The Hashemite Kingdom of Jordan

National Center for Educational Research and Development (NCERD)

AN ASSESSMENT OF VOCATIONAL AND TECHNICAL EDUCATION IN JORDAN

Prepared by

Dr. Donald Neff, Vocational Education Specialist (MOE Program)
Norman Root, Labor Economist
Dr. James Wall, Vocational Education Management Specialist (CC Program)
Dr. Lon Weber, Education Finance specialist
Dr. William Reynolds, Vocational specialist and Team Leader (VTC Program)

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PREFACE

Restructuring of the education system under the current reform plan in Jordan is, finally, intended to enable the system to produce technically skilled high quality occupational workforce which the country needs to invigorate and sustain its labor-based economy. Vocational education, being the key to attaining the long-term outcomes of the reform, occupies a central place in the reconstructed structure of education system. For achieving the vocational objective the Government plans to channel as much as 50% of male and 30% of female secondary school students into vocational education tracks. Presently, the responsibility for providing vocational/technical education and training is shared by at least three different authorities: The Ministry of Education, the Ministry of Higher Education and the Vocational Training Corporation.

Despite its crucial importance, the investigation of vocational/technical education and training situation in Jordan has not received the attention as much as it deserves to take its proper place in the national system of education.

The NCERD, in this regard, requested USAID's support to commission a team of international experts to help conduct a comprehensive nation-wide assessment of vocational and technical education. The Academy for Educational Development (AED) was selected to do this task. The team started its work in collaboration with the NCERD staff in 1989, but the work was interrupted due to the Gulf Crisis. On normalization of the conditions, however, the AED team made a second visit during December 1991. This report "An Assessment of Vocational and Technical Education in Jordan" is a result of the coordinated efforts of the AED team of experts with NCERD and USAID.

Through its eight sections the report touches upon all the aspects of vocational/technical education and training in Jordan. Naturally, due to their centrality, systemic and structural components of the vocational and technical education systems have received relatively better treatment than others. Starting with the labor market demand, the report details the vocational education and training systems at the Ministry of Education, the Vocational Training Corporation, and the Community Colleges; then it goes on to discuss such vital issues as financing vocational and technical education, modification for excellence, and development cost estimates.

Although no single report, however exhaustive, can be expected to provide all answers, the thought-provoking recommendations stated in the concluding part of each section provide excellent ideas and practical solutions that should be further explored and discussed by the policy planners and concerned parties more seriously.

Only research-based timely and trustworthy information can help policy planners make informed decisions. Nothing less would suffice for Jordan to design, develop, and implement an efficient integrated national system of vocational/technical education and training. This report is a commendable effort but only a step in the right direction which should be followed up by many studies conducted more intensively, exhaustively and rigorously.

Victor Billeh
President NCERD

APPRECIATION

The AED consultant team wishes to express its sincere appreciation and thanks to Dr. Victor Billeh, President of the National Center for Education Research and Development and his staff for their significant support during the team's stay in Jordan. During the first phase of the study Dr. Anmar Kaylani and Dr. Fathi Arouri with their colleagues provided valuable assistance in developing and conducting the survey of employers and employees. Ms. Amal Elkharouf and Dr. Suleiman A. Suleiman of NCERD provided continual assistance to all of the team during the second phase of the study especially in making arrangements for the many meetings scheduled for each team member and in finding out information which was at times difficult to obtain. A special thanks to Mohammed Khair and Heba Al-Alami for their cheerful efforts in putting together the report draft. The team would also like to thank Barry MacDonald and Nasr Nasr of USAID/Jordan for their suggestions and helpful support. Finally, our sincere appreciation to the many leaders and their support people who were most cooperative and patient with our unending questions during numerous meetings. Our thanks to all for the remarkable hospitality extended to us throughout our stay.

Your kindness will be long remembered!

Dr. William S. Reynolds
Team Leader

DEFINITION OF TERMS

CC	Community College
CEDEFOP	The European Center for the Development of Vocational Training
DOS	Department of State
ECC	European Economic Community
GDP	Gross Domestic Product
ILO	International Labor Office
ISTI	Instructor and Supervisory Training Institute
JD	Jordanian Dinar (Exchange rate US$ 1 = .66 JD)
MIS	Management Information Systems
MOE	Ministry of Education
MOHE	Ministry of Higher Education
NCERD	National Center for Educational Research and Development
UNRWA	United Nations Relief and Works Agency
VE	Vocational Education
VTC	Vocational Training Corporation

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Executive Summary

An executive summary is usually prepared so that the report reader has a quick overview of the key findings. It is not meant to be a substitute for the report and there in lies the danger. The caveat is that the executive summary does not include all the important findings especially in a large study such as this and it is important to read the entire report, especially the recommendations. The reader should also be aware that the team lost six out of twenty three work days scheduled for the study due to extreme winter weather conditions which closed Amman offices and schools thus imposing significant limitations on the assessment.

Economic Trends and Implications for Labor Demand

The economy in Jordan is in crisis due in part to the Gulf war but also the severe foreign debt adjustment problems prior to the war. With some 300,000 returnees who were working in the Gulf area and sending money home now back in country, and the unemployment rate at around 17%, the outlook for the future is far from bright. There is little to indicate that there will be major new manufacturing opportunities for export products or major untapped natural resources to produce new income. Additionally, the returnees have put a severe strain on the social services.

Despite the dismal outlook there are some positive aspects in that the country has been encouraging foreign investment and is actively pursuing potential markets in new areas such as leather fabrication and clothing. Expanding exports of gypsum also offers some hope for new markets. Additionally there are signs that Jordan's isolation from the Gulf region as a result of the war is beginning to normalize and ultimately some of its pre-war markets should return.

However, it will be some time before large numbers of Jordanian expatriates return to take up jobs in other countries. A further limitation is the desire of most Gulf countries to train their own citizens to fill their manpower needs, especially in skilled labor. As of 1990 there were about 155,000 unemployed and approximately 750,000 employed (both sexes) in Jordan. The Industry sector employment is difficult to ascertain since establishments with less than five employees were not included in the available surveys and they represent about half the work force. The figures given for the Industry sector are 77,500 or roughly 10% of the work force. On the other hand the Social Services sector accounts for 48% or 362,100 workers largely employed by the Government. Demand in the Industrial sector is expected to grow by less than 10%/yr for the next five years. Even though the GOJ plans to reduce recruitment in social services, there will still be a need for clerical workers and managers for next five years. Moderate demand growth is expected for the Services areas at 3-4%.

Vocational and Technical Training Systems

Jordan has two main programs at the secondary level for preparing skilled workers, the Vocational Training Corporation (VTC) and the Ministry of Education (MOE). Both

provide training for students in the 11th and 12th grade of the public school system. VTC's program is primarily for the preparation of apprentices with the class time divided equally between training in school shops and laboratories and training in business and industry. A third year of full-time in industry apprenticeship is available for students wishing to achieve the craftsmen level objective. MOE programs use the same curriculum but do not provide training in industry. Students taking the MOE program take the diploma examination at the end of their two years and may qualify to go to a two year college or enter business or industry. MOE programs are more heavily targeted toward training for business while VTC focuses on training for industry.

VTC provides not only apprenticeship training but extensive short term courses and other services to industry. Some idea of its size may be ascertained by the fact that in 1991 it enrolled about 13,000 trainees in its 16 training centers, roughly 92% of its capacity. Approximately 6,000 of the trainees are in the apprenticeship system.

MOE, with vocational programs in 42 schools, in 1991, enrolled about 20,500 students in seven major categories with the largest number in business education (9,300) and the second largest number (5,500) in industrial education. Thus VTC and MOE together enrolled about 26,500 students in all vocational areas with roughly 11,500 in industrial programs or 43%. The output of industrial graduates annually, not including attrition, can be estimated at 4,750. The number of program graduates who enter industry is difficult to ascertain since required military service faces all graduates. Further, many MOE students go on to college.

Technical training is provided by the community colleges (CC) both public and private. Currently, there are 61 licensed CC's administered by over 30 different agencies with 12 colleges administered by MOE. In 1991 about 2100 students were enrolled in engineering courses, 2100 in para-medical, 1650 in computer science and 125 in agriculture. The annual output would be about 3,000 technicians without considering any attrition.

System Plans For Expansion

There are two major forces driving the expansion of vocational and technical education programs. First, the demand for labor market and second, social needs based on the average Jordanians desire for more education. The national Board of Education has advocated having about 50% of 10th grade males and 30% female graduates entering the vocational training stream for the 11th and 12th grades. This latter pressure becomes a major force in the planned expansion. Reservations were expressed by the vocational leadership about meeting these goals.

VTC has planned a comprehensive expansion program to accommodate to the projected needs. A major portion of the expansion is the development of the World

Bank funded Amman Standard Testing and Training Center which will provide for five new trade training facilities and seven other programs already offered elsewhere but needed to supply the Amman area. When operating at full capacity the facilities can accommodate 1400 trainees thus adding about 16% to VTC's capacity in 1993. In 1992 VTC expects to expand six existing centers to accommodate an additional 155 apprentices annually. By 1996 VTC has plans to add five new training centers for males and seven new centers for females and these may be expected to provide training for an additional 1200 apprentices.

MOE, on the other hand has no current plans for expansion of its vocational training system. It should be noted that it has an unused capacity of 25-30% or about 4,000 students (1989-90 data). There are about 5100 currently enrolled in MOE industrial programs.

Given VTC's planned expansion there appears to be additional capacity for 2755 apprentices for a total of about 8800 by 1996. Of this number about one third would be graduating each year or 2900 - not including any attrition. Add to this MOE's capacity if fully utilized of about 24,000 of which half would be available each year or 12,000 from all vocational programs. The total annual output for all vocational secondary programs would be in the neighborhood of 15,000 in round numbers, again, not including any attrition.

Community college expansion is difficult to quantify. There appears to be adequate facilities for expansion to meet the projected demands for an additional 5700 technicians in all categories by 1995. Equipment requirements, however, will be significant. MOHE has no current expansion plans for technical training programs.

Analysis of Expansion and Manpower Projections

The relevance of the planned expansion for vocational and technical training may be analyzed in relation to manpower demand, social needs and the capability of the country's economy to support the effort. It is impossible to accurately predict skilled manpower needs by sector because of two major factors: (1) many trades or occupational skills appear in many different sectors, e.g. mechanics, welders, and secretaries appear in all insustries; and (2) available data exclude 50% of the work force involved in small enterprises, many of which involved typical skilled trades, e.g., carpenter, plumber, electrician etc. Since these factors prevent a sharp focus on the current labor market picture the analysis of manpower needs that follows must be identified as guesstimates. The data shows that a total of around 12,000 new employees will be needed in the Industrial sector over the next five years with about 4,000 needed in 1995 alone. In 1995 VTC will have the capacity to produce about 2900 graduates and MOE up to 3,500 industrial graduates (attrition not included) for a total of 7800. If 30% of the industrial workers were unskilled, the actual need for new skilled workers in 1995 would be in the neighborhood of 2500. If the attrition rate for

vocational graduates were 25%, then about 5800 would actually graduate from the two systems. It is important to emphasize again that the available data at best only provide some indication of direction and magnitude. The indications are that VTC with its expanded capacity coupled with MOE's output is likely to exceed the country's needs for skilled industrial manpower by 1995 and the years between. However, the oversupply may not be as great as indicated since the demand for skilled workers in enterprises with less than five employees is unknown; and the demand estimates do not reflect the need for replacing workers. Additionally, job opportunities for so-called "individual jobs" appear in sectors other than Industry. In the Business Education category MOE graduated about 2,700 in 1991. The 1991 demand for the Business service sector was estimated at 250 new entries. If the annual output remained the same, by 1995 MOE would have produced 13,500 graduates for a total of 4000 projected available jobs in that sector between now and 1995. Again, the numbers are only indicators and do not represent actuality, but they point toward an oversupply. It should be noted that different approaches were used in interpreting the manpower demand estimates for MOE and VTC, but the end results produced essentially the same indicators, i.e., pointing toward oversupply.

Expansion and the Economy

A major part of VTC's expansion has already been funded by the World Bank loan for the Amman Center. However, the estimated budgets for 1992 through 1996 all show a heavy deficit reaching JD 6 million by 1996. MOE vocational programs show a deficit of JD 4.4 million over the next five years and MOHE technical programs a short fall of JD 1.2 million. The total for all three entities is JD 10,575,000 or about $16 million dollars over the next five years. It is clear that each of the three training systems will need to reassess their expansion plans against available funds and a more realistic analysis of skilled manpower needs. Given Jordan's limited economic development opportunities, it is critical that decisions made by the three systems should be reviewed and coordinated by a national policy council as recommended in the report.

Recommendations

The report details a comprehensive set of recommendations for each of the three systems. Special emphasis was given to improving management with a management information system, establishing advisory committees, increasing authority for training directors, and enhancing planning capabilities. The need to coordinate competency based curriculum development, provide for a greater variety of instructional materials, establish standard procedures for curriculum review, and develop guides for cost recovery projects was emphasized. While some programs had frequent contacts with business and industry there was an evident need to formalize the approach through the development of policy manuals and administrative staff training programs. Linkages with international training organizations were also encouraged. In the area of

staff development a plea was made to provide MOE vocational instructors and technical college teachers with the same teacher training program as provided for VTC. Additionally the strengthening of VTC's teacher training program was recommended in the areas of shop organization and management, adapting programs to students with special needs and others. Staff training in establishing and operating vocational industrial clubs and in developing cost recovery programs was recommended.

Finally, the report identified the need to develop a national policy council to coordinate all vocational and technical training in Jordan to reduce overlap, improve the quality and cost effectiveness and better serve the needs of students and employers. The report also made recommendations on how to improve the public's perception of vocational and technical training and the need to develop a professional organization to strengthen personnel development.

I. BACKGROUND

A. Project Objectives

The major purposes of the project were to: (1) assess the effectiveness of the vocational and technical education sector in meeting the demands for skilled labor; (2) examine future skilled labor demand for Jordan and the region and the potential impact on the vocational and technical education system; and (3) determine what improvements need to be made in the system and how they could be implemented so that future labor demand can be met (See Appendix I-A for Scope of Work).

B. Methodology

1. Analysis Matrix

As a means of ensuring careful coverage of all elements of the scope of work, an analysis was made of all task involved and these were placed in logical groups with appropriate assignments for each consultant. The matrix is shown in Appendix I-B as Preliminary Task Responsibility schedule.

2. Phase I

The assessment was conducted in two segments, Phase I was concerned with data collection and familiarization with the three training systems the study was to address; i.e., the vocational streams of the Jordanian high schools, the Vocational Training Corporation (VTC), and the technical programs of the community college system. Concurrently, an assessment of skilled manpower needs was to be initiated. Prior to the consultant team's departure from the United States, they were provided a variety of descriptive documents and reports to study so that they would have some knowledge of the systems they were to review. In Jordan, two counterparts were provided (through an AID subcontract) to assist the team in gathering data during the two weeks the team was on site for Phase I. The team also developed the instruments for surveying a sample of industrial employers and employees. Additional data needs were identified for the counterparts to pursue prior to the team's return for the three weeks of Phase II. During Phase II, the data was to be analyzed, gaps identified and filled and the draft final report prepared for discussion, review and revision before the team departed.

The team's initial visit to Jordan for Phase I was made from August 5th through the 19th, 1990, during which the Iraqi-Kuwaiti crisis developed. It should be noted that the Team's field visits were significantly reduced due to the crisis. The result was a very limited opportunity to assess facilities, equipment, programs, students, and staff. In light of the situation, Phase II (scheduled for late October) was put on hold and it was decided by AID/Jordan that an interim report should be prepared since there could be an extensive delay in implementing the second segment of the project.

II. LABOR MARKET DEMAND

A. Introduction - An Overview of the Economic Climate in Jordan

Every indicator points to a crisis in the Jordanian economy. Compounding an already struggling economy in the pre-Gulf war years are: loss of grants from Arab States, loss of remittances from workers abroad, loss of traditional markets in Arab Gulf States, and the influx of returnees from Gulf states which has resulted in high unemployment and unexpected expenditures to meet the severe strains on social services and other measures to accommodate the returnees. The Country's large foreign debt problem puts an additional burden on Government's ability to meet the needs of its population.

Limited mineral resources and arable land, plus chronic water shortages (except for this year) pose obstacles for Jordan in its attempt to develop new economic growth and to overcome the severe negative imbalance of trade. The strong positive aspect of a skilled human resources base is counter balanced by a very high population growth rate which places heavy burdens on educational and health services, housing, transportation and communications infrastructures. The influx of returnees from the Gulf States adds to the woes besetting the country.

There are, however, glimmers of hope as the public and private sectors join forces to overcome the formidable problems. New export markets are being pursued, new mineral deposits such as bentonite, show potential for exploitation, and the investment climate is being made more attractive to foreign involvement in the economy.

These and other efforts are a challenge to the Jordanian educational and training institutions to meet the requirements for new and upgraded skilled manpower in emerging industries and growth in the others. Some specific industries and occupations with potential for growth are identified later in this report.

B. Labor Market

1. Labor Force

Table II-1 provides estimates of the labor force in 1990 developed from information provided by the Department of Statistics in February 1992. The population totals are derived from population estimates developed by the National Commission on population published in March 1991. The derivation of the active population was necessary because the Department of Statistics (DOS) based its estimates on persons aged 13 years and over, while the Commission estimates cover cohort groups of 5-year intervals, e.g. 10-14 years, 15-19 years, etc.

During a review of the interim report with Mr. MacDonald of USAID/Jordan and Dr. Victor Billeh, President of NCERD, it was decided to expand the second phase to include a component on the financing of vocational and technical education. A fifth team member was added to address this area. Specifically, the intent was to review the financing for the past five years and the next five years in terms of shortfalls/surpluses, an analysis of funds available to support the system and recommendations for other sources of financial support. Recommendations were also requested on how the efficiency in use of financial resources could be improved.

3. Phase II

Phase II of the assessment was conducted from January 29th through February 23, 1992. Extensive field visits to schools and colleges were planned but were unexpectedly scaled down. The cause this time was the worst winter Jordan has had in over 40 years with two different blizzards closing offices and schools for six days! Although the team worked at the hotel with documents on hand, it was not possible to use other resources at the team's offices at the National Center for Educational Research and Development since it too was closed by the storms. The loss of six out of 23 work days seriously impeded the assessment especially in relation to data expected from the field visits to schools and colleges. (See Appendix I-C for list of field visits for both project phases.)

The activities of Phase II were similar to the first phase in that extensive meetings were held with all the key leaders of each institution, visitations were made by team members, according to their assignments, to Ministry of Education secondary vocational programs, Vocational Training corporation training centers and institutes and community college technical programs both public and private. Given the curtailed time due to the winter storms, the very rough draft was rushed to completion in time for the meeting of representative of each of the three concerned institutions, AID/Jordan and the contract team. See Appendix I-D following for a list of those attending. Each team member presented his section of the draft report followed by a discussion. At the end of the meeting representatives were requested to write their recommendations on their draft copies and submit to the team. Comments were received from all concerned and the team gathered additional data and drafted revisions on their last work day.

The final report prepared, at the Academy for Educational Development offices in Washington, required extensive work by all of the team in light of the constrained in-country field studies. Despite major difficulties of the Gulf war and severe winter storms, the final report presented here should provide significant help to Jordan in making the critical decisions for vocational and technical training in meeting both manpower and social needs.

Table II-1
The Labor Force Status and Sex of Persons Aged 13 Years and Over in 1990

POPULATION	MALE		FEMALE		TOTAL	
Total Population	1,777,000		1,676,000		3,453,000	
Persons Aged 13 yrs. +	1,144,000		1,097,000		2,241,000	
	Number	%	Number	%	Number	%
The Labor Force	278,000	24.3	47,200	4.3	329,400	14.7
Empl. in Gov't	377,500	33.0	41,700	3.8	423,500	18.9
Empl. in Pvt. Sector	655,500		88,900		752,900	
Total Employed	113,300	9.9	39,500	3.6	154,600	6.9
Unemployed	768,800		128,400		907,500	
Total Labor Force		14.7*		30.8*		17.0*
Unemployment Rate (Unemployed / Total labor force = Unemployment rate)						
Not in the Labor Force	375,300		968,100		1,333,000	
Student	290,600	25.4	250,000	22.8	542,300	24.2
Housewife	-	-	660,000	60.2	647,600	28.9
Disabled	35,500	3.1	21,900	2.0	58,000	2.6
Retired	21,700	1.9	1,100	0.1	22,400	1.0
Other	27,500	2.4	35,100	3.2	62,700	2.8
L.F. Participation Rate		67.2*		11.7*		40.5*
(L.F.P. rate = Labor Force/Population of 13 yrs. and older)						
L.F.P. rate (18 yrs. & older)		84.3		14.4		

Note: Row and Column figures may not add to totals because of rounding.
*Except for these with an asterisk, percentages were provided by the DOS. The number and percentage of the unemployed may be larger than stated here because the DOS. data may have been collected prior to the return of large numbers of persons from the Gulf region.

As seen in the Table, 67 percent of the male population (13 years and older) was active in the labor force as either employed or unemployed. For male workers, 18 years and older, the rate went up to 84%. For females, the respective rates were 11.7% and 14.4%.

Employment of both sexes totaled about 750,000 with about 150,000 persons unemployed, providing a total unemployment rate of 17%. Employment was accounted for by about 88% of the males and 12% of the females. The respective unemployment rates were 14.7% and 30.8%. The private sector employed about 56% of all workers, but more than half the female workers were employed in government.

2. Industrial Composition

The industry composition of the economy is difficult to ascertain because about half of total employment is accounted for by establishments with less than five employees, and such establishments are not covered in the periodic survey of non-farm firms. Some measure of employment by sectors can be obtained by applying the 1988 proportional distribution of economic sectors made by the Ministry of Labor to the 1990 estimates of employment.

Table II-2
Employment by Economic Sector 1990

Economic Sector	Percent Distribution (1988)	Employment 1990
Agriculture	7.6%	57,200
*Industry	10.3%	77,500
Water and Electricity	1.6%	12,000
Construction	10.0%	75,300
Trade	10.0%	75,300
Transport and Communication	9.0%	68,000
Business Services	3.4%	25,000
Social Services	48.1%	362,100
Total	**100.0%**	**752,900**

* Includes mining.
Note: Columns may not add to totals because of rou

As seen in Table II-2, Services and other non-goods producing industries dominate the economy. Services alone account for over 50% of all employment.

3. Occupational Composition

As noted, the occupational distribution of the total work force is difficult to ascertain because about 50% of employment in Jordan is among establishments with less than 5 employees. Additionally, without the data for these establishments it was not possible to convert them to 1990 estimates.

Among the non-farm industries in the 1989 surveyed establishments, the occupational patterns are what one would expect in a services-dominated economy; i.e., large proportions of professional and technical skills and clerical workers to support them. When the data are dis-aggregated for the manufacturing sector, one finds a distribution relevant to goods producing activities, three-quarters of the workers are in production occupations as shown in Table II-3.

Table II-3
Distribution of Workers

Occupation	Manufacturing	Other Non-Farm	All Non-Farm
Prof. & Tech.	7.4%	40.2%	34.9%
Admin./Mgrs	3.2%	2.3%	2.4%
Clerical	6.2%	20.6%	18.3%
Sales	2.5%	1.6%	1.9%
Services	4.1%	16.3%	14.3%
Agric.	0.2%	0.3%	0.3%
Production	76.3%	18.5%	27.8%
	100%	100%	100%

The Services sector will continue to be the largest employer in the country, despite plans to reduce government recruitment. As such, professional and technical workers will continue to be in demand. Implications for skill training for other workers in this sector include: clerical supervisors, secretaries and typists, bookkeepers and cashiers, computer operators, other clerks, building supervisors, security guards, auto mechanics, machine operators, motor vehicle drivers, stone masons, freight handlers, and crane operators.

