma. No credit is allowed for the Master's degree)

- R1 Operations Research
- R2 Manufacturing system Design.
- R3 Industrial Quality Control
- R4 Production Planning and Control
- R5 Facility Location and Layout/Material Handling Systems
- R6 Information System for Management Decisions and Control

These courses can be taught by a general industrial engineering professor since they are mostly taught at the undergraduate level in the United States. However two U.S. professors will help introduce the program and participate in teaching. Areas of expertise, General & E' with emphasis on Quality Control and General & E with emphasis on Production/Mfg.

3. The following courses will be taught in the second semester of the 1987/88 academic year (January 1988).

- S4 System Engineering and Management
- S5 Advanced Facility Location and Material Handling Systems
- S6 Advanced Facility Location and Material Handling Systems

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In addition to the two Jordanian professors available at the present time, there is a need for two U.S. professors. Areas of expertise are Quality Control and Production Control

4. The following courses will be taught in the first semester of the 1988/89 academic year (September 1988). This is the third semester of the Graduate Program.

- S1 Project Management and Network Modeling
- S2 Robotics Applications
- S3 Advanced Engineering Economic Analysis
- S4 Human Factors Engineering
- S5 System Simulation

In addition to the specialized I.E. courses, the required R courses will be repeated for the new students enrolled in the program.

- R1 Operations Research
- R2 Manufacturing system Design.
- R3 Industrial Quality Control
- R4 Production Planning and Control
- R5 Facility Location and Layout/Material Handling Systems
- R6 Information System for Management Decisions and Control

In addition to the two Jordanian professors available at the present time, there is a need for three U.S. professors. Areas of expertise are : General Industrial Engineering with emphasis on Engineering Economy, Advanced Quality Control, and Advanced Mfg.

5. The following courses will be taught in the second semester of the 1988/89 academic year (January 1989) This is the fourth semester of the Graduate Program. The specialized courses are a repeat of the second semester of the previous year.

- S1 Quantitative foundations for Industrial Engineering
- S2 Computer Aides Manufacturing
- S3 Advanced Production and Inventory Control.
- S4 System Engineering and Management
- S5 Advanced Facility Location and Material Handling Systems
- S6 Advanced Facility Location and Material Handling Systems

In addition the professors will supervise the reports for I.E. Problems, reports for Engineering Practice and thesis reports for the Masters degree.

In addition to the two Jordanians professors, there is a need for three U.S. professors. Areas of expertise are: General Industrial Engineering, Quality Control and Production/Mfg.

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Summary

1987/88	1st Semester	General I.E. emphasis	P.C./Mfg.
	2nd Semester		Q.C.
1988/89	3rd Semester	General I.E. emphasis on Eng'g	Economy
	4th Semester	Advanced P.C./Mfg	
		Advanced Q.C.	
1989/90	Same as 1988/89		

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ANNEX 7-8

PH.D PROGRAM

The need for qualified faculty to teach courses and conduct research in Industrial Engineering is quite obvious, especially that this is a new speciality in Jordan. At the present time, there are only 2 PH.D's among the faculty who are qualified to teach Operations Research and CAM applications in Manufacturing Systems

It is necessary to send several individuals as soon as possible to acquire their PH.D.'s in specialized areas of Industrial Engineering. The following areas of specialization require immediate attention due to their impact on the progress of the Industrial Engineering Program.

UNIVERSITY OF JORDAN

- 1- Manufacturing Systems
- 2- Production Planning and Inventory Control
- 3- Quality Control and Reliability
- 4- Plant Facilities and Material Handling Systems

The following are requirements for eligibility to apply for these grants:

- 1- PH.D. Candidates will be chosen in a competitive manner in accordance with University Regulations.
- 2- B.SC in Industrial or Mechanical Eng'g is minimum requirement.  
- Candidates who already acquired M.S. Degree in Industrial Eng'G. will have preference Status.
- 3- English Language Proficiency.

Test of English as a foreign Language (TOEFL) score of 550 or above is required.

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ANNEX 7-9

SHORT-TERM TRAINING

The objective of short term training is to update candidates on new developments in their areas of specialization. In most cases, candidates will be chosen from those who already acquired their PH.D. However candidates with a Master's degree and industrial experience should be considered. The short term training of approximately 9 months duration, should be both theoretical and practical in nature. This program should be well planned ahead of time in order to spend the time in the most effective way.

UNIVERSITY OF JORDAN

- 1- Operations Research
- 2- Engineering Economics
- 3- Q.C.and Reliability
- 4- Production Planning and Control
- 5- Micro-Computers in Industrial Engineering
- 6- Productivity Measurement
- 7- Computer Integrated Manufacturing
- 8- CAM-Flexible Manufacturing Systems
- 9- Project Management

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ANNEX 7-10

COMMODITIES

In order to successfully implement the Industrial Engineering Program, the following commodities are required:

1. Essential I.E. Commodities

a. Library

For a new department, there is a need for basic and up-to-date library which should include recent books, publications, educational films and audiovisual slides and cassettes.