As efforts to increase the manufacturing sector bear fruit, trained workers will be required to meet the demands for growth and replacement in such occupations as bakers and cooks, tailors and dressmakers, glass and ceramic workers, rubber and plastic processing workers, freight handlers, motor vehicle drivers, chemical processing workers,

foremen, and workers in leather.

4. Non-Jordanian Labor

Increases in non-Jordanian workers during the 1980's were accompanied by rising levels of unemployment. One reason given was that "Jordanian labor market entrants were increasingly well educated and were not seeking unskilled jobs of the kind that immigrants began to absorb (Birks, et al). This is illustrated in the following tabulation of educational attainment of workers in establishments with 5 or more employees in 1989, comparing Jordanian workers with Egyptian and Syrian workers, who comprised the bulk of foreign workers as shown in Table II-4 below. (Egyptian workers accounted for about 80% of all foreign workers.)

Table II-4

Nationality	Educational Attainment			
	Number	Less than Secondary	Secondary and above	Diploma
Jordanian	(210,630)	46%	14%	40%
Egyptian	(11,413)	89%	6%	5%
Syrian	(1,025)	87%	7%	6%

The number of foreign workers cited in the tabulation above presumably reflects these with work permits. The Ministry of Planning estimates the foreign population in 1990 to be about 200 - 250,000. The Minister of Labor has reported that 162,000 Egyptian are working in Jordan, while only about 10,000 have work permits. (Jordan Times, Feb. 8, 1992).

Much of this is due to the fact that non-Jordanian Arabs have to pay JD 100 per year for a work permit (other foreigners pay JD 300). For unskilled workers in Agriculture, Construction, and Service industries that could amount to 1 or 2 months wages. Non-Jordanians made up 55% of all workers in Agriculture and 32% in construction (DOS), presumably mostly unskilled workers. On the other hand, industries such as textiles and leather goods are heavily dependent on skilled workers from countries such as Egypt and Syria. Similar dependencies exist in skills such as Copper casting. (Jordan Commercial Centers Corporation, Feb. 8, 1992).

Dependence on non-Jordanian labor will continue for years to come. The need for unskilled, low paid labor in Agriculture will rise as land and production respond to

growing investments and the introduction of new methods for increasing productivity and output. Foreign skilled labor will continue to be required in other industries until Jordanians can be adequately trained to replace those leaving due to attrition.

C. Labor Market and Education

1. Sources of Labor Supply

The major source of labor is the educational and training system in Jordan. According to a Ministry of Labor report in 1988, over 50,000 new entrants were available to the labor market and about one-third had less than secondary school completion. Unemployed persons also add to the pressure of a labor market in which supply greatly out numbers demand. For example, of non-student Gulf returnees who were 15 years of age or older, a significant number (19,000 or 46%) were seeking jobs in 1991(NCERD). Additional pressure on the labor market comes from non-Jordanians who provide a continuing flow of workers, albeit for unskilled, low-paying jobs. The increasing competition for available jobs is illustrated in the dramatic rise in the number of applicants for government jobs and the equally dramatic decline in the numbers and proportions appointed as shown in the following Table II-5.

Table II-5
Job Competition

Civil Service	1981	1985	1990
Applicants	7,175	23,854	47,555
Appointments	6,188	5,771	2,346
% Appointed	86%	24%	5%

Birks, et al, projected the Jordanian work force to increase 4% per year through 1995, which is somewhat higher than the anticipated average population growth rate of 3.7%, perhaps taking into account the immigration flow of non-Jordanian workers. Applying the 4% growth rate to the 1990 estimates of the labor force, results in the following growth through 1995.

GROWTH OF THE LABOR FORCE 1990-1995 (000)

1990	1991	1992	1993	1994	1995
907	943	981	1,020	1,061	1,103

2. Educational Attainment of the Employed

Jordan has a reasonably well educated work force as seen by the following tabulation from the household survey conducted by the Department of Statistics in 1990 as shown in Table II-6 below.

Table II-6
Survey of Educational Attainment of Employed

Educational Attainment	Male	Female	Total
Less than Secondary	49.8%	15.8%	45.8%
Vocational	2.5%	1.2%	2.3%
Secondary	26.0%	21.9%	25.5%
College	10.5%	42.3%	14.3%
University	11.2%	18.6%	12.0%
Total	100.0%	100.0%	100.0%

Household survey data represent the total labor force in all economic sectors and in all size establishments. Thus the data emphasize the premium put on education by Jordanians. The data also reflects the needs of a services-dominated economy with its requirements for sizable numbers of professional and technical skills. Not seen above, survey data show that about 90% of the work force had attended school of some kind.

Of some interest is the larger proportions of educated females than males in these sectors, which may reflect; (1) women graduates as teachers and nurses, and (2) women striving to compete with men by attaining higher educational qualifications.

3. Education of the Unemployed

As seen in the following tabulation from the 1990 household survey, the educational profile of the unemployed resembles the profile for the employed, with a few exceptions as shown below.

Table II-7
Survey of Educational Attainment of Unemployed

Educational Attainment	Male	Female	Total
Less than Secondary	47.9%	14.1%	38.9%
Vocational	3.5%	2.0%	3.1%
Secondary	27.9%	25.9%	27.4%
College	12.5%	49.5%	22.4%
University	8.2%	8.4%	8.2%
Total	100%	100%	100%

Those at the extremes of the educational attainment categories made up lower proportions of the unemployed than they represented among the employed. In other words, those with less than a secondary education (the least qualified), in relation to their occurrence in the labor force, were less likely to be unemployed than their counterparts in the other educational categories. As is common in most counties, persons with low educational attainment will take the low-paying, unskilled jobs spurned by the better educated. Of notable interest is that 16% of the unemployed females had less than a secondary education, while over 50% had college degrees or higher. For males, it was the opposite as about 50% had less than a secondary education and about 20% had college degrees or higher. Other survey results briefly are:

- Males accounted for 73% of the unemployed.
- The incidence of unemployment was much higher among females than males: 30.8% vs. 14.7%
- 54% of unemployed males had been previously employed.
- 78% of unemployed females were new entrants to the labor market.

4. Employers' View of the Labor Market

In the fall of 1990, a survey was conducted by Dr. Fathi Arouri and graduate students from The University of Jordan to examine employer and employee views on Jordan's labor market and training effectiveness and on factors felt to be important in affecting the

productivity and profitability of business operations. The survey covered several broad areas of inquiry:

- Factors felt to be important in determining profitability (costs, market demand, Government regulations, the availability of skills, etc.);
- Sources and methods of labor recruitment;
- provision of on-the-job training;
- the use of outside skills-development sources;
- employer views on outside training sources (e.g., vocational education or apprenticeship programs); and
- respondent opinions of he quality (productivity) of their work forces.

Responses relating to employers' views on labor recruitment, training, training sources and the quality of their work forces are summarized here. Details on the sampling design are presented in Appendix II-A. The complete survey and results are shown in Appendix II-B for employer and Appendix II-C for employees.

a. Factors Affecting Productivity and Profitability

Respondents noted a great many factors that they felt had significant influence on the profitability of their firms. Specific skill shortages were considered as "very important" by only 37% of the respondents, as noted in Q-8h ("Q" refers to the survey question and "8h" to the number). Of greater importance were general productivity problems; i.e., motivation, attitude, average productivity, and management/supervisory skills. As might be expected, the most significant influences on profitability were felt to be local market demand (considered as "very important" by 73% of respondents) and materials/equipment/supply costs (considered as"very important" by 71%). Wage costs ranked next in terms of importance accorded by respondents.

A separate question was asked concerning which two factors respondents considered most important, but no codes were provided by the Jordanian team, so this summary statistic could not be calculated.

b. Sources and Methods of Labor Recruitment

In terms of factors considered to be important in the setting up of firms (Q. 10), market availability and investment requirements were considered the most important (86% listed each as "very important"). The availability of management was considered as an important constraint by more respondents than was the availability of qualified employees.

Seventy percent of the firms indicated that they generally recruited labor, and 63% reported that they increased the number of their employees over the last year (Q. 5). At the same time, 30% of the firms samples reported that they were operating at below 60% of capacity, and only 25% were operating at above 90% (Q. 7). A variety of recruitment

sources were reported: labor offices; advertisements on radio, TV or newspapers, professional associations, and various combinations (Q. 12b). Notably, little use seems to be made of lists from such institutions when they were recruiting. This raises questions about the strength of linkages between private-sector employers and the skills-development sector. This will be elaborated in a later section.

When hiring new employees, respondents considered experience and attitudes/motivation to be the two most important factors in their decisions (Q.13). Interestingly, education seems less important a consideration than technical training (39% considered education as "very Important", while 47% considered technical training to be so). Both factors were considered as "not so important" by an equal percentage of respondents (16%). There is a likelihood that respondents interpreted "technical training" to mean "technical skills" (which might include on-the-job training) which would be consistent with other responses in the survey.

c. Internal and External Training

Relatively few respondents preferred to train their work forces internally. The majority (59%) seemed to want a combination of prior training by outside institutions or through on-the-job experience, coupled with specific in-house training (Q.14). 81% of the sample indicated that they provide on-the-job training, but the content of that training could not be discerned without greater probing than time permitted.

Some 56% of the respondents indicated that they have difficulties finding specific skills which is somewhat reflective of the atomistic nature of Jordanian industry. Many employers seemed to feel that their equipment or production processes were so specialized as to require "hands-on" practice with internal supervision. Slightly less than half of the respondents (40%) felt their internal training could be handled by the VTC, but they sometimes indicated that their training was so specialized as to cause outside training to be uneconomic (Q. 19). Still, some 29 firms (41%) indicated that they do send employees for outside training.

Much of this appears to be in the form of short courses or seminars. Only 4 firms (6%) reported sending their employees to the VTC for outside training. At the same time, 70% of the respondents indicated that they provide training for outside sources, presumably through the apprenticeship component of the VTC (Q.22). 64% of the firms indicated that at least some of their employees are graduates of the VTC, which is the same number as that for graduates of Ministry of Education programs. Over 60% of the firms that employ graduates of vocational programs rated those graduates as "much better" than their other employees (Q.24). Another 30% rated those graduates as no better or even worse than other workers. The remainder felt the question was not applicable to their experience.

Respondents seemed favorably disposed to available vocational training with 76% rating

such programs as "rather good". Excluding the "don't know" or "inapplicable" responses, the favorable response rate rises to 90% of the sample.

d. Quality of Employees

Question 26 was designed to elicit employers' assessments of the quality of their work forces. Despite favorable impressions of available vocational training programs, respondents noted quite a few problems relating to labor productivity. For example, 55 respondents (79%) felt that their employees required too much supervision, and another 31 (44%) felt that their workers "know how to do their jobs, but they don't always do their jobs well." Exactly half of the respondents agreed with the statement, "When hiring a new employee, I don't really want a worker who is already trained. Just give me people who are motivated and disciplined, and I'll teach them what I want them to know." In general, respondents seemed more concerned about the noncognitive aspects of worker skills than about specific skills necessary to perform particular tasks.

e. Recommendations for Improvement

Question 28 attempted to elicit respondent recommendations for improvements in vocational education/training programs. Although 17 respondents (24%) indicated that they had not really thought of the problem, the pattern of responses is extremely consistent. The evidence reinforces the notion that respondents are most concerned about noncognitive aspects of job performance. Thus, 80% of the sample agreed with the statement that programs need to stress more "practical experience" and "less theory".

Seventy-seven percent felt there was a need to "teach students better discipline" and 91% stressed the need to "teach students to be more interested in the quality of their work." Other questions called forth similar agreement: the need to teach multiple skills, the need to provide exposure to the types of machinery and equipment used in private industry, the need to update curricula, the teaching of "better attitudes" (91% concurred that this is a needed step), safety awareness, instructor upgrading (i.e., more on-the-job experience for instructors), and improved contacts between employers and representatives of the vocational training sector.

Employers were generally well disposed toward the available vocational training in Jordan. However, their recommendations and answers to some of the questions indicate that the training institutions need to be more responsive to industry needs by having more contact with employers and by making training more relevant to the employers' on-the-job operations.

5. Employees' View of Training

The survey of employees' section of the study disclosed some interesting and valuable

data which can be used to improve vocational training. Some 22% of the respondents were working for the company where they had trained, and this experience had tended to increase the level of confidence at work for 16%.

a. Education

Some 58% of the respondents had completed military service. With regard to education and training, 38% indicated they had completed community college programs, 30% secondary vocational education, 10% Vocational Training Corporation, and 5% had some form of apprenticeship training. More than 47% had taken short term training after finishing the above, and 56% had taken further formal training.

Opinions varied regarding what was most helpful in preparing persons for current jobs. Education was cited as being most beneficial by 19% of the respondents; work experience was thought to be best by 25%; and 50% said vocational training had the most helpful in preparing them for jobs they held then.

b. Training Value

Response to questions about the value of training showed that some 53% felt the training was useful or very useful in their current jobs, 68% indicated their first job was directly related to the training they had received, and 78% said their education helped land their first job. Only 21% said it did not help. More than 72% felt their education and training helped them perform better in current jobs, and 26% said it made no difference. During military service, 21% said they worked in positions directly related to their training. To improve performance on current job, 52% felt further skill training was desirable, and 46% said new training would increase their chances for better jobs.

Although 38% of the respondents said they had completed community college programs, only 9.5% said such training had been very helpful in their current jobs. Of the 30% who had completed MOE vocational programs, only 11.6% felt that training had been helpful of the 10% who had completed VTC programs, some 22% felt the training had been helpful in preparing them for current jobs.

Generally, employees rated their training as being satisfactory, however, they felt some improvements were needed. Some 36% felt instructors' practical knowledge needed attention, 37% said audio-visual materials needed improvement, and 25% said the instructors' theoretical knowledge needed improvement.

c. Training Improvement

Opinions were sought concerning improvement of training at VTC, MOE, and the community colleges with 47% indicating that training needed to be more practical. Only 29% felt hand tools were sufficient and only 24% felt equipment was in required operable

condition for good instruction. Some 18% indicated the need for additional training immediately following military service, while 59% wanted a refresher course. More than 27% stated the programs needed better instructors, and 10% said they needed different courses. Surprisingly, 74% indicated they were happy with their current job.

d. Guidance and Placement

Guidance in making an occupational choice apparently was viewed with mixed emotions by the respondents. While 32% said their schools had such a guidance program, only 19% said it was helpful to them in making an occupational choice. Some 64% indicated their school did not have an occupational guidance program.

Employees were asked who or what agency had helped them obtain their first job. They reported that relatives had helped 21%, the education or training instructors had assisted 7%, and MOE had helped 3%. No source of help was identified by 52% of the employees. Placement remains a problem.

e. Conclusions

From the above, it can be stated that vocational education and training programs were viewed as being worthwhile, but improvements were perceived as being needed. The technical training received in community colleges was thought to have been worthwhile by only half of those who had finished those programs. The consensus seemed to emerge that improvements are needed in staff upgrading, equipment management and repair, and tool availability.

D. Potential for Employment Growth

1. Special Programs for Gulf Returnees

Several programs have been set up for persons returning from the Gulf region through special, short term training at the VTC training centers. Unemployment is an immediate problem for the returnees. Nearly half of all non-student returnees, aged 15 years and older were unemployed (NCERD).

Some returnees have financial resources to wait out the situation or to establish new businesses relating to the ones they had conducted in the Gulf e.g., trading . Others, (about 10%) because of their experience and skills, are already employed. Still others with experience in foreign markets will prove to be an asset in helping local exporters find and exploit markets abroad, and in developing new businesses for domestic and foreign markets. The VTC has set up special short-term courses to provide returnees with marketable skills. In the long run, as international relations return to normal, the returnees' problems will abate.

2. Export Promotion and Regional Markets

Informed observers seem to be in agreement as to the areas for potential growth in the export economy. The same products are cited time after time. They are:

The traditional exports :
Chemicals - paints, shampoos, cleaners
Petroleum products
Phosphates, potash, and fertilizers
Pharmaceutical
Plastics - (Country already has 100 plants)

Projected growth exports :
Food processing
Leather goods
Garments
Machine spare parts
Bentonite (gypsum)
Business consulting services

Plans for upgrading quality and promoting exports in the textile, garment, and leather goods industries have been developed through a collaborative effort among Government, the Private Sector, and the UNDP. Vigorous attempts are being made to enter the European and other world markets. It should be noted that there are several critics who are dubious about the ability of the two industries to make major inroads on those markets because of the strength of existing competitors.

However, these efforts are not wasted, one way or another. In due time, relations with the Gulf States will return to normal, and the improvements made in the Jordanian products will enable them to regain their traditional markets. The Jordanian comparative geographical advantage will come into play.

Another potential assist to the development of Jordanian products for export would be further exploitation of the natural gas reserves, to provide domestic feed stocks for the production of plastics and other chemicals.

3. Import Substitution and Domestic Demand

It is impossible to discuss external trade without noting the heavy imbalance of imports over exports. Although the differences have narrowed significantly and exports have increased over the years, the imbalance remains a drain on Jordan's foreign reserves and balance of payments capabilities. Between 1984 and 1990, the value of imports rose 61% while exports increased 143%. However, the negative trade imbalance grew 31% to JD

one billion (D.O.S). At first glance, the situation cries out for import substitution and the protection of domestic production by raising barriers to imports. However, this poses a problem if Jordan wants unlimited access to other markets without encountering reciprocal trade barriers.

On the other hand, it is possible to encourage import substitution without raising barriers to current imports. For example, government can provide tax relief on raw materials which are imported to produce finished products, and provide tax incentives to produce items which are imported in large numbers. The issue is raised because the population is increasing, fueled by one of the world's highest growth rates, and the domestic demand for goods and services will also increase dramatically. In other words the domestic market should not be ignored.

E. Implications For Training In Jordan

1. Industrial Areas

The ILO Mission to Jordan in late 1989 (Birks, et al) estimated GDP growth rates for the various economic sectors over the period 1990 to 1995. The rates per year are as follows in Table II-8.

Table II-8
Sector GDP Growth Rates

Agriculture	10%
Industry	9% (for the first year and 15% thereafter.)
Water & Electric	3%
Construction	1%
Trade	3%
Transport/Communication	3%
Business Services	3%
Social Services	-3% (the first year, then 2% thereafter.)

One way of projecting employment demand is to take projections of GDP and correlate them with employment. However, in view of the events that have transpired since the team's first visit, the projected rates are probably over optimistic, except perhaps for Agriculture, as will be explained below. The demand model posited below in Table II-9 is based on best guesstimate derived from conversations with officials, observers, and extracts from other sources.

The shortcomings in using a demand model based on GDP projected growth or other variables need to be noted up front:

- The projections of GDP themselves are guesstimates.
- Employment projections by sector need to start from a reliable base. In Jordan this is a problem, because detailed information by industry and occupation is available only for establishments with 5 or more employees, which cover about half of total employment.
- Data from the post-Gulf crisis year are not yet available, so available data reflect a different economic setting than now exists for sector employment, which has been affected, inter alia, by the loss of markets and the influx of returnees.
- It has been noted in several studies and verified by the results of the Employers' Survey sponsored by this team in 1990, that many plants suffer from significant amounts of excess capacity, so that increases in output in these firms can be achieved without significant increases in employment. Only 24% of the surveyed firms indicated that they were operating at 90-100% capacity.
- A demand growth model does not provide estimates of the need for replacements. Manpower requirements arise from the need to meet the demand for growth and the need to fill jobs vacated through death, retirement, and other reasons of attrition. Industry and/or occupation attrition rates are needed to factor this need into the model; neither was available. Therefore, the model posited below does not include estimates of requirements to replace workers leaving the jobs.

Table II-9

Projected Employment Growth Rates by sector, 1990-1995

(%Per Annum)

Economic Sector	90-91	91-92	92-93	93-94	94-95
Agriculture	10	10	10	10	10
Industry	1	2	3	4	5
Elec. & Water	1	2	2	3	3
Construction	1	2	3	3	3
Trade	3	3	3	3	3
Transport/Com.	2	2	3	3	3
Business Serv.	1	2	4	4	4
Social Services	0.7	2.5	4	4	3

Projected Employment by Sector, 1990-1995

(In 000's)

	1990	1991	1992	1993	1994	1995
Agriculture	57.2	62.9	69.2	76.1	83.7	92.1
Industry	77.5	78.3	79.9	82.3	85.6	89.4
Elec. & Water	12.0	12.1	12.3	12.5	12.9	13.3
Construction	75.3	76.1	77.6	79.9	82.3	84.8
Trade	75.3	77.6	79.9	82.3	84.8	87.3
Transport/Com.	68.0	69.4	70.8	72.9	75.1	77.4
Business Serv.	25.0	25.3	25.3	26.8	27.9	29.0
Social Services	362.1	364.6	375.7	388.6	404.8	416.2
Total	752.9	766.3	789.2	821.4	856.4	890.0

New Employment Each Year by Sector,1990-1995

	90-91	91-92	92-93	93-94	94-95	Total
Agriculture	5,700	6,290	6,920	7,510	8,370	34,890
Industry	775	1,566	2,373	3,260	4,240	12,214
Elec & Water	120	242	244	372	384	1,362
Construction	753	1,522	2,328	2,397	2,469	9,469
Trade	2,259	2,328	2,397	2,469	2,544	11,997
Transport/Com.	1,360	1,388	2,124	2,166	2,232	9,270
Business Serv.	250	506	1,032	1,072	1,116	3,976
Social Services	2,535	9,115	14,948	15,544	12,123	54,264
Total	13,752	22,957	32,366	34,890	33,478	137,443

2. Rationale for Growth Rates

Agriculture is projected to grow at 10 percent per year because of the concerted efforts to increase productive acreage and output, to meet the demands of a growing population and potential export markets. An additional reason is that this sector is labor intensive, employment responds directly to increases in output.

Industry is projected to grow at considerably slower rates, particularly in the next few years, because of the loss of Gulf markets, excess plant capacity, and the use of new technologies for competing in world markets. As markets reopen in the Gulf area, export promotional activities bear fruit, and domestic production meets the demand for domestic consumption, employment should increase slowly.

The Electric Utility sector will increase at moderate rates in response to population growth and industry demands for efficient power supplies, softened somewhat by the use of labor saving equipment.

Construction will grow moderately and then faster in response to government and private sector demands for housing and road transport needs. This industry also appears to be labor intensive, particularly for unskilled labor.

The Trade sector responds to growth in all other sectors, and as a labor intensive industry is expected to grow moderately. It is also sensitive to population growth.

Transport and Communications respond to population growth, government policy, and industry demands. Moderate growth is expected, cushioned somewhat by technological advances in the field.

Business Services are expected to show marked growth as the private sector expands under a new investment climate and new business opportunities are explored.

Social Services will grow slowly, primarily because Government is attempting to slow growth in the bureaucracy. However, the need for health, education and other services will respond to the growing population. Similarly, Government will need to continue to play a role in trying to reduce high levels of unemployment and alleviate pockets of poverty.

3. Occupations

It is very difficult to project occupational demand when the data base, from which the projections are to be derived, fails to cover a large portion of employment, i.e., the establishments with less than 5 employees. The lack of data is particularly acute for skills commonly found in small enterprises such as radio/TV repair, auto mechanics, plumbers,

electricians, etc., which are patronized directly by the consumer. Other skills found in the small shops include tailors and dress makers, shoemakers and repairers, potters and other ceramic workers, medical assistants in private medical and dental offices, clerks of all kinds in travel agencies and business consultant offices, salesmen and shop assistants, and even small machine shops and office machine repairers that cater to both the consumer and other business establishments.

For these reasons, any projections of demand for occupational skills are mere guesstimate. For this study, however, an attempt has been made to identify selected occupations which contain some promise for growth in at least the larger establishments. Table II-10 identifies the selected occupational skills that hold promise and have bearing on the training programs offered by various institutions. Each occupation is listed with the sectors in which the occupations are primarily found and the numbers of such people employed at the time of the survey.

Matching skills with current training programs, helps identify areas that are not covered. Some of these include: leather goods, ceramic, and glass workers, salesmen, paper and paperboard makers, motor vehicle drivers, and a variety of construction skills. Training administrators may find it useful to review the list for other potential programs. Occupational skills found in small establishments (as noted above) may also suggest other training programs.

Table II-10

Estimated Employment by Selected Occupations in Establishments with 5 or More Employees, 1989

OCCUPATIONS	1989	SECTOR WHERE FOUND
PROF. & TECHNICAL	74741	
* Surveyors/draftsmen	798	Social Services
* Engineering Technicians	5569	Mining, Soc. Services, Elec.
* Life Science techs.	2390	Social Services
* Medical/Dental Assts.	143	Social Services
* X-Ray Techs.	501	Social Services
* Medical Workers, NEC	298	Social Services
* Math/Statistics Tech.	359	Soc. Ser., Elec., Bus. Services, Trade
* Writers	683	Publishing, Social Services
* Social Workers	557	Social Services
MANAGERS & ADMIN	5232	
CLERICAL WORKERS	39133	
* Clerical Supervisors	395	Business& Social Services
* Secretaries	4962	All Sectors
* Book Keepers/Cashiers	4690	Services, Trade
* Material/Prod/Plan Clerk	7424	Chemical
* Correspondence Clerks	6374	Services
* Telephone/Telegraph Op.	1371	Services
* Mail Clerk	1627	Services
* ADP Machine Op.	399	All Sectors
* Transport/Comm. Supv.	1069	Transport/Communications
* Stock Clerks	1810	Services, Trade, Mfg.
* Post Masters	678	Social Services
* Clerks N.E.C.	748	All Sectors
SALES/TRADE	4975	
* Salesmen/Shop Assts.	2578	Trade
SERVICES	29286	
* Housekeeping Supv.	423	Trade, Social Services
* Cooks	1316	Trade, Social Services
* Waiters/Bartenders	1725	Trade
* Maids, NEC	1098	Trade, Social Services
* Building Caretakers	8604	Business& Social Services
* Cleaners	11842	All Sectors
* Security Guards	3657	All Sectors

OCCUPATIONS	1989	SECTOR WHERE FOUND
AGRICULTURE WORKERS	653	
PRODUCTION WORKERS	59460	
* Supv./Foremen	3599	Chemicals, Social Services
* Miners/Quarry Workers	223	Construction
* Mineral/Stone Treaters	276	Non-Metallic Industry
* Well Drillers	103	Mining, Social Services
* Metal Casters	389	Machine Industry
* Paper & Pulp Workers	251	Paper
* Paper Makers	147	Paper
* Crushers/Grinders/Mixers	598	Chemical
* Cookers/Roasters & Rel.	1538	Chemical
* Petroleum Refinery Wkers	877	Chemical
* Chemical Processors	399	Chemical
* Weavers/Knitters & Rel.	842	Textiles
* Tanners & Fell Mongers	80	Textiles
* Grain Mill Workers	175	Food Processing
* Butchers	96	Trade
* Bakers, Cooks, Candy	2764	Food Processing
* Food & Beverage Process	868	Food Processing
* Tobacco Workers	502	Food Processing
* Tailors/Upholsters	2628	Textiles
* Leather Good Wears	738	Textiles
* Cabinet Makers, etc.	1046	Construction, Wood
* Wood Working Mach. Op.	62	Wood
* Blksmths/Forge Press Op.	1529	Transport, Machine & Metal Industry
* Machine Tool Op. & Setters/Fitters	945	Construction, Transport, Machinery
* Tool & Die. Makers	232	Metal Industries
* Motor Vehicle Mechanics	3067	Social Services, Mining, Mfg., Trade
* Aircraft Engine Mech.	421	Transport
* Mach. Wkers. except Elec., NEC	2902	Mfg., Trade, Social Service
* Electrical/Elec. Wkers	2267	All Sectors
* Audio & Cinema Equip Op.	331	All Sectors
* Welders	200	All Sectors
* Glass & Ceramic Wkers	530	Trade, Non-Metallic
* Wkers in Rubber/Plastics	1623	Chemical
* Prntng./Publishing Wkers	1015	Printing
* Paper/Paperboard Makers	366	Paper
* Painters	348	Construction
* Non-Metallic Mineral Products	1785	Non-Metallic, Construction
* Construction Workers	3565	Construction
* Freight Handlers	4521	All Sectors
* Crane/Hoist Op.	879	Social Services
* Motor Vehicle Drivers	571	Construction, Social Services
	13204	All Sectors

4. Government Policies and Labor Demand

Under a market economy the major users of labor are the private sector producers of goods and providers of services. Increases in their outputs result in increases in demand for labor . The Government of Jordan has already promulgated policies that are aimed at helping the private sector increase its outputs. Laws are being revised to encourage private investments by local and foreign business men. Public funds and training are being allocated to help the development of small businesses . The basic infrastructures -- communications and transportation -- are being up-graded to world-wide performance standards to enable efficient business operations and to become more attractive to investors . A burgeoning private sector stimulates business activity and leads to increased labor demand .

Heavy dependence on public service employment has contributed to the burdens besetting the economy (Fanek, Jordan Times, Feb. 23, 1992). As noted, steps are being taken to reduce this dependency by encouraging the creation of job opportunities in the private sector. Government, however, will continue to play a role in the labor market. There are things that remain the responsibility of the public sector such as special problems affecting large segments of the population within a short time span, e.g. the Gulf returnees or high unemployment, which can not be effectively nor quickly dealt with by the private sector. The administration of government, international affairs, national security, education, health, etc. are also within the purview of the public sector. These activities require labor and as special problems occur and the administrative burdens increase, government requires additional manpower to fulfill its responsibilities in those areas. In the current economic crisis confronting Jordan, the Government will be heavily involved in trying to resolve problems and since these are major problems not amenable to simple, fast solution, this involvement and its concomitant requirements for labor will continue for several years to come.

5. Conclusions and Recommendations

a. Conclusions

The multiple problems of the Jordanian economy pose formidable challenges to planners and policy makers in the public and private sectors. Cooperation between the two sectors is needed to effectively attack the myriad problems. Government needs to provide an attractive climate for domestic and foreign business by eliminating restrictive law and regulations, by reducing bureaucratic procedures, and by improving transportation, communications, and finance infrastructures to allow the private sector to operate more efficiently and effectively. The private sector needs to increase the proportion of domestic input in its manufacturing processes by purchasing more raw materials and fewer finished ; it needs to investigate ways to more fully exploit the new and traditional by producing wider ranges of by products; and finally, the private sector ds to increase worker

productivity through close and ongoing consultation with training institutions to ensure that skills relevant to the specific industries and occupations are provided. Steps have been taken to address these needs and should be rigorously continued.

b. Recommendations

Skilled human resources will provide the impetus for growth in Jordan's economy. Efforts to continue production of these resources and to up-grade skills are vital for the countries economic future, given the limited mineral resources and goods producing activities currently available in the country. Recommendations for each sector follow.

Services Sector

In the areas of finance, business,information, medical, education for example,the following are some of the nonprofessional skills that should be considered when planning training programs: office machine repairers, , computer repairmen, computer and word processing operators, secretaries, mathematical and statistical technicians, graphic artists, bookkeepers, office managers, medical and dental assistants, etc. While it is true that the Jordanian work force is a relatively young one, much of the demand for workers will arise from replacement needs. Turnover is inevitable and as the largest employer, this sector will require new entrants to replace those leaving for many different reasons.

Agricultural Sector

To help the Agricultural sector increase output and productivity, attention should be given to providing mechanical and technical skills such as earth moving equipment operators, pump maintenance and repairers, farm equipment and motor vehicle mechanics, truck drivers, biological technicians (pest and vermin control) and surveyors. To promote the export of processed foods will require greater attention to quality control, efficient transportation of crops to factories, and marketing activities. Farming will become agro-business with all its attendant skill needs.

Industrial Sector

The Industrial sector will require a host of technical craft skills in its attempt to compete in the world markets and to meet the demands of a growing population. These skills were detailed in earlier sections. Here it should be noted that many activities in this Sector are industry specific, such as continuous flow processing in the chemical and petroleum product industries, thus training should be done in close collaboration with the companies and the equipment supplied by them. Non-Jordanian workers in this Sector are a special issue. They account for only about 5 to 10 percent of the workers in the larger establishments, but according to observers they

provide selected skills, such as workers in leather and copper casting which are not readily available among the Jordanian work force. There are 15,000 to 25,000 potential job opportunities for Jordanians. While it is not possible, nor desirable, to dislodge foreign workers by fiat, these are jobs for which training programs should be directed to provide the replacements for job openings arising from attrition in these and other skill areas. Many of the skills identified in the above Sectors are found in the other Sectors -- Eiectric, Gas and Water, Transportation and Communications, Trade, Construction, and Mining. However, each sector requires skills peculiar to its activities, e.g. electric linemen in the electrical sector. In these sectors, the companies and the training institutions must cooperate closely as to the content, format, and equipment needs of training programs.

The loss of markets and job opportunities in the Gulf States have dealt a harsh blow to Jordan's economy. However, it is not unreasonable to project that international tensions will ease in a few years and relations among the countries will return to normal; e.g., Saudi Airlines have already resumed flights to Amman, and Jordanian commercial trucks have been allowed to enter Saudi Arabia. (Jordan Times, Feb. 10, 1992). Jordan must be prepared to capitalize on the reopening of its former markets. It will have to compete with its market replacements by offering upgraded goods at better prices. Thus, upgraded quality and increased productivity are crucial elements in Jordan's efforts to compete in the Gulf States and elsewhere in the world.

The key to these crucial elements is a skilled work force. Training, relevant to specific industries and occupation, is the basis for achieving that work force. Again, cooperation between the public and private sectors is essential. Government has assumed the responsibility for educating and training the human resource base. It needs to ensure the availability of qualified instructors and up-to-date instructional materials and equipment. Industry's role is to identify the skill needs of its work force and to consult regularly with institutions on content and methods of instruction for providing the training.

Reliable, current information on the status of the labor market is a must for effective and relevant planning. Statistics on employment and unemployment enable planners and policy makers to react quickly to changing economic conditions. Periodic house hold surveys on a frequent basis (ideally every month) can provide the information on a timely basis. An annual establishment survey of employment, wages, and hours-worked is another useful barometer of the country's economic health. Since about half of the country's employment is in establishments with fewer than 5 employees, the survey should be expanded to cover small establishments. Technical assistance (training) should be provided in the areas of sampling, weighing and other techniques to improve the reliability and coverage of the gathered information.

Finally, all concerned organizations should adopt standard nomenclature and classification for occupations and economic sectors.

III. MINISTRY OF EDUCATION VOCATIONAL EDUCATION TRAINING SYSTEM

A. Purpose

The Ministry of Education (MOE) is responsible for the public elementary and secondary education system in the Kingdom of Jordan, as well as monitoring the private elementary and secondary schools in the Kingdom. As part of this responsibility the MOE provides vocational education (VE) through a prevocational program at the elementary level and vocational education programs, for preparation for work, at the secondary level.

The primary purpose of the elementary program is to provide beginning experiences about the world of work and applied sciences while the secondary vocational program is directed toward preparation for a specific trade or business.

1. Goals and Objectives

As stated in "The Development of Education in the Hashemite Kingdom of Jordan", "The goals and objectives of education in Jordan emanate from the philosophy of education. These objectives are manifested in bringing up a citizen who believes in God, is affiliated to his country, is endowed with human virtues and perfections and has a fully developed personality in its physical, mental, spiritual, emotional, and social perspectives."

2. Status

The following facts obtained from published research documents from the Ministry of Education provide an indication of the current scope and status of its responsibility. In the 1989/1990 school year, there were: 3728 schools, 48366 teachers and 1,028,164 students in the educational system. The Ministry of Education budget was JD 86,230,000. This was 8.23% of total government budget. In 1990/1991 the Vocational Education programs had 20,571 students in 43 specialization classes with 1298 teachers.

The compulsory education program in Jordan is made up of two cycles, basic and secondary. Basic education covers the six primary grades and four preparatory grades and is compulsory for youths from 6 to 16 years of age. This program is provided free in government schools. Secondary education for youths 17 and 18 years of age is provided by the government for students completing the basic cycle and consists of two streams. The comprehensive stream provides for common core subjects plus specialized academic or vocational streams. Satisfactory completion of this program leads to a General Certificate. The applied stream provides for the core program with a selected vocational option for 50% of the school time. Students completing this stream may opt to take the General Certificate examination but most receive a Certificate of Completion. A second vocational option for those interested in an apprenticeship is to select the programs offered by the Vocational Training Corporation. All of these programs are provided free by the government. It should be noted that under recent reforms any student can sit for the General Certificate examination but it is usually limited to those taking the comprehensive academic/stream.

B. Administration and Organization

1. Structure and Management

The current MOE organizational chart is shown in Table III-1. The organizational structure of the Directorates of Education in the Districts of Jordan is shown in Table III-2. The management of VE (vocational education) is carried out by the MOE through a Director of Vocational Education and Training, whose immediate superior is the Director General of Education and Supervision. The Director has eight department heads under him who are directly responsible for each of the major vocational areas, i.e., industry, agriculture, commercial, nursing, hoteling, and home economics. Additionally, there are heads of the Follow-up Department and a Cultural Center. The Kingdom is divided into 23 Directorates which have the responsibility of overseeing the function of the individual schools in their respective geographical governances. Some Directorates have a person in the position of head of VE, but 12 currently lack such a person.

The system is highly centralized including all decisions involving textbooks, curriculum, personnel policies and salaries. The curriculum, textbooks and teaching materials are supplied by the Ministry and are uniform throughout the system.

2. Location

The secondary vocational programs are scattered through out 42 schools, with as few as three teachers and as many as 64 teachers in a school. The schools appear to be reasonably placed in the country and offering programs related to the local job availability.

3. Professional Standards

The vocational administrators usually come up through the teacher ranks and are required to have a B.S. degree.

The "Development Plan for Vocational Education" of the Ministry of Education (dated Feb. 1990) states that the vocational teacher must meet the following standards:

a. Teachers of vocational education should have a Baccalaureate degree.

b. Teachers should attend continuous in-service training sessions to increase their teaching capabilities.

c. Teachers should have practical experience in relevant VE fields.

TABLE III-1

ORGANIZATION CHART
MINISTRY OF EDUCATION
1988

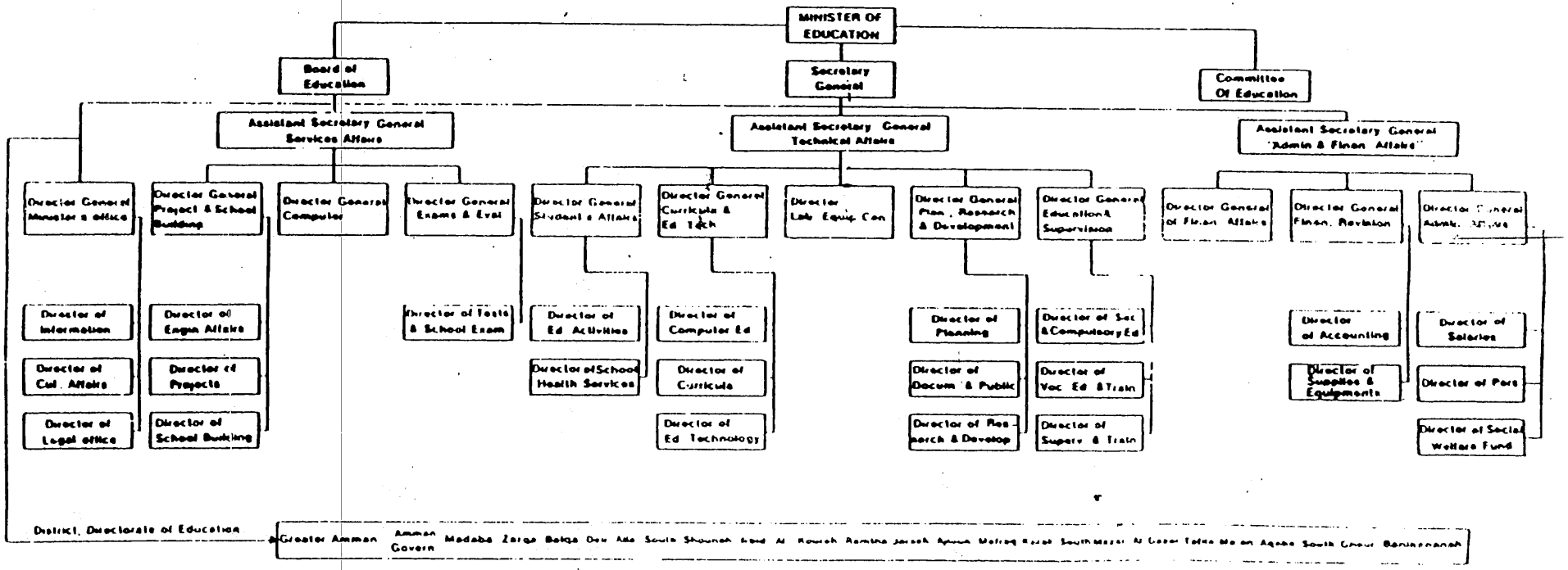
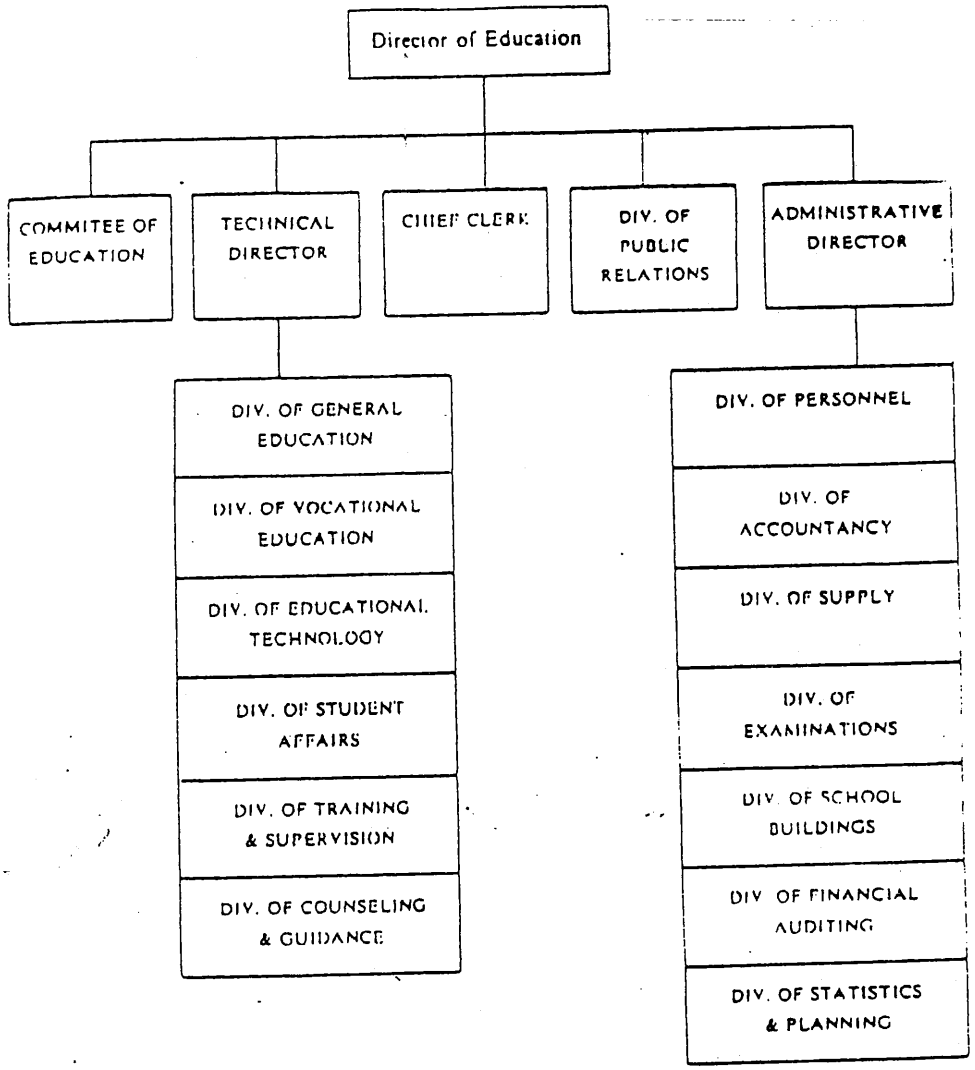


TABLE III-2

Organizational Structure of The Directorates of Education in The Governorates & Districts of Jordan



- **CURRENTLY, THERE ARE (23) DIRECTORATES OF EDUCATION :**

Greater Amman (1), Greater Amman (2), Private Education, Suburbs of Amman Zarqa, Madaba, Balqa, Ramtha, Deir Alla, South Shouneh, Karak Ma'an, Tafileh, Aqaba, Al-Qasr, South Mazar, South Ghor, Bani Kenana, Mafraq, Ajloun, Jerash, Al-Kourah.

Note : Some Directorates of Education may have more than one Technical and Administrative Director; e.g. Greater Amman (1) & (2).

Recent statistics (1988/1989) show that vocational teachers had a variety of levels of preparation shown by the following table:

PhD's	4
Master of Arts degrees	14
Baccalaureate degrees and Diploma	51
Baccalaureate degrees	769
Undergraduates	62
Diploma	601
Less than a Diploma	259

From the above, it is evident that considerable additional education must be provided to raise the educational level of 49% of the vocational teachers in the MOE schools to meet the goals set out in the MOE Plan. No indication was given of the numbers requiring additional training in their vocational specialty, but it is thought to be significant.

C. Admission and Guidance

1. Admission Policies

A composite of student scores for the 8,9, and 10th graders are used in order to judge a student's progress and placement in the 11th grade. The Ministry sets cutoff scores for determining entrance into the comprehensive secondary stream and in turn the remainder of the students are directed to the applied stream to attend either the vocational programs of the Ministry schools or the Vocational Training Corporation. Recently MOE has decided to allow students who are below the cut-off to enter the comprehensive stream but it is not clear to what extent this is operational.

Those students assigned to VE programs in the Ministry schools receive a month long orientation program in which they experience each vocational specialty offered within their school. After this orientation the students are classified based on their grades received through the 10th grade and 75% on their achievement in the vocational experience in the school. This combined score is used to determine the order in which students choose their vocational program. As class capacities are reached the remaining students are denied the opportunity for free choice of vocational programs. In schools which have a limited number of vocational subjects the students are assigned their vocational program based upon their test scores and the assignments are made by the Ministry.

Students recognize that they have been assigned to vocational training as a result of lower test scores and that they are not considered capable of academic or higher education. Many of these students feel resentful since they have been forced to take vocational education and have little or no interest.

2. Guidance Functions

The objective of a vocational guidance program is to help the students select the vocational program they are most interested in as a career. The MOE considers vocational guidance to be an important part of vocational education program. The Ministry has adopted two major programs to provide guidance as follows:

a. Pre-Vocational

Exploration of the world of work is provided in grades 8-10. Through this exploration experience, offered in the prevocational cycle, the student experiences various vocational areas from which a choice of careers can gradually emerge.

b. Secondary

MOE formulates an enrollment plan specifying the percent of the student enrollment they wish to achieve in vocational education. i.e. in 1992-1993 the Ministry plan is to achieve 30% enrollment in vocational secondary education for both males and females.