This library should have subscription to journals, periodicals and transactions of conferences related to the Industrial Engineering field.

b. Industrial Engineering Laboratory

This lab should include equipment needed to teach the students basic Industrial Engineering fundamentals, such as plant layout, work measurement, and human performance applications.

2- Important Laboratories

a. Numerical Control and Material Handling Laboratory

Focuses on industrial problems associated with manufacture and handling of materials. In addition to the conventional and non-traditional numerical machines, this lab should include small robots(mini movers) to demonstrate applications in material handling, and assembly systems. These machines can be also used to investigate the potential applications of numerical control machines and robots in Jordanian industry.

b. Laboratory for Computer Integrated Manufacturing

Focuses on the development and adaptation of CIM concepts for small and medium size manufacturers. Most current implementations of automation are isolated systems, called "islands of automation". The full benefits of automation cannot be realized until the entire manufacturing system has been designed within one integrated framework. As concepts for achieving CIM are developed (usually within large manufacturing firms), it is important to transfer these concepts to the smaller firms that are typically found in Jordan. Particular attention will be paid to the management control systems and the associated communication networks.

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Technicians: For the above two laboratories, technical support is essential:

Two U.S. technicians should arrive with the equipment. They should help install machinery and train local technicians in running the machines. In addition, at least 2 Jordanian qualified technicians should assume the responsibility of being counterparts to the American technicians. They should be sent to the U.S. for 6 month training programs. The schedule of arrival and leave of these technicians should provide a reasonable overlap.

Computer Hardware: With the availability of a considerable computing capability, only few micros are required by the Industrial Engineering Department. At this early stage of the department development, 10 microcomputers are needed for faculty use. ( Industrial Engineering Applications software should be provided).

#### Commodities Choice Rationale

The cost estimate for the library and Industrial Engineering Laboratory is based on the specific needs of the new department. The cost estimate for the equipment and machines required for the Numerical control Lab and the laboratory for computer integrated manufacturing is based on the first stage essential needs for such labs. Actual costs depend on the degree of sophistication required. These two labs will be of benefit to other engineering disciplines, especially the Mechanical Engineering Department. Hopefully, this is a start to be upgraded in the future through other funding channels.

The cost estimate for the computers is based on the specific Industrial Engineering Department needs taking into consideration the computing facilities available to the Faculty of Engineering and Technology at the University of Jordan. In addition to the Central Computing facility (IBM 43331), the engineering faculty received a grant from the Commission of the European Community to install computer facilities in early 1987 which will provide considerable computing capability. (see Annex 7-11).

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Annex 7-11  
THE COMMISSION OF THE EUROPEAN COMMUNITY GRANT

The Commission of the European Community granted the Faculty of Engineering and Technology EUC 2 million for Computer facility and Faculty, Technician and Equipment Upgrade. Out of this total amount EUC 750,000 is allocated to Interactive computer system plus software. Tenders will be opened on October 11, 1986 and delivery is expected early 1987.

This Interactive system will serve the needs of undergraduates, post graduates and staff and faculty. The system will satisfy a workload which is a mixture of light and substantial interactives and CAD/CAM terminals and workstations. The system will support 64 Simultaneous terminals and will have Plotting equipment and Communications capabilities. Compilers will be provided to support FORTRAN 77, PASCAL and BASIC in addition to others such as LISP, PROLOG,C and FORTRAN IV.

The grant will also support a Microcomputing Lab with 20 workstations for group teaching student linked by local area network to output peripherals. In addition, the grant will support a staff Microcomputing Facility with 10 workstations.

The Tender calls for the availability of a range of Engineering and Scientific software.

ANNEX 7-12  
LOCAL SUPPORT

Professional Staff

The engineering faculty at the University of Jordan, which is still a comparatively young school, are well qualified, possessing PH.D degree from recognized universities. In addition to the Head of Mechanical Engineering who is production-oriented, there are two PH.D's who recently returned from the U.S. These three professors are qualified to teach courses in the new graduate program. Also there are at least 3 industrial engineering PH.D's, presently working in industry who can help in teaching if necessary.

Through advertizing and other means, the University will recruit candidates for the PH.D grants, which is an integral part of this program.

Local Facilities

Facilities at the University of Jordan are basically good. In the fields already established, the laboratories and equipment are impressive. However, there is a need to complement these equipment with labs related to the new industrial Engineering field.

Administration

1. For the purpose of this report, the Grantee (University of Jordan) will designate the Dean of the Faculty of Engineering and Technology for all aspects of the Project related to the Industrial Engineering Department.
2. Prior to disbursement of AID funds, a resolution by the University of Jordan should be adopted. This resolution will include :
  - a. Creation of a Department of Industrial Engineering within the Faculty of Engineering and Technology.
  - b. Creation of a Graduate Program within the Department of Industrial Engineering
3. It is recommended that a qualified U.S. institution preferably a university, would provide technical assistance for the Program administration. This institution will work closely with and under the supervision of the Dean of Engineering and Technology at UOJ.