An information fact sheet will be prepared which shows the types of vocational secondary education programs available, admission requirements etc., and is circulated to 10th grade students and parents.

An orientation program using the media will be coordinated to facilitate the spread of information.

At the conclusion of this effort the educational directorates will record the student wishes and the student scores in order to select the students for each program offering. The MOE makes the final selection for student assignment.

3. Enrollment

The actual enrollments in VE programs for the last five years are shown in Table III-3. Care should be taken in the interpretation of this table as the system of education changed in 1989 from a three year secondary cycle to a two year cycle. This accounts for the drop in numbers in the table between the 1988-89 year and the 1989-90 years.

Under the current educational plan, the percentage of students in secondary vocational education programs is to increase. Information supplied by MOE shows that the enrollment for 1988/1989 was 72% of the capacity available. These numbers indicate that an increase in enrollment of 4132 students could possibly be accommodated in the future. Recognizing that the availability of open slots may not be in the areas of student need nor geographically appropriate, the system still should be able to absorb a sizeable

percentage of growth with out major construction. There were only two schools which were operating at capacity during the 1990/1991 school year. No evidence of planning for the expansion of vocational programs or new facilities was provided to the team.

TABLE III-3

VOCATIONAL EDUCATION STATISTICS
FROM 87-88 TO 91-92

SCHOLASTIC YEAR	INDUSTRIAL ED. TOTAL	BUSINESS ED. TOTAL	HOTEL MAN ED. TOTAL	AGRICULTURAL ED. TOTAL	NURSING ED. TOTAL	HOME ECONOMIC		TOTAL	GRAND TOTAL
						DRESS MAKING TOTAL	BEAUTY CARE TOTAL		
87/88	7725	15322	323	536	1527	1272	731	2003	27436
88/89	5490	9928	220	405	1213	1647	1626	3273	20529
89/90	5224	9717	288	446	1825	1191	1315	2506	19986
90/91	5477	9292	369	613	1914	1669	1237	2906	20571
91/92	5767	9081	330	725	1872	2058	1576	3634	21409
TOTAL	29683	53340	1530	2725	8331	7837	6485	14322	109931

D. Curriculum

1. Current Programs

a. Prevocational

Under the new MOE plan, prevocational programs will be provided on the basis of one class period per week for grades one through fourth and two classes per week will be provided for the fifth to the seventh grade. The curriculum is being prepared in modularized training packages and will include material from agriculture, business, industrial education, home economics and health education.

The program has yet to be fully implemented. However, textbooks and teaching materials are under development and will be finished in order to start implementing this program on the following schedule:

1992-1993 Start grades 1,5,9.
1993-1994 Start grades 2,6,10.
1994-1995 Start grades 3,4,7,8.

The prevocational modules or units have been identified as follows:

Grade	Unit
1	Health and Home Skills
2	Water, First Aid
3	Materials- Wood, Paper, Metal
4	Model Making, Electric Wires, Seed Planting, Sewing machines.
5	Animal and Plant Reproduction, Animal Care, Care of Skin and Teeth.
6	Simple Tools, Carpentry, Paints, Safe Water and Food.
7	Electricity, Finance, Timetables, Setting Agendas, Food and Nutrition. Sewing Dresses, Personal Care, Traffic Safety.

The Modules mentioned above will be in multiples of 15 hours as follows:

Agriculture - 14 topics, 120 hours;
Industrial - 15 topics including wood, metal, glass, electrical and plumbing.
Commercial - 120 hours including computer literacy course.

b. Vocational

In the secondary cycle, the vocational program consists of a common core of 5 subjects which include: Islamic studies, Arabic language, English language, Science and Technology and , Social Studies plus specialization of at least three subjects in the first year and two in-depth subjects in the last year.

A vocational specialization might consist of training modules in the trade, occupational science and industrial drawing. (See Appendix III-A Curriculum for Comprehensive Vocational Program (Industrial)). A list of vocational trade subjects and their major curriculum components may by found in Appendix III-B.

2. Curriculum Development

The current curriculum used in the Jordanian vocational programs is based on ILO curriculum materials which have been revised to reflect the Jordanian situation. Within the MOE a Directorate of Curriculum and Educational Technology has been developed whose responsibility it is to oversee the writing, publication and distribution of all textbooks and teaching materials used in the schools.

As vocational curriculum printed materials are needed the directorate will select an authorship team, usually composed of current vocational teachers, to develop and write the required material. Upon completion of the manuscript(s) a supervision team, composed of teachers and /or appropriate vocational experts, review the material for content. When the manuscript is in proper condition it is then sent for final approval to the Board of Education. After approval the materials are used in the classrooms for a period of one year, revisions are made when necessary and the finished materials reproduced and distributed for system wide use.

Books are provided free in the compulsory cycle. Books used in grade one to four are given to the students and used only one year. The fourth through tenth grades return the texts which are used for two years. In the secondary cycle (grades 11-12) the books are purchased by the students.

Prevocational education is a new thrust and the publications are being written as guide books for the teachers and workbooks for students. These have currently been written for the first grade and will be used next school year.

3. Instructional Materials

An Educational Technology Division has been established in the Directorate of Curriculum and Educational Technology which has the responsibility to produce audio-visual teaching materials appropriate for the curricular needs. The educational technology takes the form of TV programming, films, slides, transparencies, radio broadcasts, etc. The team has seen little evidence of these instructional materials used in vocational education.

While visiting various schools overhead projectors, opaque projectors, and other pieces of audio-visual equipment were observed, however, no actual use of any audio-visual was seen. It was stated by one of district supervisor that the teachers did not use

supplemental teaching material as it was felt that lecture was adequate. The Educational Technology Division of the Curriculum and Educational Technology Directorate has yet to develop any vocational teaching/learning material.

It appears the teachers have not been adequately trained in the use of instructional material and do not realize the value of supplementing the instructional process with these materials. Models, cutaways, simulators, and other teaching aids are not in evidence.

E. Linkage with Business and Industry

There are no formal linkages with business or industry in the MOE VE structure. Individual schools and programs in the schools do maintain relations with local firms but mainly as a source for field trips and visitations. There are two exceptions; in the nursing program, most of the practical training is done inside various hospitals and medical centers and in the hotel service program, they receive practical training in a ministry owned hotel and some private hotels.

The vocational programs allow for industrial placement to supplement the in-school training through short-term industrial experience, however, there is no evidence of this being done on a regular basis. Students receive no pay for their work as in the apprenticeship system. The selection of training sites is the responsibility of the local school. No coordinated effort is made to track the use of this option in the VT programs.

It is intended that 11th and 12th grade students have on-site training for a period of three to four weeks during their summer vacation. However, school officials indicated that it was the responsibility of the student to arrange for this experience.

During curriculum development, the authorship team and the supervisory team may have persons from outside the school system, however, it was indicated that business or industrial people are seldom involved. There are currently no formal advisory committees utilized in the development or in the evaluation of the programs of vocational education.

F. Teacher Training and Staff Development

1. Preparation

All holders of a baccalaureate degree are automatically considered qualified to teach at the elementary as well as secondary levels. Some community colleges conduct teacher training programs, but MOE will only permit the community college graduate to teach as workshop instructors in the vocational programs. Neither the baccalaureate degree nor the community college program take into account the need for the teacher in VE to be

qualified in trade proficiency.

There are no skill training or skill verification requirements to teach vocational education. The MOE has currently stopped appointing teachers with only a secondary school certificate, according to the Director of VE.

2. In-Service Training

A Teacher Training Center has been established within the Directorate of Supervision and Training in the MOE. This center is currently providing in-service programs related to implementing the educational reform plan. Over the next four years all teachers, administrators and staff employees will be involved in this training. The training programs are being conducted as in-service programs for administrators, teachers and educational staff. The purpose of these programs are: training for the reform plan, upgrade training, and training for using the new textbooks.

This training is currently being conducted in 21 day segments consisting of a common core of material for all participants (3 days), modules on teaching competencies (12 days) and presentations on the new textbooks (6 days). Currently, neither VE teachers nor prevocational teachers are involved as no new text or teaching material for vocational education has been completed.

3. Retention

No figures were available concerning the retention of faculty. However, discussion with several individuals indicate that since the Gulf War and with high unemployment in Jordan the retention of faculty is not a significant problem. Even though the salaries for teachers are lower than private employment, the fact that government provides pensions was mentioned by some faculty interviewed as an important factor.

G. Facilities and Equipment

1. Status of Facilities

Due to the unusual snow and ice conditions experienced while the assessment team was in Jordan (reported to be the worst winter weather in 40 years) the observation schedule was limited to facilities in the greater Amman area. The facilities which were observed were in need of upgrading, however, the space seemed adequate for the programs taught. A welding workshop was observed which had no ventilation system. Broken windows, unkept halls and floors, and peeling paint are examples of maintenance needs observed in each location. Table III-4 shows MOE standard space requirements for the

various types of vocational programs and these seem appropriate.

2. Status of Equipment

The equipment maintenance and replacement are two major problems facing the VE division. A survey conducted in 1990-1991 by the VE division revealed that the value of unusable equipment was JD 381,000, estimated repair cost for this equipment was JD 32,000. The total budget for repair in the 1992 year is JD 7,000. It is obvious that there is no way that adequate equipment can be sustained under the present budget system.

The schools which were observed all had well managed classrooms and laboratories, but badly stocked supply rooms, obsolete equipment, poorly maintained and broken equipment.

An inventory control program was evident and consisted of a record of the equipment name, specifications, brand, serial number, and cost and date of purchase. Records are kept in the central VT office, in the school and in the workshop. The inventory control system has not been observed in enough detail and locations to make any judgement as to its accuracy or effectiveness. It does not, however, seem to improve equipment maintenance.

Table III-4

Education Type	Instructional Equip.	Size (sq.m)	Student Capacity	Facilities
I. Business Education	1. Typing room (two labs) 2. Business lab 3. Computer lab	72 each 48 80	40 40 40	Each work shop is provided with a. Power supply 220 volt, 1 phase b. Lighting
II. Prevocational Education	1. Work shop	120-200	30	Each work shop is provided with a. Power supply 220 volt, 1 phase b. Water & gas supply c. Lighting
III. Women's Education	1. Beauty work shop 2. Sewing work shop	104 104	15-20 15-20	Each work shop is provided with a. Power supply 220 volt, 1 phase b. Water (hot+cold) for beauty lab c. Lighting
IV. Industrial Education	1. Work shop	250-300	25	Each work shop is provided with a. Water supply b. Compressed air supply c. Electrical supply 220,380 volt, 1,3 phases d. Lighting
V. Agricultural Education	1. Animal quarters 2. Poultry quarters 3. Food industry 4. Green houses 5. Apiary 6. Agri. Machinery 7. Farm Agricultural training in the field	350-400 350-400 300 250-500 80-100 350-400 30,000	15-25 15-25 15-25 15-25 15-25 15-25 15-25	Each work shop is supplied with a. Electricity b. Water supply c. Lighting d. Ventilation
VI. Nursing Education	1. Nursing lab	100-110	15-25	Work shop is provided with a. Electricity b. Water supply (hot+cold) c. Gas system d. Lighting e. Ventilation

H. Employment of Graduates

1. Placement

There is no placement effort conducted for MOE program graduates. Male students have three options after they complete their secondary education; they can continue their education by attending higher education, enter military service, or obtain a job. Usually graduates will enter the military service prior to obtaining a career job. Military service is mandatory and usually an employer will not hire a male candidate until this obligation has been completed. Military service can be postponed by attendance at a community college or university.

2. Data Collection

Data collection for vocational graduates is done by:

a. Directorate for Planning, Research and Development
b. National Center for Educational Research and Development
c. Follow-Up Division of the Directorate of Vocational Education

The Follow-Up Division of the Directorate conducts its program in two stages, collection of information while the VE student is in school and after graduation follow-up interviews using questionnaires. A sample of about 25% of graduates is studied with a return of 60-70%. The Division produces an annual report which is used for improving curriculum and obtaining employment information. Graduates have been followed-up for as long as five years. There was little indication that the results of the studies have had a significant impact in the VE program.

I. Recommendations

1. Management

Management lacks the complete data needed to make enlightened decisions. A means of strengthening overall VE management is to develop a comprehensive management information system (MIS) which would provide the Division with current information on all aspects of the program. This approach would provide management with the data to make informed decisions which it does not have at this point.

The NCERD has recently established and operationalized an Education Management Information System (EMIS) on a working basis with the MOE. The database includes all information collected by the Statistics Department of the MOE annually. This, however, does not include specific/detailed information about VE. The VE Division should identify

its data needs and discuss them with NCERD and the Statistics Department so that arrangements could be made to incorporate the needed information in the existing database.

2 Curriculum

The current instructional materials development system utilizes authorship teams to write instructional material. No evidence was seen that indicated that this system resulted in writing instructional materials in a competency based mode. Training the authorship teams in the writing of competency based text materials would alleviate this problem. The result could be instructional material based upon the actual needs in business and industry and written in a form that would assure employers and employees that the graduates of VE programs are competent in the skills necessary for the world of work.

The current system of writing text material is lacking in reference material for the authors to utilize in their efforts. Reproduction of material and aids for the authors are not available. Therefore, a curriculum lab should be established in the Directorate of Curriculum and Educational Technology. This laboratory should contain a current library, wordprocessing equipment, cameras and image making capacity, secretarial assistance and technical assistance for the authorship teams.

Estimated Cost for Curriculum Laboratory

Equipment		$ 60,000
Technical assistance for start up and training local staff;		
1person x 1year x $150,000=		$150,000
Renovate facility		$ 20,000
	Total	$230,000

Currently all instructional material is being developed by the Directorate of Curriculum and Educational Technology in the Educational Technology Division. The level of effort shown by this division is very high, however, it is apparent that the resources are not capable of producing the needed vocational education teaching materials in a timely fashion. The only facility which was observed was a well equipped television studio. It did appear that space was available in the adjacent rooms for expansion and improvement of the department. It is recommended that technical assistance be utilized to set up and equip a well developed materials laboratory and to assist the local staff in utilizing the laboratory and producing the necessary teaching materials.

Estimated Cost for Instructional Materials Center

Renovate facility	$ 20,000
Equipment	$ 75,000
Technical assistance	
1 person x 1year x 150,000=	$150,000
Supplies	$ 20,000
Total	$265,000

3 Linkages

The use of advisory committees has proven to be a successful method of developing linkages between vocational schools and business and industry. There are no advisory groups working with the system. It is an accepted fact that the VE advisory committees utilized to help design, evaluate, revise curriculum materials and provide advice concerning business and industry needs can significantly strengthen the program and assist in placement of students upon the completion of their training. The team recommends that advisory committees be formed at all levels of VE, from the ministry to the local program level with representatives from business, industry, skilled workers and educators.

4 Staff Development

In light of the fact that teachers employed to teach in the VE program have limited practical experience and some pedagogical training, priority should be given to establishing a quality teacher training program or using other systems. The VTC has an Instructor and Supervisory Training Institute (ISTI) in place with an appropriate curriculum and extensive experience in preparing vocational teachers. Its programs and facilities should be expanded to accommodate MOE's VE teachers. A first step would be an individual needs assessment to determine what courses each teacher needs so that ISTI could set up a program and start courses on a flexible schedule in the evenings and on the Thursday/Friday weekends.

Although ISTI could arrange programs for VE instructors teaching industrial subjects, they would need additional facilities for business, agriculture, nursing, and home economics. Pending new facilities, the shop/lab content for these areas could be taught in selected secondary schools that are well equipped and pedagogy content provided at ISTI. The cost for funding this effort is difficult to estimate but a logical approach would be for MOE to pay a nominal fee per teacher per course. Since both MOE and VTC receive GOJ funding it would be simpler for the national Board of Education to determine that all vocational and technical teacher training would be provided by ISTI and supply the required funding

Estimated cost to Develop MOE Teacher Training at ISTI:
Decision would be made with VTC regarding placement of the demonstration shops and labs in conjunction with possible integration of ISTI with Amman Testing Training Center

Build and equip five vocational laboratories (Agriculture, Business, Nursing, Home Economics, and Prevocational) -	$3,800,000
Technical Assistance to develop additional training modules 4 persons x 6 mo.x $15,000=	$ 360,000
Material and supplies	$ 370,000
Total	$4,530,000

5. Facilities and Equipment

Discussion with the Director of VE as well as personal observation of several vocational schools verify the need for renovation and upgrading of the school facilities. The space in the workshops visited was of adequate size and contained adequate utilities but renovation was needed to update both facilities and equipment. The lack of appropriate safety equipment was also noted, i.e. the welding workshop without a fume extraction system and a wood workshop lacking a dust collection system. It is therefore recommended that a major renovation of existing facilities as recommended by MOE be conducted to bring the workshops up to safe industrial standards with equipment reflecting current business and industry standards.

Estimated Cost of Upgrading Facilities and Equipment

Renovation:

Industrial workshops - 17 schools x $25,000	$ 425,000
Business workshops - 20 schools x $12,000	$ 240,000
Agriculture workshops - 2 schools x $12,000	$ 24,000
Nursing laboratory - 1 school x $4,000	$4,000
Home Economics laboratories - 10 schools x $6,000	$ 60,000
Total	$ 753,000

New Equipment

Industrial workshops - 17 schools x $35,000	$ 595,000
Business workshops - 20 schools x $20,000	$ 400,000
Agriculture workshops - 2 schools x $20,000	$ 40,000
Nursing laboratory - 1 school x $3,000	$ 3,000
Home Econ. laboratories - 10 schools x $3,000	$ 30,000
Total	$1,068,000

There was obvious equipment repair need in each school visited. The Director of VE also reports that JD 381,000 worth of equipment is not operating in the industrial workshops. This is a major problem and requires a major outlay of money. A maintenance and repair center is currently being discussed by some members of the VE Directorate. This center could coordinate a major repair effort. It is not envisioned that this center would do actual repair, rather it would set specifications, contract for, and check on the repair of the equipment in the schools.

Estimated Cost for Equipment Repair (Start-up)

Industrial equipment repair	$128,000
Business equipment repair	$ 40,000
Agriculture equipment repair	$ 8,000
Nursing equipment repair	$ 1,000
Home Economics	$ 50,000
Total	$227,000

6. Guidance and Placement

The selection of VE training programs for the students is done by the Ministry with the students being assigned to programs as a result of accumulated achievement scores in basic education. This appears to the team to create a negative concept of VE and discourage students with high qualifications from selecting this area. Therefore, program selection procedures should be revised to allow for student choice as the prime factor in student program selection. De-emphasizing achievement scores in the selection process and replacing them with vocational interest inventories and counseling would ensure a better match between students and programs and improve status of VE.

J. Demand Driven Development

1. Market Projections

The market projections based on the data presented in Section II are shown in Table III-5 that follows:

Table III-5
Projected Estimated Manpower Needs

Industry*	1992-93	1993-94	1994-95	1995-96
Welding	225	315	340	325
Auto Mechanic	330	460	500	475
Electricity	550	780	830	800
Woodworking	550	780	830	800
Machine maint.	1460	2000	650	625
Metal casting	430	600	650	625
Building,:				
Plastering:----	600	850	910	875
Tiling:				
Graphics	200	290	310	300
Radio/TV:				
Electronics:----	35	50		
Total	4380	6125	6640	6350
All agriculture	1258	1384	1522	1674
All commercial	3320	5073	1522	1674
All nursing	440	480	520	500
All hoteling	570	800	860	825
Total Needs	9986	13862	11064	11023

* Includes mining, construction, electric & water, and transportation and communications.

The data base for the demand projections was obtained from a study of occupations in establishments with 5 or more employees, as surveyed in 1989. The proportions of the selected occupations were applied to the demand projections for the economic sectors developed by the team under certain conditions. Total demand for all economic sectors was the base for deriving estimates of clerical commercial workers. Estimates of agricultural workers (20%) in that sector(DOS,1990). Estimates of all other workers were based on the total demand less the proportion of professional and technical workers (25%).

2. Projected Enrollments

Data reported from the Directorate of VE indicated the following expected enrollments in VE for the next four school years as shown in Table III-6. (Note: Table developed from totals provided by MOE which were analyzed by using existing percentages in each area.)

Table III-6
Projected Expected Enrollments

Vocational Area		1992-93	1993-94	1994-95	1995-96
Industrial	M	4480	4802	5309	5689
	F	0			
	T	4480	4802	5309	5689
Agriculture	M	594	637	704	755
	F	0			
	T	594	637	704	755
Commercial	M	3528	3783	4182	4481
	F	6817	7682	8705	9401
	T	10345	11465	12887	13882
Nursing	M	283	304	335	360
	F	692	779	883	953
	T	975	1083	1218	1313
Hoteling	M	237	254	281	301
	F	0			
	T	237	254	281	301
Totals		16631	18241	20339	21940

It should be kept in mind that it is not possible to make a reasonably accurate comparative analysis between expected demand and the output of vocational programs since manpower data is collected by sector rather than by trade areas offered by the VE programs. Skilled trades cut across many sectors, e.g., skilled welding workers will be found in agriculture as well as industry. Further, the spread between skilled, semi-skilled and unskilled is not represented in the data. Two other critical factors are the lack of data from small enterprises (less than 5 workers) where many vocationally trained graduates are likely to find employment and the lack of data for replacement needs, i.e., those retiring and deaths. Perhaps that number will be somewhat balanced by program and attrition currently running about 8.5%.

attrition currently running about 8.5%.

Finally, consideration must also be given to the high (17%) unemployment rate and the substantial output of VTC. In the main, indicators seem to point toward a surplus of vocational graduates in relation to job opportunities through 1995 with some exceptions notably nursing.

IV. VOCATIONAL TRAINING CORPORATION

A. Purpose

The Vocational Training Corporation (VTC) is a semi-autonomous organization established in 1976 under the Ministry of Labor and is responsible for providing terminal vocational education for boys and girls at the secondary level in two year programs. An additional third year apprenticeship provides craftsmen level training. Essentially, VTC provides in-plant training primarily in industry but also in a few commercial and other specialties as compared to MOE vocational programs which emphasize the business aspect.

In addition to its major secondary vocational training functions VTC additionally provides for:

- preparation of craftsman through one-year training programs for experienced skilled workers;
- preparation of limited-skills workers through medium and short-term training programs of 3-9 months duration;
- skill upgrading for employed workers; and
- industrial extension services to assist small and medium industries in increasing productivity and improving management.

VTC operates two institutes, the Instructor and Supervisor Training Institute (ISTE) for instructor and supervisor training and the Occupational Safety and Health Institute (OSHI) for training in the field of occupational safety. (See Section IV-F2 for details of ISTI). The main function of OSHI is to promote the application of occupational safety and health standards in Jordanian industry. It carries out this function through providing training services to education and industry, conducting studies in the field, providing advice to official bodies relating to standards and consultation to industry.

VTC has taken a leading role in the development of vocational education in Jordan through its close and continuous interface with business and industry. It has provided assistance to the ministry of Social Development, the Urban Development Department, Social Security Corporation and is involved in a variety of international activities. Currently VTC is undertaking the establishment of a national center for standards testing and certification. It also provides technical advice to the Employment and Development Fund aimed at encouraging small business development among qualified unemployed.

Currently VTC operates 16 training centers, 2 institutes and 8 urban development centers. Over 3,240 enterprises have cooperated with VTC in conducting apprenticeship programs. VTC also maintains close cooperation with 8 training centers owned by large enterprises.

B. Administration and Organization

1. Structure and Management

As shown in the organization chart that follows, Table IV-1, VTC operates under a board of directors with the Minister of Labor serving as Chairman of the Board. The Board consists of representatives from employers, unions and the government and is responsible for setting policy. The day to day operations are the responsibility of the Director General who is also Deputy Chairman of the Board. There are three directorates reporting to the Director General and they are technical, training and financial and administrative affairs. The directors of the training centers and the institutes report directly to the Director General but also have functional relationships with the directorates. There is a total of 736 on the VTC staff distributed as follows:

Technical staff	460
Administrative staff	131
Support staff	145

Each of the training centers is administered by a director with supporting staff. The instructional staff are under department training officers who report to the director as shown in the chart that follows. (See Table IV-2, Organization Chart)

During a discussion with the Director General he noted that a review of the organizational structure had been made and it was being revised to place more responsibility at the lower levels. The current organization chart shows the directors of the training centers and institutes (26) plus the three directorates reporting directly to him. The Director General, however, indicated that the center directors report to the three directorates rather than to him as the chart seems to indicate.

2. Locations

The training centers are distributed throughout the country based on demographics and employment opportunities. This limits the availability of programs to rural areas but VTC has added programs and plans expansions so that most of the rural population will be served.

The national Board of Education and the Board of Directors of VTC have adopted the principle of increasing the percentage of students who enter the vocational stream to reach 50% for males and 30% for females by the year 2000. Comments from VTC leaders indicate that this is unlikely to be achieved, nevertheless, plans are under way for the development during the next five years of 12 new training center (5 for males, 7 for females). These plans also include expanding some existing facilities and establishing the Amman Testing and Training Center. The five year plan is targeted toward:

- providing vocational training facilities in all major cities;
- expanding opportunities for females; and
- achieving an annual growth rate of 10%.

TABLE IV-1

Organizational Chart for VTC

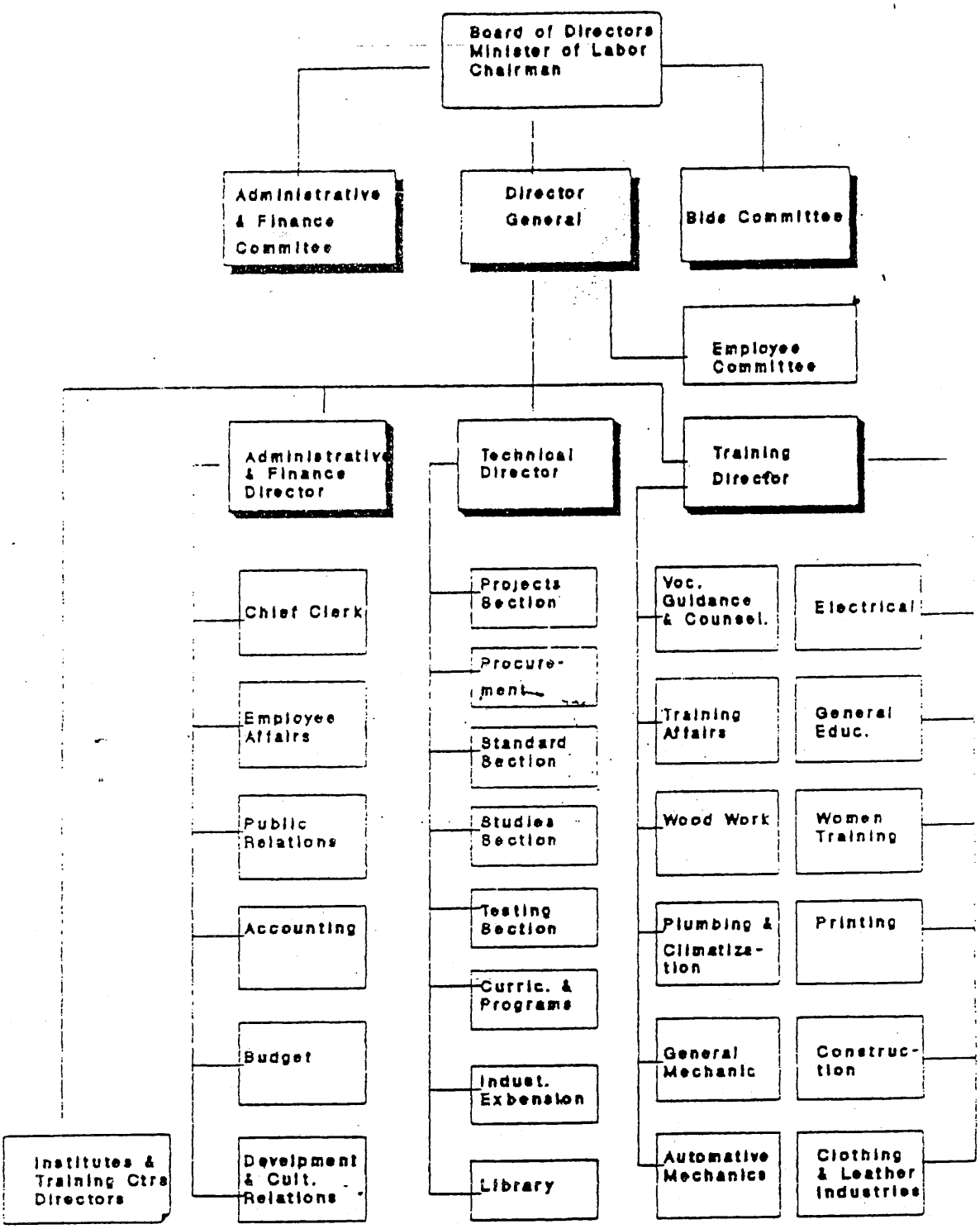
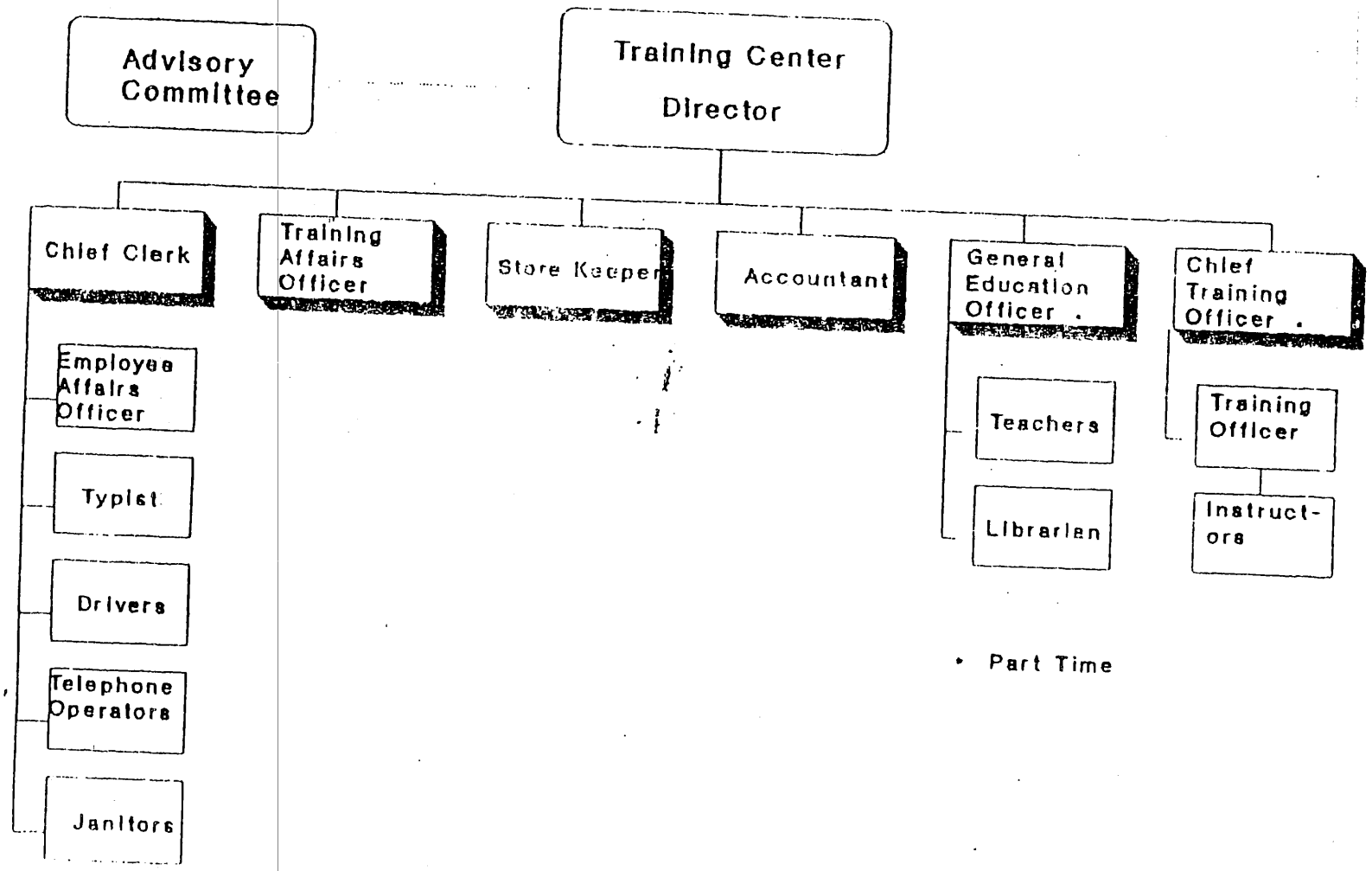


TABLE IV-11

Organizational Chart for VTC Centers



• Part Time

3. Professional Standards

VTC administrators vary significantly in academic qualifications. Of a total of 134 administrators 42 have BS degrees (31%), 58 are graduates of community colleges (43%), 27 are graduates of secondary schools (20%), and 7 have lesser qualifications (5%). The total number without a BS degree is 92 or 68%. (Data provided by VTC dated 12/31/91)

The Instructor and Supervisor Training Institute provides an 80 hour (2-3 wks) training program for vocational administrators. They also conduct an annual survey to determine administrative training needs.

4. Standards Testing and Training Center

A major new effort under World Bank funding is the Amman Standards Testing and Training Center to carry out the function of standards testing and certification for specific occupations in Jordan. Additionally the project will also fund the expansion of vocational training for certain occupations for which a need exists (no other training facilities offer these). These new areas include bakery, industrial sewing, leather work, radio/TV, electronic appliance repair, and tool and dye-making. The project will expand the capacity for supplying seven other trade subjects already existing elsewhere in Jordan, but needed in the Amman region.

C. Admission and Guidance

1. Admission Policies

As noted in Section III-C1, admission to vocational education is largely a function of the MOE testing program which restricts the non-academic achiever from taking the comprehensive secondary stream. Those with lower scores would be encouraged to enter the Applied Secondary Stream, i.e., either MOE or VTC vocational programs. As a result of both parent and peer pressures, the more capable students are reluctant to take vocational courses.

2. Guidance Functions

Each center has a full time counselor and instructors are required to take a guidance course as part of teacher training. The guidance counselor provides for both career and general counseling. The counselors visit 10th grade classes in the schools in their region to explain the career opportunities available in vocational education through the VTC curriculum. A variety of media is used to alert students and parents to career

opportunities. Entering students are given brief orientations over the first month in each trade shop/lab before they make their final selection. It is interesting to note that all of the four students interviewed in two schools indicated satisfaction with their choice of trade and none would change if given the opportunity.

3. Enrollment

Since its inception in 1976 through 1990 VTC has trained 23,435 students in its apprenticeship program and another 25,327 in short courses for new entrants and upgrading. Add to this another 4,025 students taking intermediary programs for a grand total of 52,787 persons trained in 15 years. A remarkable achievement for a young training organization! (Summary is shown on the chart that follows (Table IV-3). Current (1990-91) enrollment and capacity is shown in Table IV-4. About half the enrolled trainees are in the apprenticeship program with the remainder in other short courses. The 1989 enrollment in apprenticeship courses is presented in Appendix IV-C.

TABLE IV-3

ENROLLMENT IN VTC CENTERS 1976-1990

Year	Apprenticeship courses	Intermediary courses	Short-term new entrants and upgrading	Total
1976	20	---	---	20
1977	156	---	155	311
1978	438	---	204	642
1979	450	---	284	734
1980	679	---	677	1356
1981	832	---	1004	1836
1982	1529	---	882	2411
1983	1980	---	1524	3504
1984	2876	---	1808	4584
1985	2648	144	1792	4584
1986	2877	422	2827	6126
1987	2540	665	3557	6762
1988	2602	767	3693	7065
1989	1990	553	3976	6519
1990	1918	1474	2941	6533
Totals	**23435**	**4025**	**25327**	**52787**

TABLE IV-4
THE VOCATIONAL TRAINING CORPORATION
CAPACITY & ENROLLMENT OF VTC CENTERS

CENTER	LOCATION	CAPACITY	ENROLLMENT (1990/1991)
Hakama	Irbid	1400	1333
Ramtha	Ramtha	500	--
Yajouz	Amman-East	1650	1461
Al-Hashimaya+Driver Trn.	Zarqa	1600	1330
Ein El-Basha	Amman-West	1650	1617
Sahab/Hotel Trng.	Amman-South	1400	1250
Middle Ghore	Balka	500	237
Quesmeh	Amman	500	629
Masharea	Irbid	850	469
Aqaba	Ma'an	600	402
Ghore El-Safi	Karak	550	338
Tafilah	Tafilah	400	447
Marka/for girls	Amman	450	493
Urban Dev.(7 Centers)	Different Places	800	1679
Instructor Training	Amman	770	981
Occupation Safety & Health	Amman	450	433
	TOTAL	14070	13099

D. Curriculum

1. Vocational Training Centers

The VTC's regular two year training center program consist of three days at a training center and three days on the job. The in-school part of the program provides an equal amount of time for the general education core, related trade subjects and practical application in a workshop. Previously students served a third year as a full time apprentice but this has been terminated as part of the standard secondary program. Under the Reform MOE regulations students will receive a completion certificate at the end of the second year. Those who decide to take a third year as an apprentice will receive a certificate as craftsmen following verification of there competence.

There are currently eight major trade areas with a number of subspecialties totaling 54 courses offered as follows: (See Appendix IV-A for complete list)

- Electrical (power)
- Auto Mechanics
- Fabrication & Metal
- General Mechanical Maintenance
- Plumbing and Climatization
- Building and Construction
- Electronics
- Woodwork
- Others - 15 specialties

2. Institutes

VTC operates two institutes, the Instructor and Supervisory Training Institute (ISTI) and the Occupational Safety and Health Institute (OSHI). Both develop their own training programs based on the needs of the VTC staff and business and industry with assistance from experts in the various fields. The purposes of OSHI are described below and ISTI in Section IV F-2.

OSHI was founded by VTC in 1983 and tasked with assessing and analyzing occupational accidents and diseases and implementing strategies to assure their reduction. The Institute now has six major objectives:

(1) provide advice to the GOJ and official bodies with regard to legislation and standards for health and safety;
(2) provide training services to official organizations and industry;

(3) promote the teaching of health and safety throughout the educational system;
(4) provide consultant services to industry;
(5) undertake studies to determine standards of occupational health and safety; and
(6) encourage and coordinate research in occupational health and safety.

The current major on-going activity is the provision of training services with 20-25 training programs per year with 20-25 participants in each. They are the major training source for VTC staff and students in occupational health and safety. In addition, they carry out a dynamic program relating to the other objectives noted above. They have a professional staff of 14 technicians many of whom have studied in Australia, Canada, the UK and the U.S. The facilities at OSHI are the best with a relatively new building (1980) and state-of-the-art equipment. Their funding comes primarily from VTC and small amounts from publications and training programs for industry.

3. Curriculum Development

MOE is responsible for all curriculum development in the educational system. In vocational courses presented both by MOE and VTC, the training modules are identical. Since VTC has more and different vocational options than MOE, they draft their own curricula which then goes through the standard Ministry procedures for approval as described in Section III D2. VTC has one person on the central staff who coordinates the process. Preparation of trade curriculum is done by a committee of experts in the particular trade using the standard job analysis procedures and resulting in competency based modules.

E. Linkage with Business and Industry

1. Apprenticeship

Since its inception, VTC has maintained close linkages with business and industry through its apprenticeship system. Instructors and training officers spend about half of their time supervising trainees on the job and thus have a constant feed-back of the effectiveness of the training in meeting the skill needs for the specific trade. The VTC training officers have frequent dialogue with plant training managers regarding the placement and activities of each trainee. Each trainee maintains a daily record of his activities which provides a check of the rotation through the skill areas related to his trade. On a visit to the Jordan Pipe Company and the RUM Metal Fabrication Company which provide apprenticeship training opportunities for the Sahab Training Center, it was very evident that VTC ensures that apprentices follow the prescribed

programs. For example, the Pipe Company training officer noted that he wanted the machine shop apprentices to learn the total operation of the factory, but the VTC training officer insisted that the students stay in the machine area since that was their specific trade.

Apprentices work a full eight hours three days a week and earn JD10-15/ month the first year, ($15 to $22), and JD12-18/month the second year ($18-$27). During the full time employment of the third year the apprentices receive about JD45/month ($67). At Jordan Pipe they employ about 75% of the apprentices after they complete military service, according to the plant training officer.

When asked about the attitudes of apprentices in regard to safety he felt that safety regulations were difficult to enforce because students lacked a supportive attitude. He also noted a decline in student work ethics which he felt was due to relaxation of family discipline.

One of the unique aspects of the apprenticeship system is that VTC has no written formal agreements with any of the enterprises involved. All arrangements are made through informal oral agreements. These informal linkages have been established with about 3200 employers since VTC started the program - a striking accomplishment!

2. Advisory Committees

The VTC has established representative advisory councils or committees at the national level, at each of the training centers and at ISTI to ensure that programs reflect the needs of business and industry. As is true of the effectiveness of this linkage throughout the world, the key to its success is the leadership, i.e., the training center or institute director. The central office provides guidelines for representation on the local committees, but the extent of valuable participation is unknown. Some center directors reported that meetings are held two or three times per year. Another reported that the committee was dropped due to lack of attendance. The problem may be that members do not see the value in participating. The solution is in a clear definition of the committee's responsibilities and a means to implement their suggestions. If they view their role as simply approval of an annual plan there is little incentive for their involvement nor any valid reason for the committee to exist.

F. Teacher Training and Staff Development

1. Preparation

In the main vocational instructors are expected to be graduates of a vocational program, usually polytechs, and have at least two years of work experience in their

Training officers, who supervise several instructors in one area, may have additional preparation such as an engineering degree. After the teaching staff are employed, they are required to take a series of pedagogical courses at the ISTI including methods of teaching, vocational counseling, training with the modular system, problem solving and decision making and educational techniques. It is assumed that the latter is concerned with how people learn. The specific courses offered by ISTI are based on an annual survey of needs. The above courses appear to provide a basic level of teacher education for the teaching staffs of the schools.

The Educational Reform under MOE mandates a BS degree for all teachers. There is serious doubt as to the need for such a requirement for VE teachers since the primary qualifications are his/her capability to demonstrate a high level of skill in all the competencies required of a skilled craftsman in a particular field. Since evidence points to a lack of these skills in some of the teaching staff, technical training should be given priority.

It is interesting to note that of 79 training officers 72 have BS degree (91%) with most of those degrees in engineering. This is significantly better than the administrators, only 31% of whom have their degree. On the other hand, of 354 instructors only 20 have the degree or a little more than 5%. Another 132 have degrees from community colleges (37%), and 128 or 36% have a secondary education. Of the remaining instructors 74 or 20%, have lesser qualifications. Although the information on academic preparation is carefully recorded, reports on the technical competency of the teaching staff is less clearly defined, yet this is the prime requirement for all vocational teachers.

Instructors at the schools indicated it was difficult to keep up with technology changes and that there was limited opportunity for upgrading technical skills. There is very little reward for outstanding performance. One director noted that an instructor who was outstanding for two years could receive an extra JD2-3 ($3-4.47) per month for one year. From the foregoing it is clear that there is little, if any, real incentive for professional development or teaching excellence outside the joy of being an effective teacher.

2. Instructor and Supervisory Training Institute (ISTI)

The institute was initiated in 1982 for the purpose of providing a teacher training program for VTC instructors. In addition to training VTC teachers, ISTI provides training for industrial supervisors and trainers and has also provided instructor training for some MOE vocational teachers as well as instructors from other countries. They were instrumental in setting up a similar institute in South Yemen under World Bank funding.

The Institute currently has only four full-time training officers but calls on people from industry, universities and VTC for part-time faculty on an "as needed" basis.

An Advisory Board reviews the annual plan, assists with the resolution of problems, and brings suggestions for improving training programs and services. The Board includes representatives from the Institute of Public Administration, Chamber of Industry, MOE Director of Vocational Education, Electric Authority as well as from cement, pharmaceutical companies, refinery firms and other organizations.

The facilities of the Institute are appropriate with several classrooms, seminar and lecture rooms along with a shop used by teacher trainees for presenting demonstration lessons. In the main though, facilities from both inside and outside do not present a positive or attractive image. The demonstration shop lacks equipment. ISTI should represent the very best in shop organization, management and layout especially since all VTC teachers go through the program. Essentially the Institute should set the standards by which all the shops and laboratories in the system are judged.

ISTI lacks facilities for producing instructional materials which makes it very difficult to provide adequate materials for its own courses as well as an appropriate setting for students to learn how to design, develop and use a variety of instructional materials. Equipment and facilities are needed for producing video tape, transparencies, slides, models, mock-ups, charts, instruction sheets and other instructional aids.

3. Remuneration

Salaries for the teaching staff leave much to be desired. The entry monthly salary for instructors is JD140 and goes to JD160 after five years ($212-$242). Salaries for training officers start at JD140 and go to JD215 after five years ($212-$325). A summary follows as indicated in Table IV-5.

Table IV-5

VTC-SALARIES SUMMARY

	Entering		After 5 Year Experience	
	C.C. Diploma	B.S. Degree	C.C. Diploma	B.S. Degree
Instructor	140-150	180-200	150-160	195-215
Training Ofc.	140-150	180-200	150-160	195-215
Director	140-150	180-200	150-160	195-215

Note: Instructors, Training officers, and Directors receive the same salaries according to civil services system of appointment in Government offices, based on level of education.

(Source: Telephone call with VTC Personnel Department Feb. 17, 1992)

The average secondary school teacher (male) earns JD141 per month. VTC instructors receive 30% more than MOE vocational teachers to compensate for their eight hour day versus six hours for MOE teachers. Salaries of skilled people working in industry are sometimes higher. The Department of Statistics data for 1989 shows that the average monthly wage of tool makers was JD48, motor vehicle mechanics at JD151 and those in manufacturing at JD231 ($224, $229 and $350 respectively.)

4. Retention

Prior to the Gulf war an attrition rate of approximately 14% in the number of instructors was reported (see Appendix IV-B) which is rather high. The reason, according to various instructors and directors, was the attractive salaries paid for highly skilled workers in industry. After the war the influx of returnees, estimated at 300,000, caused serious unemployment problems with the current rate at 17%. As a result the attrition rate is now insignificant since instructors have few opportunities to transfer to higher paying jobs in the private sector. At least for the immediate future, VTC should be able to obtain a higher level of experience in instructors hired for new positions.

G. Facilities and Equipment

1. Status of Facilities

Visits to five training centers disclosed wide variations in the in the size, condition and location of centers. The criteria for locating and starting a center were not available,

but discussions with VTC administrators indicate that student population and job market were the prime criteria. One can accept the fact that political pressures play some part although specific pressures were not identified.

A number of additional centers have been approved for funding under the World Bank Education Sector Loan. This would allow for the extension of two centers and initiating eleven new programs within the Amman Standards and Testing Center now being planned. An additional expansion of two other centers is in the appraisal stage.