This institution will provide the following services:

- a. Provide U.S. professors to help establish new areas of specializations and augment existing faculty.
- b. Organize programs for PH.D candidates in recognized universities.
- c. Organize short term training programs in different areas of expertise.

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It is also recommended that the above institution will subcontract with an industrial institution to provide the following services:

- a. Provide procurement services for machines and equipment
- b. Provide the services of technicians related to the machines and equipment in (d)
- c. Organize short term training for Jordanian Technicians
- d. Provide procurement services for Library materials, and equipment needed for the I.E.Laboratory.

All the above services should be provided in accordance with the time schedule for the courses.

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FET  
DETAILED COSTS  
(000s of USD)

	Cost/Unit	1986		1987		1988		1989		1990		1991		1992		TOTAL	
		Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
<b>AID INPUTS</b>																	
<b>TECHNICAL ASSISTANCE</b>																	
U.S.			0.0	3.0	42.0	2.0	28.0	2.0	28.0	2.0	28.0	2.0	28.0	1.0	14.0	12.0	168.0
--Project Director	14.00		0.0	3.0	21.0	6.0	42.0	6.0	42.0	3.0	21.0	3.0	21.0	2.0	14.0	23.0	161.0
--Administrative Ass't.	7.0		0.0	8.0	100.0	24.0	300.0	30.0	375.0	24.0	300.0	12.0	150.0		0.0	98.0	1225.0
--U.S. Faculty	12.50		0.0		0.0	4.0	56.0	8.0	112.0		0.0		0.0		0.0	12.0	168.0
--Technicians for Lab Equip.	14.0		0.0	14.0	163.0	36.0	426.0	46.0	557.0	29.0	349.0	17.0	199.0	3.0	28.0	145.0	1722.0
TOTAL U.S.		0.0	0.0	14.0	163.0	36.0	426.0	46.0	557.0	29.0	349.0	17.0	199.0	3.0	28.0	145.0	1722.0
LOCAL		0.0	0.0	4.0	3.6	12.0	10.8	12.0	10.8	12.0	10.8	12.0	10.8	0.0	0.0	52.0	46.8
--Secretary	0.90	0.0	0.0	4.0	3.6	12.0	10.8	12.0	10.8	12.0	10.8	12.0	10.8	0.0	0.0	52.0	46.8
TOTAL LOCAL		0.0	0.0	4.0	3.6	12.0	10.8	12.0	10.8	12.0	10.8	12.0	10.8	0.0	0.0	52.0	46.8
TOTAL TECHNICAL ASSISTANCE		0.0	0.0	18.0	166.6	48.0	436.8	58.0	567.8	41.0	359.8	29.0	209.8	3.0	28.0	197.0	1768.8
<b>TRAINING</b>																	
--PhD Programs	1.8	0.0	0.0	16.0	28.8	48.0	86.4	48.0	86.4	48.0	86.4	27.0	48.6	0.0	0.0	187.0	336.6
--Sabbaticals	3.5	0.0	0.0	8.0	28.0	18.0	63.0	18.0	63.0	10.0	35.0	0.0	0.0	0.0	0.0	54.0	189.0
TOTAL TRAINING		0.0	0.0	24.0	56.8	66.0	149.4	66.0	149.4	58.0	121.4	27.0	48.6	0.0	0.0	241.0	525.6



FET INFUTS

LOCAL STAFF																		
--Faculty	2.10	0.0	132.0	277.2	132.0	277.2	132.0	277.2	132.0	277.2	132.0	277.2	100.0	210.0	760.0	1596.0		
--Secretary	0.90	0.0	12.0	10.8	12.0	10.8	12.0	10.8	12.0	10.8	12.0	10.8	10.0	9.0	70.0	63.0		
--Lab Technicians	1.8	0.0		0.0	12.0	21.6	24.0	43.2	24.0	43.2	24.0	43.2	20.0	24.0	104.0	175.2		
TOTAL LOCAL STAFF		0.0	144.0	288.0	156.0	309.6	168.0	331.2	168.0	331.2	168.0	331.2	130.0	243.0	934.0	1834.2		
OTHER LOCAL COSTS																		
--Facilities		25.0		25.0		25.0		25.0		25.0		25.0		25.0		175.0		
Preparation			25.0		25.0		25.0		25.0		25.0		25.0		25.0	175.0		
TOTAL OTHER LOCAL COSTS		25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	175.0		
SUBTOTAL		25.0	313.0	334.6	356.2	356.2	356.2	356.2	356.2	356.2	356.2	356.2	268.0	2009.2				
CONTINGENCY @ 10%		2.5	31.3	33.5	35.6	35.6	35.6	35.6	35.6	35.6	35.6	35.6	26.8	200.9				
INFLATION @ 5%		0.0	17.2	36.8	62.7	62.7	62.7	62.7	62.7	62.7	62.7	62.7	109.7	100.2	412.9			
TOTAL FET INPUTS		27.5	361.5	404.9	454.5	454.5	454.5	454.5	454.5	454.5	454.5	454.5	395.0	2623.0				
TOTAL AID & FET		27.5	653.0	1814.8	1425.8	1164.1	886.5	477.6	6449.2									

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