In general most facilities had adequate space for the shops, classrooms and administration. There were appropriate store rooms, and instructors offices. Some schools had recreation space for the students but this seemed inadequate at best and completely lacking in some centers. More attention should be addressed to the extra curricular opportunities for students along with a cheerful place for students to gather during breaks.

Few of the shops were bright and cheerful or really clean and thus would not provide students with an attractive place to study and learn. Lighting was often inadequate although one carpentry shop had a large number of skylights which made a significant difference. The painted safety lanes, particularly around machine areas, were badly deteriorated and were often indistinguishable. The sense of gloom was further exacerbated by the color and condition of the paint throughout the shops, corridors and support areas. Although one could make a case for how this reflects the dirt and gloom of many industrial plants, there is no excuse for an educational institution to have an environment that is not conducive to learning.

The storerooms often appeared in disarray, poorly organized with limited parts and supplies. There were no posted inventories so that instructors and students could check the supply status at a glance. Instructors' offices were also not well maintained in a neat and orderly fashion. Since the team school visits were made at a time of extremely cold weather conditions, it had an opportunity to experience the condition of the heating systems. Several were not operating and even where they were there was not sufficient heat for a reasonable level of comfort for

students and staff. Although cold winters may be relatively rare in Jordan, heating systems should be equal to any weather requirements.

2. Status of Equipment

Overall, most equipment appeared operational and both students and instructors verified this during interviews. However, it was noted that some equipment needed repairs and parts. An electric shop had a shelf full of multimeters with no means of

repair available. Instructors are required to repair the equipment in their shops to the extent possible as part of their job.

Safety equipment was lacking. Although most machines were adequately guarded there was little evidence of students wearing goggles. This should be a mandatory requirement in all shops as well as for anyone entering the shop. It was observed that there were no push shoe/sticks for jointers and these are critical for safety. Further, there were very few safety posters or a posted record of accident or "safe days."

As noted previously, painted safety lanes were in deplorable condition. Attention should be given to providing not only adequate general lighting but task specific such as needed at grinders and other machine tools. These are important aspects of a safe environment.

Most equipment is 8 to 12 years old and careful consideration should be given to its conditions and relevance to current industrial use. Several center directors and instructors pointed to the need for new or additional equipment. They asked for a wide variety of items ranging from sewing machines, video equipment and water coolers to buses for transporting students. All wanted equipment representing advanced technologies such as word processing and numerical controlled machines. Vocational programs must constantly budget for new equipment or new technology changes will pass them by. The result will be students ill-equipped to enter the work place.

The situation regarding supplies varied significantly from very adequate to insufficient. Shops which did a great amount of work for customers who supplied the raw materials had plenty of supplies, e.g., welding shop production of portable tables. Other service type shops such as electrical or plumbing had limited supplies.

H. Employment of Graduates

1. Placement

Currently, there is not formal system for placing graduates at present. Since two year's of military service is required for all males following completion of the three year VTC program, placement becomes rather complex. Discussions with training center directors and the central office indicate that most graduates tend to seek jobs at the firm where they served their apprenticeship after completing military service.

The Director General noted that it is his desire to institute a follow-up office along the lines of the one at MOE. However, funding for the follow-up office remains a problem. Some center directors have carried out their own follow-up surveys and the results are quite impressive. A follow-up just completed at the Sahab Training Center showed

that of the graduates completing their military service last year, 84% have jobs in the field for which they were trained while only 5% changed fields. At the Marka Center (all females) follow-up studies are conducted every two years. The most recent study shows 45% working in their field and 40% who got married. One director reported that he sent a list of graduates to the MOL employment registration section. It is clear that a comprehensive system wide placement and follow-up program is needed to enhance job opportunities for graduates and assess the effectiveness of the training program.

2. Survey of Employees

The survey of Employers noted in Section II included a survey of employees. It is interesting to note that about 10% of the employees in the sample had received training from VTC. Some 31% indicated that training was very useful while about 1% said it was not useful. Perhaps most important, 77% of the employees felt their training helped them get a job.

I. Recommendations

1. Management

The organization chart (Table IV-1) should show the institutes and training centers under the Training Director since this is the way the system currently operates. A dotted line representing informal contact should then connect the institutes and centers with the Director General. In support of the Director General's desire to increase authority at lower levels, center and institute directors should be given more authority, flexibility and responsibility for their facilities and programs. Evaluation of their performance should be made annually based on the quality of the learning environment, meeting the needs of local employers and students and managing their facilities. Some areas to consider in providing directors with more control and responsibility for authority are:

- Identifying and implementing new (or revised) training programs based on local needs;
- preparing annual budgets based on standard procedures and receiving the funds to operate once the budget is approved; flexibility should be allowed to encourage initiative in expanding programs, improving training quality and enhancing staff development and training programs;
- upgrading facilities should be a priority and funds budgeted for this purpose;
- providing additional training for initiating and involving advisory councils, developing cost recovery and production activities, and establishing and operating vocational industrial clubs for students; and

controlling funds within established guidelines.

The policy of requiring funds earned by the centers to be turned over to the central office is a disincentive for director and staff to participate in production or service activities to earn funds. It is strongly recommended that this policy be amended and a new approach be instituted which would allow for a better distribution of earnings. As an example, when production or services are carried out during school hours the funds could be shared between the shop and the school 50% each. For any production activities carried out after school hours the funds should be shared by the instructor, students and school. It is important in establishing a new policy that the rules ensure that the production or service activity is first and foremost a valid educational experience for students, and that careful records and controls be established to account for all funds. This approach should be a significant encouragement for directors and there staffs to be creative in cost recovery efforts. One other caution, the schools should avoid taking on work that competes directly with local tradesmen.

2. Curriculum

The curriculum as presently developed, appears to do a reasonable job in preparing skilled workers. Standard task/job analysis procedures are followed in curriculum development. Instructors and administrators claim that the curriculum is relevant to business and industry needs since they have constant contact with industry. (The Employees Survey [Section II] noted the need to maintain closer contact with industry.) However, there is little evidence of a curriculum review structure and this should be an ongoing part of the training officers job in cooperation with the instructors. Curriculum review should be conducted each year by those responsible for the coordination and teaching of each trade area. Since training modules are costly to produce, consideration should be given to adding sheets as appropriate to revise or supplement the modules.

Some shops have frequent production jobs, others are service oriented. It is important in both cases that students learn how the capitalistic system works especially as to the key role of a worker producing quality goods and services in a reasonable time. One way to provide the experience is to establish a mini-enterprise company as a project with the students doing a market study, designing a product or a service, engaging in small quantity productions, establishing prices and selling the item or service. This will enhance students' knowledge of the system and the importance of quality work. This activity should be built into each curriculum so that all students have this experience during their two years at the training centers.

The instructor's guides for the modules should be reviewed and a variety of instructional aids identified and developed to provide for different student learning

styles. Transparencies, information sheets, charts, models, mock-ups and other devices should be developed for every module and provided to all the instructors.

3. Linkages

VTC has established excellent linkages with business and industry through its apprenticeship system, however, the training center's advisory committees need strengthening. It is recommended that the central office establish a special committee to develop a policy manual which would specify the objectives, membership, structure, orientation and training, specific activities, records to be kept, frequency of meetings, public relations and other related items. The policy manual committee should include representation of the centers, institutes, business and industry and the central office. The central office should gather publications describing advisory committee activities from several countries for review and discussion by the policy manual committee. After the manual has been developed the committee should design a training program for VTC administrators and then the instructional staff in how to use the manual. The Director General should then designate one person on his staff to be responsible for following up to ensure the implementation of the program. Annual reports should be required of each center or institute with the contents specified in the manual. The effective participation of advisory committees will not only ensure relevant curriculum content, but provide a strong base for improving the publics' perception of vocational training.

It has been noted that VTC maintains a variety of contacts and linkages and this is highly desirable. There are several additional linkages that would be helpful. The first of these is to establish contact with the European Center for the Development of Vocational Training known as CEDEFOP. This organization was established by the European Economic Community (EC) countries to provide for an exchange of information and documentation about vocational training programs in the member countries, including publication in the several languages, comparability of vocational training capabilities of member countries, study visits between countries and research and development activities. Although CEDEFOP membership is open only to EC countries, the headquarters in Berlin is willing to arrange country study visits of vocational programs for non-members.

Perhaps of greatest value to VTC as well as the MOE vocational program is the large number of quality publications describing in great detail the vocational training program of each member country. These publications cover not only the secondary vocational school programs, but special programs for the unemployed, early school leavers, apprenticeship, training-in-industry and a host of other related subjects. The publications can be readily purchased from the central office in Berlin.

The second linkage that would be of value is for the leadership to participate in international organizations such as the International Vocation Education and Training Association (IVETA), a division of the American Vocational Association. There are over 40 countries from Europe, North America, South America, Africa, and the Pacific region represented in the organization. Meetings are held annually in December where professional papers are presented dealing with all aspects of vocational education Also periodic international meetings are held in other countries where appropriate sponsorship is available. There are also Arab regional associations relating to business, industry and training that VTC leaders should participate in so that they can keep abreast of employment opportunities and economic directions in the region.

4. Staff Development

A review of the ISTI vocational administration program for school directors shows a rather comprehensive 80 hour program. The program could be strengthened by including sections on educational psychology, adopting programs to students with learning or physical disabilities, supervision and human relations, public relations, operating an effective advisory committee, business management, facility maintenance and student industrial or business clubs.

The curriculum for instructor training needs strengthening in the area of shop organization and management as evidenced by rather poorly maintained shops. The impression a student or parent receives on entering a center is often not very positive. The program should cover such items as safety, maintaining a neat and orderly shop, display of educational materials and operating a pupil personnel system to ensure effective clean-up and maintenance with student participation. Staff should also receive instruction in starting and maintaining a dynamic Vocational Industrial Club. Additionally there is a need to provide instructors with training and an opportunity to make samples of every kind of instructional aid. Perhaps more important, to educate them how to select the best aid for different learner's abilities and to use the aids effectively. Very few instructional aids were seen during the shop visits.

5. Facilities and Equipment

As noted above, students, parents, and visitors entering a training center may be disappointed with the environment. There is every reason to expect centers to be bright, cheerful and attractive. Granted some industries are not that way, but more attention needs to be given to the workshop environment. A great improvement could be made by painting the halls, classrooms and support rooms with bright colors. Shops should also have walls and ceilings painted in bright colors with the lower part of the walls somewhat darker so as not to show dirt. Safety lanes should be clearly delineated, machines painted and safety color coding uniform in all shops.

Instructors' offices, store rooms and service areas should all be neat, orderly and painted. Instructors should have bulletin boards with information about current technical developments. Walls too are educational devices and instructors need to put up charts, related industrial pictures and other items -- all of which should be changed periodically. It would be worthwhile for all the staff to wear appropriate standard shop coats with a VTC insignia on the back and their name on the front. All of these steps would improve student and instructor morale and considerably improve the status of vocational education in Jordan which most agree is a major problem.

Each instructor is responsible for ensuring that all standard safety devices are in good operating condition and that each student can demonstrate safe procedures before he/she is allowed to operate the equipment on their own. Center directors should conduct safety checks frequently to ensure a safe environment for students.

Given the need to upgrade old equipment and purchase some new equipment, a careful analysis should be made of all equipment in all the centers, reviewed with advisory committees and then a priority purchase list developed. A fund should be established for this purpose to meet current needs with additional funds allocated on a continuing basis. Funds should also be allocated for a library in every shop and an industrial sink so students can adequately clean up at the end of the shop period.

6. Guidance and Placement

A formal placement system should be established in each school with a staff member assigned the responsibility. The position should be within the guidance office. The placement system should orient students on the importance of keeping contact after graduation and completion of military service. Every student should be followed-up after military service to provide placement assistance as needed and feed back in relation to training programs' effectiveness.

Considerations should be given to the establishment of student skill profile. This system requires the instructor to check off each competence the student has learned and also indicate the skill level. An employer has a similar check off profile which he supplies to the placement officer who matches student profiles with the job profiles. One VCT administrator indicated that they have a similar system but this was not observed by the team.

Demand Driven Development

1. Market Projections

Growth, based on data presented in Section II, in sectors most related to VTC's training programs are indicated in Table IV-6 below:

Table IV-6

Sector	Growth Rate/Yr.	Total New Employment 1991-1995 (000)
Agriculture	10%	35.8
Industry	9% for first year	12.2
Water & Electricity	3% and 15% thereafter	1.3
Transport/Communication	3%	9.2
Business Services	3%	3.9
Construction	1%	9.4
		Total 71.8

As noted in Section II, these figures are indicators of growth and cannot be applied directly as requirements for skilled workers given the fact that the typical trade cuts across several sectors and small employers were not included in the data.

2. Projected Enrollment

Enrollment in the apprenticeship program is expected to grow from about 6730 to 9860 from 1992 to 1996 or 46%.
Total enrollment in all VTC programs are projected as follows:

1992 -	16150	1995 -	21550
1993 -	17790	1996 -	23730
1994 -	19580	Total	98800

(See Appendix IV-D for complete summary)

These projections are based on an approximate 10% increase per year aimed at meeting the ultimate goal of having 50% of students in grades 11 and 12 in the applied stream.

Although comparison of VTC output with the broad demand figures noted in J-1 is hazardous, the totals of about seventy-two thousand needed skilled workers against VTC's enrollment of about 99 thousand gives us some gross indication of the supply

and demand situation. However, it must be kept in mind that the demand and supply for specific trades is impossible to compute. First, the data base is subject to numerous constraints due especially to the lack of demand figures for small (less that 5 employees) enterprises where many skilled trades graduates will find work. Secondly, the data is collected by sectors and the same skilled trades are found in many sectors. A third unknown factor that directly impinges on demand is the replacement of workers due to retirement, disability or death.

By 1996, about 41% of those enrolled in VTC programs will be apprentices or about 40,500 (5yr. total) of whom a third would graduate each year from the three year program or 13,502. The rest of the trainees estimated at about 58,000 (5yr. total) would be completing short courses. Adding the totals from apprenticeship 13,502 plus 58,000 short course completers results in roughly 71,800 total number of trained workers available over the five year period against demand estimates of seventy-two thousand. If one adds in the MOE vocational program output, the indicators point to an over supply.

In light of the lack of a definitive base for comparing industrial demand with VTC apprentice output, one must assume that it is not possible to make a reasonable comparison in most cases. The remedy may be two fold, (1) The Department of Statistics should expand their surveys to all establishments and provide occupational detail by industry. (2) Each VTC training center should continue to conduct an annual survey of training needs by industry and trade of all the enterprises in the region they serve.

3. Facility Requirements

Budgets developed for the next five years as shown in Section VI-D indicate a continuing effort to upgrade facilities across all centers. The major portion of construction funds is allocated to the Amman Testing Center and the 12 new trade programs to be offered by the Center. Insufficient time was available to the team to analyze the distributions of funds in relation to the needs of each center and or new centers, but it is apparent from the budget presented that VTC administration does have a well developed plan for upgrading and expansion over the next five years.

Maintenance figures seem quite modest, e.g., for 1991 only 1% of the total budget was set aside for maintenances, (See Section VI). Consideration should be given to increasing the ratio so that all facilities are brought up to professional standards as described in Section IV-I Recommendations.

4. Equipment Needs

Funds budgeted for equipment are extremely modest and amount to an average of about JD5625 for each of the present 16 centers, even if the total were allocated to these centers alone. Since other programs will also draw from the fund it is unlikely that the amount budgeted would provide for all the equipment needed to bring the centers up to industry standards.

As noted in Section IV-I Recommendations, ISTI needs a major injection of funds even if it remains in the current building. The budget provides JD180,000 in 1994 which should be sufficient for a major upgrade. It would be more appropriate to start the upgrade in 1993 since the needs are significant. Even if ISTI is eventually moved to another facility or consolidated with MOE, the instructional materials production center and the demonstration shop would need the new equipment.

5. Staff Development

An on going in-service training plan has been developed for VTC staff and funding provided in the budget. In addition, they have requested 293 months of overseas training as shown in Table IV-7. Cost estimate for overseas training indicated in Table IV-8.

Table IV-7

Cost Estimate for Overseas Training

Length of Time	No. of MM	Cost US Dollar/MM	Total
Short term	197	$3500	$689,500
Long term	96	$1850	$177,600
Total	293		$867,100

Table IV-8

VTC NEEDS FOR STAFF DEVELOPMENT
INTERNATIONAL
(Requested)

CATEGORY	DURATION MM	SUGGESTED COUNTRY
A. AUTOMOTIVE INSTRUCTORS		
1. Auto Electrician	16 (4x4)	Germany
2. Petrol & Diesel Mechanic	4 (1x4)	Germany/Italy
3. Automatic Transmissions	8 (2x4)	USA
4. Truck Drivers	8 (2x4)	UK
B. ELECTRICAL INSTRUCTORS		
1. Electrical Controls	4 (1x4)	UK/Germany/USA
2. Electrical Maintenance	4 (1x4)	UK/Germany/USA
3. Radio/TV	8 (2x4)	
C. METAL FABRICATION/WELDING INSTRUCTORS		
1. TIG Welding	8 (2x4)	UK

CATEGORY	DURATION MM	SUGGESTED COUNTRY
D. INSTRUMENTATION		
1. Maintenance & Calibration of measuring instruments	16 (2x8)	UK/USA
2. Process Controllers	8 (1x8)	UK/USA
E. GENERAL MECHANICS INSTRUCTORS		
1. CNC Machining	8 (1x8)	UK/USA
2. Advanced Pneumatic hydraulic system	8 (1x8)	UK/USA
F. CLIMATIZATION		
1. Steam Boilers Maintenance	8 (2x8)	UK/USA
2. Central air conditioning system & controllers	8 (2x4)	UK/USA
G. PRINTING TECHNOLOGY		
1. Printing	48 (2x24)	USA
H. HOTEL MANAGEMENT		
1. Food Production	12 (1x12)	Switzerland/Italy/UK
2. Food Service	12 (2x12)	Switzerland/Italy/UK
I. VOCATIONAL GUIDANCE & COUNSELING		
1. Degree (2)	48 (2x24)	Masters Degree (2)UK/USA Masters
J. OCCUPATIONAL STANDARDS TESTING	6 (2X3)	USA

CATEGORY	DURATION MM	SUGGESTED COUNTRY
K. LEATHER & CLOTHING		
1. Leather clothing fabrication	6 (2x4)	Turkey/Italy
2. Apparel Fabrication	12 (3x4)	USA
3. Fashion Design	24 (2x12)	USA
L. RESEARCH DEVELOPMENT	9 (3x3)	USA/UK
TOTAL	293 MM	

* Note: Figures in this column indicate, e.g. 16(4x4) - Total of 16MM with 4 people each in training for 4 months.

6. Technical Assistance

The central administration has requested assistance in developing a management information system to provide comprehensive, up-to-date data for decision making. It is recommended that expert consultants be provided to assess the specific needs, identify and specify equipment requirements, assist with installation, establish a training program for the administrative staff and prepare maintenance program. See Appendix IV-E for program details.

Supporting the recommendation for improving the status and perception of vocational training in Jordan through the development of vocational industrial clubs (VICJ) in all schools, it is proposed that a special training program for two VTC administrators be arranged with the U.S. headquarters of the Vocational Industrial Clubs of America (VICA) in Washington D.C. The program would include an orientation to the purpose, structure and operations of VICA at the national, state and local levels, with visits to each of the three levels. Additionally a consultant should be provided who would return to Jordan with the two administrators and help them setup the VICJ program including a training program for all training center directors and instructors. It is assumed that the two administrators would be designated by VTC central as director and assistant for VICJ.

A modest budget to establish VICJ would be required. The VICJ office would need a vehicle, secretary, office space and equipment, funds to develop publications, funds

for student identification material, i.e., membership pins, insignias, T-shirts with logo etc.

Table IV-9

Cost Estimate for Vocational Industrial Clubs of Jordan

Item	Number	Cost
US Training	4 (2x2) x $3500	$140,000
Consultant	3 (1x3) x 15,000	$ 45,000
Publications		$ 6,000
Insignias etc. (Cost of these items are recoverable through sale to students)		$ 14,000
Vehicle		$ 12,000
Total		$217,000

Table IV-10

Cost Estimate for Management Information Systems

Item	Units	Unit/Cost	Total
1. Consultant Estimates	12	$ 17,000	$ 204,000 (a)
2. Training	44	$ 15,000	$ 660,000 (b)
3. Fellowships (Foreign)	10	$ 11,000	$ 110,000 (c)
			(d)
4. Software/Hardware			
Training Centers	16	$ 10,000	$ 160,000
Institutes	2	$ 10,000	$ 20,000
Head Office	1	$150,000	$ 150,000
Core Admin. Software	1	To be determined	
TOTAL			$1,304,000

NOTES:

(a) Preliminary Assessment, Design, Software/Hardware configuration.

(b) Assumes 2 p/m/TC, 4 p/m/Instit., and 4 p/m for Head Office. Foreign.

(c) Short Course, U.S. or U.K based, 1 month duration.

(d) Maintenance on software/hardware estimated at 10%/year or $ 420,000 is not included in budget.

Source: Since the author of the report is not familiar with the development and cost of an MIS, consultation was sought with an expert who has designed many systems in a variety of countries. Thus the information presented here and the appendix was developed by Kurt Moses, Vice President and Director of System Services Division at the Academy for Educational Development. Further adjustments were made under 10 advisement from NCERD.

V. TECHNICAL EDUCATION: COMMUNITY COLLEGES

A. Purpose

The community colleges, as such, came into existence in Jordan in 1980 when the Board of Education converted teacher training and other existing institutes into two-year community colleges. The purposes and mission of CCs are derived from and are the same as that of all of higher education in the country. Generally, according to Article 3 of the Higher Education Law, higher education, including the CCs, has the responsibility "to implement the Government's educational, cultural, and scientific policies." As early as 1985 in a report entitled, "New Guidelines for Comprehensive Community Colleges in Jordan" by Dr. Clyde B. Knight, a recommendation was made to prepare a system-wide mission statement because of its importance in establishing direction for the entire CC enterprise. During the team's interviews in August, 1990, a system-wide mission statement was alluded to, but apparently has not been finalized to date due to more pressing problems.

The present mission of the CCs system parallels the classical mission of most community, junior colleges and technical institutes throughout the world, namely, to prepare persons for employment in various technical fields, and to prepare persons for transfer to four-year colleges and university programs.

The community college system is expected to supply technicians for the businesses and industries of Jordan. Technicians occupy important positions between the professional and the skilled and semi-skilled workers. A skilled technician interprets the directives or plans of the professional and translates these into production processes. The skilled technician interacts with both the professional and the worker, with the result being the production of a tangible product, a service, or an idea.

Mission statements of individual Community Colleges, while found in only two instances during interviews, followed the same format and the usual purposes, i.e., preparing persons for work or for transferring to college or university. One CC Dean indicated that some female students enroll in and complete a CC program, knowing they would probably never enter a gainfully employed status, but rather they would become wives and mothers. The opinion expressed was that such students, having received additional education, would make better wives and mothers, with Jordan benefitting over time. If this is a prevalent opinion, it should be expressed as a goal in the mission statement for the CC system.

B. Administration and Organization

1. Structure and Management

Organizationally, the Community College Directorate is in the Ministry of Higher Education (MOHE). It was placed there to improve the linkage between CCs and the upper level colleges and universities, thus raising the status of CC programs and facilitating transfer by students from one to the other. There are, however, real problems with transfers. Some university-level persons seem concerned that CC programs may be inferior to university-level work, but this is unsupported by any concrete evidence. Nevertheless, such perceptions should not be discounted lightly, and one strategy for resolving this problem is to place all CC programs on a competency-or-performance-based mode, such that subsequent evaluations and assessments will serve to dispell misperceptions of program quality. Whereas program effectiveness has been formerly based on enrollment figures only, the focus should now be on performance of learners during training, and their employment performance after completion of programs.

Weekly three-hour meetings are held at the MOHE for CC staff at which course/program appraisals are made, needs are determined, problems are identified, possible solutions are set forth, equipment needs are ranked in priority, and budget status is discussed. Budget requests are made and forwarded to the Ministry in August each year by CC Deans. Equipment needs are submitted by the CC Deans and these items are centrally purchased.

Currently, Jordan has 61 licensed community colleges administered by over 30 different agencies, all operating under the MOHE. Coordination of CCs as a system needs a vast amount of management attention based on a viable management information system.

The Public Community College Directorate is in the MOHE, specifically under the Secretary General. Each CC is directed by a Dean with an Assistant Dean for Teaching/Instruction and sometimes one for Student Affairs. Another Assistant Dean for Administration and Finance is provided. Each separate program has a Head responsible for an instructional area.

Since 1975, Jordan has established three polytechnical institutions that have been placed in the CC system. A major difference between polytechnique institutions and the traditional CCs is that the former usually have more Ph.Ds on staff.

The Community College Directorate provides liaison between MOHE CCs and those supervised by private entities, UNRWA, and other government agencies. Such liaison is supposed to coordinate achievement of program standards. It is through such liaison that a revised set of program accreditation standards might be implemented according to common regulations issued by MOHE for all CCs.

Concern was voiced in interviews that policies by which CCs are governed are formulated outside the system. This should be redressed by involving CC personnel in policy making activities. Participatory management is a viable strategy for consideration here. Policy for CCs is set by MOHE and the Council of Higher Education. Representatives of common (public) and private CCs serve on the Higher Curriculum Committee, the Higher Accreditation Committee, the Higher Comprehensive Examination Committee, and other committees. Any serious developments in the CC program cannot be considered before consultation with the various colleges.

Recently some CCs were directed to change from three-year to two-year institutions. Such a two-year restraint on public CCs precludes any consideration of establishing three-year and even four-year programs that would serve future employment opportunities requiring highly technical skills. It also precludes filling obvious gaps in the skill level hierarchy.

2. Locations

There are 12 CCs administered by MOHE, 2 by MOE, 9 administered by other GOJ agencies, 5 administered by the military, 11 administered by private boards of trustees/owners and another 10 not subject to MOHE standards for a total of 60 CCs. The majority of these colleges are located in the Amman area with a few in the north and with four in the south. Table V-1, list of Community Colleges, identifies institutions, responsible agency and location.

The team expended much time in trying to determine the exact process and criteria that are used to site or locate a community college. Population concentration was the most frequently mentioned criterion, with rate of economic growth being mentioned second. In one instance "political pressure" was alluded to but was downplayed as being an infrequently used criterion.

In the case of private CCs, location was based on whims of the boards of trustees, or possibly the availability of buildings and space which could be rented. If private CCs were located in remote areas, the administration resorted to employing a bus service directly to the homes of students. Several of the private CCs use buses in this manner. Students pay approximately JD9/mo. if they use the bus service.

Locating or siting of CCs within Jordan depends upon many of the trends cited earlier. The team was told that locating a public CC was determined largely "by the population and the needs, but for private CCs it needs only an application and a feasibility study." No doubt, existing data do not allow precise estimates and forecasting, but economic development, demographics, employment change, and other factors are certainly important in making decisions about location or expansion of education or training institutions, including the CCs.

TABLE V-1

LIST OF COMMUNITY COLLEGES (CCs)
CCs - Administered by MOHE

No.	Name of College	Students' Sex	Location	Year Impiemented
1	Amman College	Male	Amman	1952
2	Amman University College for Applied Engineering	Both	Amman	1975
3	Princess Alia College	Female	Amman	1972
4	Salt College	Both	Salt	1975
5	Zarka College	Both	Zarka	1979
6	Howwarah College	Both	Irbid	1954
7	Irbid College	Female	Irbid	1978
8	Al-Hussun Polytechnic for Applied Engin. Prof.	Both	Irbid	1981
9	Karak College	Both	Karak	1979
10	Ajloon College	Female	Ajloon	1964
11	Tafilah College for Engineering Professions	Both	Tafilah	1986
12	Ma'an College	Both	Ma'an	1989
CCs Administered by MOE				
13	Hoteling College	Both	Amman	1981
14	Shoubak College	Both	Shoubak	1975
CCs Administered by UNRWA (U.N. Relief and Works Agency)				
15	Wadi Al-Sair College	Both	Amman	1960
16	Amman Training College	Botn	Amman	1971
Administered by Other GOJ Agencies				
17	Islamic Sciences College	Male	Amman	1972
18	Communications College	Both	Amman	1982
19	Social Service Institution	Both	Amman	1965
20	Para Med. Institute	Both	Amman	1973
21	Para Med. Institute	Both	Irbid	1979
22	Banking Studies Institute	Both	Amman	1970
23	Princess Sumayah Instit.	Both	Amman	1977

No.	Name of College	Students' Sex	Location	Year Implemented
24	Queen Nour Tech. Coll.	Both	Amman	1983
25	Physical Therapy College	Both	Amman	1980
	Administered by Jordan Military			
26	Sherrif Nasir Military Comm. College	Military Forces		1987
27	Technical Military Coll.	Royal Maintenance Forces		1986
28	Prince Faisal College	Air Force		1987
29	Prince Hassan College for Islamic Sci.	Air Force		1987
30	Geog. Centre C.C.	Geog. Center		1975
	CCs Administered by Private Bds. of Tustees/Owners			
31	AL-Qadisia C.C.	Female	Amman	1967
32	Al-Kawarizmi C.C.	Both	Amman	1979
33	Arabic Society C.C.	Both	Amman	1980
34	Jordanian Society C.C.	Both	Amman	1975
35	Arabiyyah C.C.	Both	Amman	1979
36	Queen Alya'a C.C	Female	Amman	1979
37	The National C.C.	Both	Amman	1980
38	Al-Quds C.C.	Both	Amman	1980
39	Al-Andalus C.C.	Both	Amman	1981
40	Intermediate Univ. C.C.	Both	Amman	1979
41	Hetteen C.C	Both	Amman	1979
42	Princess Sarwat C.C.	Female	Amman	1980
43	Al-Petra C.C.	Both	Amman	1981
44	Islamic Society C.C.	Both	Amman	1979
45	Qurtubah C.C.	Female	Zarka	1981
46	Al-Zarqa Private C.C.	Both	Zarka	1979
47	Grenatah C.C.	Female	Irbid	1981
48	Al-Razi C.C.	Female	Irbid	1979
49	Iben Khaldun C.C.	Both	Irbid	1979
50	Jerash C.C.	Both	Jarash	1981
51	Al-Mafraq Private C.C.	Both	Mafraq	1985
	CCs Not subject to MOHE Standards			
52	Jordan Stat. Centre	Both	Statistics Dept.	1966
53	National Tr. Centre for Orthopaedic Technologist	Both	Military Forces	1987

No.	Name of College	Students' Sex	Location	Year Implemented
54	Maintenance of Midial Eng. Centre.	Both	Military Forces	-
55	The Nursing College	Both	Ministry of Health Amman	1952
56	The Nursing College	Both	Ministry of Health Irbid	1984
57	Princess Muna College for Nursing	Female	Military Forces	1986
58	Nursing College	Female	Ministry of Health Zarka	1984
59	Royal Jordanian Air Academy	Both	Civil Air Auth	1963
60	Music Academy	Female	Queen Nour Inst.	-
61	Military Academy	Male	Military Forces	

3. Professional Standards

Only recently have institution and program evaluation processes received attention. A clear-cut, comprehensive, system- wide evaluation model is not yet in place, but elements apparently are being considered. The Community College Directorate contains sections for examinations and measurements, computers and statistics, and planning and research. An overall evaluation coordination strategy should be developed.

Libraries in CCs must have a minimum of 50,000 volumes. Class size is limited to 30 to 40 students.

Professional preparation of the ministerial and institutional CC administrators seem to vary, but certain standards are imposed. For example, the CC Director is required to have a doctorate, preferably the Ph.D., in education. In addition, the Director must have two years experience. Doctorates are obtained outside Jordan, in the United States, England, Egypt, and some European countries. Administrative personnel serving at the deputy level in both the ministry and at the CC institutions must have the equivalent of the master's degree. All CC instructors are required to have the baccalaureate degree. Private CCs must have a medical doctor and a nurse on staff. Table V-2 presents an overview of professional preparation of the adminstrative staff.

Table V-2
Distribution of Administrative staff in Community Colleges by Degree and Sex : 1989-1990

Degree	Male	Female	Total
Ph. D.	50	5	55
MA/MS	55	20	75
Higher Diploma	48	50	98
BA/BS	167	107	274
Inter. Diploma	234	235	469
Gen.Sec.Cert.	81	91	172
Less than G.S.C.	595	258	853
Total	1230	766	1996

Source: MOHE Annual Statistical Report : 1989-90

C. Admission and Guidance

1. Admission Policy

Enrollment in the CCs is very competitive. Admissions to CCs is open to graduates of the secondary vocational and academic secondary streams. Formerly, entry was open to all secondary school graduates. Presently, however, students must earn a grade above the minimum cut-off score on the national secondary level examinations. A minimum entrance score was set in an effort to improve the quality of students entering the system.

Interviews inevitably led to a discussion of the prevalent attitude of the unrealistically high educational aspirations that Jordanian families have for their children. This tends to place excessive demands on the limited places available in higher education for students. Admission to higher education, including the CCs, via competitive admission examinations is resisted by families holding such high educational aspirations for their offspring. They apparently desire a more open admissions policy.

Thus, enrollment at CCs is not necessarily market driven. It seems to be driven more by aspirations and financial and moral support from families than by the job market. Such familial pressures often serve to insulate the educated unemployed from the realities of the job market.

Information about the numbers of students who applied for admission to the CCs, but were not admitted due to lack of space in programs or in schools, was not available. Also not available were figures on possible excess student places by program and by school, if there were any.

2. Guidance Functions

Jordanian officials interviewed indicated that entry into higher education, including Community College, is linked to the ability and achievement of students. At the secondary level, students are tracked into academic or vocational tracks. As is true throughout the world, this practice in Jordan serves to stigmatize vocational tracks, and that stigma oftentimes has the propensity to continue as students enter CC programs.

Students with CC diplomas can compete for spaces in university programs in the same specialty. To do so, they are required to pass both theoretical and practical or performance examinations.

3. Enrollment

Information about students entering the CCs was scarce. In 1991 - 1992, there were about 9,000 males and 10,000 females enrolled in the first year program.

Table V-3 and V-4 contain enrollment figures for 1989-1990 in the CCs. Table V-3 contains enrollments by supervisory authority, totals, percentages, and sex, for first-year and second-year students. Table V-4 contains enrollments by program, totals, percentages, and sex for first-year and second-year students. These data were aggregated from a much larger number of tables received by the team.

From the data in Table V-3, it appears that private CCs are increasing student enrollments more rapidly than public CCs. We cannot compare first year students (new entrants) with second year students in one academic year.

Data in Table V-4 show a decrease in both male and female enrollments over the three-year period. Enrollment is affected by the distribution of secondary examination scores, which determines the number of graduates eligible to join universities and CCs, and also by the admission to private and public universities. Male and female enrollments decreased by about half in the academic administration & finance, social work, and in the computer program. The only program showing a slight increase in enrollment was agriculture. Such radical fluctuations in enrollments may mean that student recruitment efforts need to undergo refinements if enrollments are to return to normal. Likewise, information about program offering in the CCs may need wider dissemination through television and other media.

Table V-3*
Community College Enrollments
by Supervising Authority: 1989-1990

Supr. Authority	1st-year Students	%	2nd-year Students	%	Total	%
MOHE CCs	8,351	26.3	8,992	33.1	17,343	29.4
Other Gov. CCs	1,508	4.7	1,373	5.1	2,881	4.9
UNRWA CCs	626	1.9	564	2.0	1,190	2.0
Private CCs	21,314	67.1	16,227	59.8	37,541	63.7
TOTAL	31,799	100.0	27,156	100.0	58,955	100.0
Females	11,118	35.0	10,204	37.6	21,322	36.2
Males	20,681	15.0	16,952	62.4	37,633	63.8

* Source: Jordan Ministry of Higher Education, community College Directorate.

Table V-4

Community College Enrollment by Gender and Program 1989-1992

	1989-1990		1990-1991		1991-1992	
CC Program	Male	Female	Male	Female	Male*	Female*
Academic	3697	12712	2285	7283	2120	6254
Admin./Finan.	4629	2957	2806	1727	2178	1525
Para-Medical	1478	1624	1201	880	1104	1028
Engineering	2734	228	1914	108	1772	88
Computers	1617	1107	1074	575	790	552
Apld Fine Arts	377	293	363	169	405	226
Educational	1038	2260	70	205	126	163
Agricultural	113	14	118	8	116	22
Social Work	194	112	51	59	122	45
Hotel mgt.	107	5	52	3	58	1
Aviation Serv	56	10	NA	NA	NA	NA
Total	16,310	21,322	9,934	11,017	8,791	9,904

* Unofficial figures from MOHE
Source : MOHE Annual Reports.

CC Enrollments apparently have decreased from 1989 to 1992 as outlined in the previous page and due to the decline in the economy. The consensus among persons interviewed is that CC enrollment will gradually begin to increase as the economic and political picture stolilizes .

One private CC dean indicated a large enrollment drop at his institution during and after the Gulf Crisis. Enrollment before hovered around the 5,000 mark; now, enrollment is about 2,000. The economic downturn apparently had an unprecedented impact on enrollment at his institution. Some CCs reported they had some foreign students enrolled at their institutions. No specific information was available except that the numbers of foreign students were not large.

D. Curriculum

1. Current Programs

Most CCs still offer teacher training along with the new specializations of aviation, cartography, sciences, finance, health, religions guidance, social work, statistics, telecommunications, nursing, mid-wifery, and computer applications. The CCs, as a system, offer nearly 100 different specializations in the nine major categories of: agriculture, commerce, communication and transport, education, engineering, hotel management, paramedical technologies, and social professions such as law, library science, and social work. Although the CCs offer a wide variety of programs, including 26 specialized programs in industrial education alone, persons interviewed expressed a need for new programs in areas such as graphic arts, including printing, offset, and duplication processes.

Officials interviewed cited the need for Jordan to become more globally competitive in "high-tech" areas, not necessarily as "discoverers and developers" of the latest innovations, but as a country whose businesses and industries might be able to swiftly bring associated products to market. Although these discussions demonstrated a strong desire to improve the economy, no definitive ideas were expressed as to what it would take in the way of technical training to place Jordan in a more competitive stance. Curriculum development, preparation of instructional materials, outfitting facilities with appropriate equipment, and preparing staff to teach in such technical programs are all parts of the same complex problem, a problem that requires detailed planning to find solutions.

2. Curriculum Development

During interviews with MOHE and CC Directorate officials, an established system for curriculum development was described, but no documentation was given with details of the process and procedures. The verbal description indicated that curriculum committees were approved by officials in the MOHE. Once a decision has been made to initiate a new technical program, an approved committee outlines the curriculum content and writers are designated if new materials are to be developed. Generally, however, instructional materials are obtained from sources outside ministerial curriculum sections, such as the one in the Ministry of Education. This procedure is carried out with great commitment, but omits the single most important requirement of competency-based curriculum development; that of tasks and competencies required in the jobs for which the training program is being designed.

Instructional supplies are provided by the CC itself. Sometimes the CC asks the Ministry to provide some raw materials (supplies) or other instructional needs, and the Ministry procures such from the local market. Instructors always indicated a need for

more and better instructional materials and equipment, especially computer software.

3. Instructional Materials

Although the USAID/AED Team sought information in depth about whether CCs were using competency-based or performance-based materials and instruction, little evidence was provided to corroborate the statement that, indeed, the CC programs did tend to be using the competency-based education and training model.

The CC programs stressed their use of practica, but practica stations for certain programs were difficult to find. Employers can receive a tax rebate if they provide students with field training or practicums. The employer certifies student achievement and performance in each module, which implies the use of competency-based materials.

E. Linkage with Business and Industry

MOHE official expressed an urgent need for the entire CC system to become more responsive to population, employment, and industrialization trends. To be responsive, needs assessments should be conducted, field training should be expanded, a system-wide data-base or MIS should be established, and training programs for staff should be provided.

During interviews with CCs, no instances were related to the team where CC administrators or teachers had direct contact with business and industries or a used advisory councils on a sustained basis, not even in the immediate area served by the CC. Some CC administrators mentioned contacts with colleagues who were businessmen and who accepted CC students on a cooperative education basis, and even employed a few students upon their graduation. However, this does not constitute intensive discussions with the incumbent skilled workers to determine exactly what technical level competencies are required. That can only occur in a regularly scheduled series of interactional meetings where mutual respect and confidence permeate the interchange between CC staff and business and industry representatives from management and labor levels.

F. Teacher Training and Staff Development

1. Preparation

Community College faculty members are now required to have a baccalaureate degreee to meet certification and accreditation standards. Presently, there are

provisions for using persons without degrees as instructors in some of the technical programs, and there are many such persons in the country who possess high levels of technical skills that have been acquired through business, industrial, military, and other forms of work experience. Most non-degree instructors for MOE vocational programs. This implies that CCs have some degree of expertise in teacher education and training, some aspects of which might be tapped for internal staff development activities. Skills in basic methods of instruction, instructional management, and other pedagogical skills might be available in present CC staffs. An assessment of staff expertise might reveal a wealth of such skills that could be used in staff development activities.

Table V-5 contains figures on the numbers of teachers and their degrees/credentials by sex and supervisory authority. The figures in Table V-5 show that some 257 teachers hold the intermediate diploma. It is surmised that most of these teach in the various technical education areas of the CCs and would benefit from well-planned staff development programs. Other degree and diploma holders need upgrading and updating as well as including those holding the doctorate.

Table V-5

Community College Teachers and Degrees held :1989-1990

Degrees Held	MOHE CC's		Other Gov't CC's		UNRWA CC's		Private CC's		Total	
	F	M	F	M	F	M	F	M	F	M
PH.D.	1	41	3	67		2	2	30	6	140
MA/MS	8	103	6	85	1	6	33	206	48	400
Higher Diploma	11	39	36	60			3	16	50	115
BA/BS	107	280	28	134	7	27	117	400	259	841
Intermediate Diploma	7	73	34	95			15	33	56	201
TOTAL	134	536	107	441	8	35	170	685	419	1697

The team attempted to obtain information about personnel evaluations and annual reviews. Because CC personnel are governmental employees, they are evaluated according to the Civil Service promotion standards using a special form as an instrument of evaluation. There were no examinations in use for licensing CC personnel. Private CCs employ an annual review process.

2. In-Service Training

Although no definite staff development plan exists, the CCs are expected to upgrade their teaching staffs in technical programs through training sessions and meetings on an in-service basis. Measuring the effectiveness of such training activities would be difficult since no plan, as such, exists. To date, no systematic efforts are being made to provide CC personnel with professional improvement. A great need exists for a comprehensive personnel assessment and development system to be installed.

Likewise, no explicit plans exist, nor is one being developed, for in-country teacher training scholarships or for external scholarships. According to information received, whenever the need arises, the Ministry sends people on scholarships both in-country and outside the country to receive training in teaching and administration. Data were not available about the numbers of teachers by program, by college, or by country totals. As a result, no estimates were forthcoming concerning the demand for CC teachers in the near and long terms.

3. Retention

Private CC administrators indicated they had no great difficulty recruiting and retaining teachers. For each vacancy there are literally dozens of applicants, all of whom are carefully reviewed prior to an appointment being made. Technical skills are not the only things considered. Interpersonal skills, manner, decorum, and morality also were cited as characteristics desired in new staff members.

G. Facilities and Equipment

1. Status of Facilities

Visits to a number of classrooms and laboratories indicate a need to upgrade maintenance procedures, especially in the organization and management of the laboratories. Lighting was often inadequate and there was little evidence of an emphasis on safety. Buildings without exception lacked adequate heating plants and staff and students were suffering from the cold. It should be noted that this was an unusually cold winter, but that does not excuse the lack of adequate heat. In the main, space seemed adequate for the type of laboratory, although there were exceptions.

2. Status of Equipment

Maintenance of equipment, much like the purchase of equipment is done on an "as needed basis". When equipment needs repairs, the central authority is requested to provide the funds or the service, and many times the need is not met. None of the CCs visited had maintenance contracts for their instructional equipment, although one did have a contract for electrical and plumbing maintenance.

H. Employment of Graduates

1. Placement

None of the MOHE CCs visited had a placement office. Help in seeking and obtaining employment by graduates and program completers is given on an informal basis by CC faculty and staff.

2. Data Collection

There was no evidence of the CCs conducting follow-up studies of graduates. Data collection on students was minimal.

I. Recommendations

1. Management

Management Information System

The major shortcoming in managing the Jordan education enterprise is the lack of a system-wide Management Information System (MIS). Such a MIS must include all segments of education, including vocational education at the secondary level in MOE, industrial training in VTC, and technical education and training in the community colleges, the three areas addressed in this report. Indeed, this report contains frequent references to the need for a well-designed, viable, functional, comprehensive MIS. Such a MIS represents a rational attempt to illuminate the educational issues about which decisions must be made. Vestiges of a MIS already exist in Jordan. The National Center for Educational Research and Development has made an excellent beginning in establishing an MIS; however, it has much more to do than it's limited staff and current funding levels can accomplish.

An effective management information system for a vocational technical system requires the following five components as a minimum:

- student enrollment, by gender, by region, and by specialty;
- teachers, by gender, by specialty, by experience;
- curriculum, including textbooks and special requirements;
- sites and facilities, including available square feet, specialty areas and conditions;
- budgetary support; including allocations to salaries and direct expenses and unit cost
- such as cost per student, cost per specialty, and cost per school.

The need is apparent for long-term technical assistance to accomplish at least the following:

- Secure agreement among all education and training decision-makers as to the mission, goals, and objectives of various programs;
- identify computer hardware, software, and peripherals needed to implement the MIS;
- identify, recruit, and train personnel to operate the system;
- since much of the MIS raw data will come from the field, identify and train local agency staff in the operations of the MIS, to build ownership and system advocacy;
- begin plans for establishing at the governate level satellite centers for in-putting and accessing data via modem and land-line, thereby creating an MIS network. and;
- determine the reports and report preparation procedures needed to get appropriate information on to decision-makers.

Cost Estimates for MIS:
It is not possible to estimate cost at this point since the extent of the system would first need to be determined. See Section IV-1 for the VTC system as an example.

System Integration

Community colleges currently are scattered in several ministries, which makes coordination and management burdensome. At present there are two separate ministries concerned with education at two different levels, which also contributes to coordination/management problems. Recommended here is that all vocational/technical education and training affairs for the entire country be studied with the possibility in mind that there should be only one responsible agency. Such a feasible study should be undertaken with technical assistance being provided in the area of system integration.

Cost Estimates for System Integration

Technical Assistance: 6mos. @ $150,000/yr.	$ 75,000
Total	$ 75,000

Planning

Skills in planning need improvement. Training is needed in data acquisition, analysis, and use for accountability. Training also is needed in evaluation, identification of indicators of excellence in programs, and how they might be reached. CC level personnel need training in locus of control, participatory management, and site-based management.

Cost Estimates for Planning:

a.	Technical Assistance: 3mos. @ 15,000/mo.	$ 45,000
b.	Participant Training: 3mos. @ 3500/mo.	$ 10,500
	Total	$ 55,000

Evaluation

Evaluation as a comprhensive system focused on the CCs does not exist. To be worthwile, evaluation must be viewed as an integral aspect of organizational design, development, and management. Evaluation is primarily a process within ongoing organizational management, decision making, and planning and is only secondarily a research enterprise. The accountability role of evaluation should emphasize 6 areas:

- Program outcomes;
- the causal relation between program activities and program outcomes;
- attainment of program goals;
- comparisons with similar programs;
- cost-effectiveness or cost benefits; and,
- the consequences of policies and legislative actions.

The advocacy role of evaluation assumes that institutions and programs within the CC system are competing for resources and that information is useful to each, and the integrity of the evaluation system will bolster the justification or elimination of a program. The program improvement role of evaluation assumes that administrators and professionals want to improve programs by making better decisions about organizational and program options and about the use of scarce resources.

2. Curriculum

a. Programs

There are a number of technical areas that CCs should consider in planning for the future as industry and hi-tech applications expand and these are:

- Production machinery installation and maintenance
- Instrumentation and measurement applications
- Instrument repair and maintenance
- Bulk materials handling
- Statistical process control in production
- Total quality management for mid-management personnel
- Entrepreneurship and small business management
- CAD/CAM applications
- Communications skills for use with industry and business
- CNC machine applications
- Robotics

b. Competency-Based Curriculum Development

If graduates of technical programs are to have the skills required by business and industry it is imperative that the curriculum be based on a careful task analysis of the required competencies. The curriculum in the CCs appears to be time based rather than competency based so there is a need to establish a Curriculum Development Center for the CC technical programs within MOHE. In addition to developing curriculum, the Center could also develop instructional materials. There would be an opportunity for some cost recovery through export of the competency based curriculum and instructional materials in Arabic to the Arab countries.

Cost Estimates for Curriculum Center

Technical Assistance: 1yr. long term $150,000/yr	$150,000
Participant Training: 6mos. short term $3500/mo	$ 21,000
Equipment: Computers,word processing, copying, printing	$100,000
Total US	$271,000

c. Incubator Program

As a means of enhancing small business development a model incubator program should be developed aimed at providing opportunities for entrepreneurs to set up experimental small business in space made available on the college campuses.

Technical and business management assistance would be provided by college staff. Careful screening of candidates would be critical and time limits on space use would need to be established. In order to initiate and implement such a program, technical assistance would be needed and some participant training.

Cost Estimates for Incubator Program Developement

Technical Assistance 1yr. long term 150,000/yr	$150,000
Participant Training 6mo. short term 3500/mo	21,000
Equipment materials	100,000
Total US	$181,000

3. Linkages

Interactions between community college personnel and representatives from business and industry are almost nonexistent. What few interactions and discussions that do occur are random and not conducted on a sustained basis. Business/industry representatives are not involved in the decisions concerning the instructional program except superficially.

The need exists to train CC personnel to work with advisory committees composed of representatives from local business and industries. These committees should be charged with the oversight of CC programs, providing expert advice and be deeply involved in the quality control of the programs they are charged with advising. Briefly, an advisory committee should perform program reviews, perform an annual evaluation of the end-of-process results, i.e., the graduates from each program, and help analyze data accumulated each year so informed decisions can be made. Finally, advisory committees can help answer a multitude of questions, some are:

- How are needed employment experiences?
- How are work skills to be taught decided upon?
- Who finalizes agreements as to which skills should be provided in the various programs?
- What is the detailed basis for ranking the identified skills in priority according to which ones should receive scarce resources?
- What is the proper ratio between skill acquisition by practice and skill acquisition by training?

Selected personnel from three MOHE CCs with technical programs should be sent to U.S. institutions to study the system. On return they would develop a policy manual on development and operation of advisory committees. Additionally, they should establish an in-service training program for CC administrator and staff.

Cost Estimates for Advisory Committee Development

Technical Assistance: 3mo, short term @ $15,000/mo.	=	US$	45,000
Participant Training: 9mos, short term @ 3,5500/mo.	=		10,500
Equipment, materials	=		15,000
Total	=	US$	70,500

4. Staff Development

There is an evident need for in-service training opportunities for both administrators and staff. Staff need training in areas such as curriculum development, instructional materials, pedagogy, laboratory organization and management and opportunities, for on-the-job experience. Administrators need training for example, in management, leadership, evaluation and research. Consideration should be given to establishing a leadership training institute, but there is existance an organization which could be expanded to provide additional services and that is the Instructor and Supervisory Training Institute. This organization already has solid contacts with business and industry through its supervisory training program and extensive experience in vocational teacher training. It is recommended that MOHE establish a budget line item for inservice training. Under this approach, MOHE would pay a course fee for each person to cover the cost of instruction and materials.

5. Facilities and Equipment

Equipment Management System

The establishment of an exemplary technical college with state of the art facilities and equipment would significantly strengthen the technical CC programs. The college could be the focus for applied research in all aspects of technical training. It is recommended that one of the polytechs be selected as the exemplary institution and that a survey of its facilities and equipment needs be conducted by a consultant who would also prepare specifications for upgrading facilities and equipment. Additionally, the consultant should prepare a five year development plan describing the role and development of an exemplary technical college and its potential impact on technician training not only Jordan, but the Gulf region.

Cost estimates for Exemplary Technical College Plan

Technical Assistance 6 mo @ $15,000/mo	$	90,000
Equipment- to be determined		400,000
Total	$	490,000

6. Guidance and Placement

Since the CCs have little or no guidance and placement services and this is normally considered a part of the responsibility of all colleges, the team recommends the development of a model program in the exemplary college above the ultimately be replicated in all the MOHE community colleges and others. Technical assistance is required to carry out this activity. The consultant would be responsible for assessing needs, designing program, training counterparts and implementing the program.

Cost Estimate of Guidance and Placement Program Development

Technical Assistance: 1 yr. long term @ $ 150,000	$	150,000
Equipment: Computers, software		50,000
Total	$	200,000

J. Demand Driven Development

1. Market Projections

The occupational titles and projections of needs for 5 years (1995) appearing in Table V-6 have been identified as those requiring technical level competencies. The projections of need are based on the 1989 number of employees in each occupation. As shown in the table, there were approximately 28,482 employees in 1989, and there will be an additional number of 5697 needed by 1995.

2. Projected Enrollments

Enrollments are expected to increase in the community colleges to more than meet the projected needs for technically trained employees. The database for the projections in Table V-6 is the distribution of occupations in establishments with 5 or more employees as surveyed in 1989. The proportions of the selected occupations were applied to the demand projections for the economic sectors developed by the team.

Table V-6
Five-year Projection of Increased Number of Employees Needed in Occupations Requiring Technical Training

	* 1989	NEED by 1995
Managers	5232	1096
Technicians (NEC)	2544	509
Engr.Tech./Surveyors /Draftsmen	6367	1273
Life Sci. Technician	2309	462
Nurses (Non-RN)	4098	820
Social Workers	557	111
Clerical Supervisor	395	79
Hotel/Restaurant/Mgr.	546	109
ProductionSupervisor /Foreman	3599	720
Aircraft Engine Mechanic	421	84
Para Medical Technician	65	13
Para Dental Technician	78	16
Veterinary Assistant	85	17
Physio-Therapist	94	110
X-Ray Technicain	501	19
Statistics/Math Technician	359	100
Writers	683	72
		137
Total	28,482	5,697

Source: Jordan Ministry of Planning, Manpower Division. Number of employees in occupation in establishments with 5 or more employees in 1989.

VI. FINANCING VOCATIONAL TECHNICAL EDUCATION

A. Economic Status

Financing vocational and technical education in the future can best be considered in relationship to overall financial and economic conditions which have been obtained in the immediate past several years. During the mid-1980's a fall in the inflow of financial recourses developed due to the decline in world oil prices in the Arab countries. The resulting deficits were financed by domestic and foreign borrowing which led to high levels of external debt with repayments due sharply rising in 1988.

An adjustment program adopted with World Bank and International Monetary Fund collaboration in early 1989 resulted in considerable stability. For example, 1990 saw a 1.5% increase in GDP, compared to negative growth during the previous two years; a fall in the trade and budget deficits; stability of the dinar; and a curbing of inflation which was only 3.7% at the end of the first half of 1990, as compared to 25.7% in 1989. In 1989 the GDP stood at JD 2,393 million.

The Gulf crisis affected all aspects of life in the country. Financial and economic constraints were imposed on the kingdom due to the return of over 300,000 Jordanians working abroad which caused an increase of 10% in the population. In addition, unemployment reached 17% which factors combined to generate problems of enormous magnitude.

In spite of these circumstances, indicators show a GDP stabilization in 1991 and other indicators showed positive gains. There is now in place a target of real GDP growth to reach 4% by 1997. In addition, plans are to reduce the budget deficit from about 18% of GDP in 1991 to 5% in 1997.

It is estimated that Jordan will require at least 3.2 billion of external aid during 1991-1993 to cover its basic needs of imported food, oil, and spare parts in addition to the repayment of part of its interest debt payment. Further, the country received $400 million in the form of grants in 1991 as compared to approximately $150 million in 1990. The top bilateral donors during 1989-1991 were USAID, Japan, Germany, and Canada in addition to the EEC.

It is obvious that the development of the human resource factor is critical to the future of Jordan. Vocational and technical training and development must be given increased attention and priority as a consequence and in relationship to overall growth and vitality of the country.

Note: All budget data is reported in JDs (Jordanian Dinars) throughout this section VI.

B. Financing the Vocational Training Corporation

1. Financing Profile

Financially and administratively, the Vocational Training Corporation is an autonomous public organization, established in 1976 by a provisional law and substituted by law No. 11, the "Vocational Training Corporation Law" of 1985. It is governed by an eleven member board of directors representing public and private entities form the full range of for-profit and non-profit corporations and organizations.

According to Article 12 of Law 11, the sources of revenue for the VTC are:(1) self generated revenue, e.g. tuition fees, testing and certification fees, and sale of goods produced;(2) Governmental support; and(3) loans, grants and assistance rendered by local and foreign entities. The VTC is seeking to improve its self-generated revenue in order to become more self sufficient and is hopeful that legislation recently introduced will be enacted into law, i.e., the "Vocational Works Organizing Law" and the "Labor Law". The first will generate revenue via fees imposed for certificates issued to workers who pass a licensure test and a parallel licensure fee for any workplace which will be classified according to purpose. The second proposes to levy a 1% tax on the annual payroll of the labor force of any workplace governed by the rules and regulations of the "social security law". The passage of such legislation will substantially enhance the VTC's revenue base, but there is no assurance that the proposed tax will become law.

Presently the current budget needs are met by self generated revenue and governmental support and the capital budget is met by local and foreign loans and grants assistance. Governmental support covers any negative balance which may exist in the capital budget. Table VI-1 provides the VTC budgets for 1987-91.

Table VI-1

VTC Budgets - JD
1987-1991

Category	1987	1988	1989	1990	1991
Revenue	2,763,647	3,000,891	3,170,000	2,511,303	2,787,700
Expenditures					
Current	1,906,713	2,007,127	1,639,000	1,812,000	2,462,044
Capital	899,142	939,325	1,617,000	620,888	620,609
Total	2,795,855	2,936,452	3,256,000	2,432,888	3,082,656
Balance	(32,208)	64,439	(86,000)	78,415	(294,956)
Cumulative Balance	(364,524)	(396,732)	(332,293)	(418,293)	(339,878)
Total	(396,732)	(332,293)	(418,293)	(339,878)	(634,834)

Note: See Appendix VI-A for Budget Detail 1987-1991

2. Comparative Analysis

The following Table VI-2 shows anticipated budgets for the VTC with annualized and cumulative shortfalls expected.

Table VI-2

Anticipated Budgets - JD
1992-1996

Category	1992	1993	1994	1995	1996
Revenue	6,194,000	6,311,000	5,366,000	4,950,000	4,893,000
Expenditures					
Current	2,946,000	3,294,000	3,492,000	3,976,000	4,388,000
Capital	3,354,000	4,107,000	3,978,000	2,543,000	1,021,000
Total	6,300,000	7,401,000	7,470,000	6,519,000	5,409,000
Balance	(116,000)	(1,090,000)	(2,104,000)	(1,569,000)	(516,000)
Cumulative balance	(634,834)	(750,834)	(1,840,834)	(3,944,834)	(5,513,834)
TOTAL	(750,834)	(1,840,834)	(3,944,834)	(5,513,834)	(6,029,834)

Note: See Appendix VI-B for Budget Detail 1992-1996 Projections

3. Projections for Future Spending

There are certain principles and procedures which drive the projections displayed in Table VI-2. Namely that the board of Directors of the VTC adopted the MOE policy of raising the percentage of students who enter the vocational stream after basic education to an expected 50% for males and 30% for females by the year 2000. Further, the high unemployment rate and accommodation of in-migration of Jordanians returning from the Gulf following the crisis will continue to impact the enrollment situation and place and enormous burden on the vocational programs offered by VTC. Also, in addition to expanding its existing facilities and the creation of the Amman Testing and Training Center, the VTC has plans to establish 12 new training centers, 5 for males and 7 for females.

The overall plan intends to provide training facilities in all major cities in the Kingdom; give more attention to female training; achieve an annual growth of 10% in total vocational training opportunities; and improve its staff quantitatively and qualitatively through programs of fellowships and consultancies. More specifically, VTC hopes to reach by 1996, 23,730 trainees with a accumulated total during the five year period (1992-1996) of an estimated 100,000 persons in various programs and courses.

Given these developments, it seems obvious that the remarkable growth in the requirements and allocations necessary in every aspect of the VTC budget, both capital and current places heavy demands for improvements in salaries, training materials, supply of equipment and facility construction.

Projections for future spending based on improving the network of training centers to meet growth rates in enrollment are predicated upon the following planning schedule:

1992	Determine center locations/specializations
1993	Acquire land sites
1993	Develop architectural designs
1993-4	Prepare equipment lists
1992-4	Invite tenders for construction/place orders
1994-6	Phase-in operation of new training centers

4. Projected Support Given Current Sources of Funding

The establishment of the Amman Testing and Training Center; Tafilah Training Center; and Irbid Girls Training Center will be financed according to the terms of the "Sector Loan Agreement."

The VTC has not organized other unidentified sources of support to meet the requirements and need of the other vocational training center projects outlined in Appendix V-B.

The budget detail and indication of current and projected sources of revenue clearly express the need for a continuation of financial support from all possible internal and external entities. More specifically, the total financial support necessary to offset revenue shortfall through 1996 is JD 6,029,834.

C. Financing Ministry of Education Vocational Training

1. Financing Profile

It is instructive to see a general overview of the Ministry of Education budget vis a vis its general funding and the percentage of the total allocated to vocational education programs. Table VI-3 shown below provides that perspective.

Table VI-3

Ministry of Education General Budget - JD
and
Allocation for Vocational Education Programs
1987-91

Year	MOE General Budget	Vocational Education Budget	Vocational Education Budget (%)
1987	72,864,472	2,098,214	2.88%
1988	80,936,650	2,121,339	2.62%
1989	89,778,850	2,958,505	3.29%
1990	97,097,880	2,766,364	2.85%
1991	98,937,001	2,513,810	2.54%

According to MOE data there were 856,870 students enrolled in prevocational and vocational programs during the 1991-92. Of that number, 21,409 were enrolled in vocational education programs in grades 11-12. The latter figure represents 2.45% of the total enrollment as compared to the 2.54 budget allocation for those programs as shown in Table VI-3.

As further elaboration, Table V-4 indicates the source of revenue and allocations for the past five years.

Table VI-4

Source and Allocation
Vocational Education Budget -JD
1987-91

Category	1987	1988	1989	1990	1991
Revenue					
Ministry Budget	2,098,214	2,126,339	2,958,505	2,766,364	2,513,810
Ministry Plan.	867,990	170,343	27,950		
Saudian Loan	609,947	175,691	24,389		
World Bank	2,309,133	3,622	888		
UNDP	68,520	68,520	68,520		
USAID			57,360	57,360	57,360
Total	5,953,804	2,545,515	3,137,612	2,823,724	2,571,170
Allocation					
Salaries	803,744	864,092	1,553,555	1,469,851	1,464,218
Supplies	727,864	717,030	660,646	665,822	585,037
Supervision	126,418	36,217	8,883		
Bldgs,Furniture Equipment	4,227,258	859,656	788,648	603,691	464,555
Training/Expertise (UNDP/USAID)					
Total	5,953,804	2,545,515	3,137,612	2,823,724	2,571,170

Note: USAID support continues through 1993. Pre-vocational education is not included in the above amounts.

2. Comparative Analysis

Although the Ministry of Education indicates balanced budgets during the previous five year period it has estimated that only 80% of vocational education requirements have been accommodated. This across-the-board shortfall situation is based upon the following conditions:

a. The MOE budget is part of the government's budget and therefore is set according to standard criteria which allows for a maximum 5-10% increment annually. However, vocational education approximates a 20% annual growth.

b. Recent inflationary rates and the sharp swings in the exchange rate of the dinar combine to influence government budgets in all ministries and has indeed negatively impacted the resources for vocational education.

c. The Gulf crisis has contributed significantly to an already severe situation relative to the state of the economy.

3. Projections for Future Spending

Accepting the estimation of budgets for vocational education standing at 20% below what is reasonably needed to meet student and programmatic demands, and given the difference between enrollment growth and annual increments as cited above, the actual budget demands (in JD) can be identified as follows:

1992	1993	1994	1995	1996	5yr Total
2,571,170	(1991 budget)				
+ 514,340	(20% catch-up)	(20% keep-up factor)			
3,085,404					
+ 617,080	(20% keep-up)				
3,702,484	4,442,980	5,331,576	6,399,491	7,779,389	27,655,920

The scenario cited above takes into consideration the need for improvements to the system of vocational education include staffing, equipment, supplies, and overall upgrading of curricular materials.

4. Projected Support

The projection of support resides mainly within the government itself. USAID has a commitment of JD 57,370 each year through 1993, however, the overall support

remains inadequate to the demands as has been previously described. Beyond that the estimated funding necessary for the Ministry of Education's vocational education programs over the next five years, given a 5% annual governmental budget increase, is JD 413,225 from sources other than those of the Jordanian government.

D. Financing Technical Education

1. Financing Profile

The Ministry of Higher Education's vocational and technical education thrust is focused within the three polytechnical institutes for which it has administrative responsibility. In addition, The MOHE also encompasses nine other community colleges which according to the Ministry have little vocational education activity and consequently have not been considered by the Ministry in the context of this assessment.

The MOHE general budget for the polytechnical institutions is shown below in Table VI-5. The specific titles for the three are: Hussun Polytechnic for Applied Engineering; Amman University College for Applied Engineering (expanded in 1990-91 to a 4 year program); and Tafilah College for Engineering Professions.

Table VI-5

Ministry of Higher Education
Five Year Budget Profile - JD
1987-91 for Polytechnic Institutions

Year	Budget Request	Budget Allocated	Shortfall
1987	364,000	140,000	(224,000)
1988	494,000	156,000	(338,000)
1989	787,000	90,000	(697,000)
1990	853,000	55,800	(797,200)
1991	901,000	221,000	(680,000)
Total	3,399,000	662,800	(2,736,200)

The Ministry advises that although allocations were made during the years shown above it is not uncommon that because of lack of funds generally, the Ministry of Finance directs the Budget Department not to authorize spending. It also is reported that the only outside financial assistance received during the five year period was JD

44,000 in 1987 for start-up costs related to the Amman Institute, now called the Amman University College for Applied Engineering.

2. Comparative Analysis

Based on these grossly inadequate levels of funding, the polytechnics are left to rely heavily on tuition which is generated at the rate of JD 5 per credit hour of instruction. Students enroll in about 18 credits each semester. Of the tuition money 35% goes directly to the Ministry's general fund, and 65% is retained by the campus at which the student is enrolled. The total amount of revenue for operational purposes therefore is significant when compared to budget demand.

As data above indicates, budgets for up-dating and modernizing equipment, laboratory facilities, staff development, hiring, and replacement have fallen far short of the need in this sector of technical training vitally important to the welfare of the country.

3. Projection for Future Spending

Because of the gross irregularities in the allocation of funds for the polytechnics, Table VI-6 displays a five year future profile of spending needs based on an average of allocations made during the past five years. It should be noted that these projections must be considered minimum; are based on an anticipated enrollment increase of 4% in each of the five years and a 10% factor for system improvements overall; and an initial 19.5% "catch-up" factor during the first year of the profile.

Table VI-6

Projected Spending Needs -JD
1992-96

1992	1993	1994	1995	1996	5yr Total
132,560	(5 yr. ave)				
+ 25,849	(19.5% catch-up)				
158,409			(14% keep-up factor)		
+ 22,177	(14% keep-up factor)				
180,586	205,868	234,690	267,546	305,003	1,193,6931

4. Projected Support

As further evidence of the swings in funding levels for the polytechnics, Appendix VI-C MOHE Five Year Funding Display provides additional detail. Beyond that it is clear that if the polytechnics are to become a viable element in the overall scheme of vocational education in Jordan, funds must be forthcoming to augment the altogether meager allocations provided by the government with no other significant sources identified by the Ministry of Higher Education at this time.

As has been pointed out, the unevenness in funding for the polytechnical institutions makes projections difficult at best. For example, if a need-base is established using the difference between annual budget requests over the past five years compared to actual allocations, the disparity is so enormous as to be unrealistic. This analysis assumes a rule-of-reason approach and on that basis determines that with the government providing an annual increase in appropriation of 5% over each of the next five years, an additional JD 131,980 must be generated from other sources, principally foreign entities.

E. Other Sources of Finance

The overall goal of financing training and vocational education programs is to provide a stable learning situation while employing all reasonable and available sources of revenue to accomplish desired outcomes. Obviously dependence on government funds alone will not adequately meet targeted goals. At the same time, heavy reliance on external funding will erode a sense of internal control of the overall situation. Therefore, alternative methods of funding should be thoroughly explored.

At a point when a reasonable level of stability is reached, a payroll levy can generate substantial amounts of revenue which can be earmarked for training programs designed to specifically benefit those who produce the revenue. This approach has obvious shortcomings but if carefully designed and implemented can produce positive results in the long term. In addition, a more broadly based tax may be installed to support training programs and vocational technical education generally. An employer tax is yet another option used with success in many countries and can produce income for investment in the system. The sale of goods or services to the public by the training centers can also be implemented and expanded according to government policy.

As mentioned in the VTC Financing Profile section of this report, some of the above possibilities are under consideration in Jordan and indeed VTC currently produces upwards of a third of a million JD annually in self-generated money. The most critical development regarding other sources of finance not presently in place is of course government action on two important pieces of legislation, i.e., the "Vocational Works

Organizing Law" which proposes a levy of 1% on the annual payroll of the labor force of any workplace governed by the rules and regulations of the "social security law." Estimates vary in terms of annual receipts via these approaches but some run as high as a half-million JD. The enactment of these proposed laws would be a step in the right direction and would ease the financial constraints currently being imposed.

F. Improvement to Financial Efficiencies

The operation of the Vocational Training Corporation should be combined with that of the Ministry of Education under a single administration. In doing so an administrative officer appointed with responsibility for all vocational and technical educational programs should be added to the newly structured organization. Such a transition would result in a greatly enhanced and much more coordinated delivery system and at the same time generate financial efficiencies by reducing unnecessary duplication of effort which currently exists in a dual administrative approach. A further justification resides in the long-term improvements and cost effectiveness in on-going program modifications and creation of those most responsive to the Kingdom's needs.

A chancellor (or similar academic title) should be established within the Ministry of Higher Education to oversee the operation of all government controlled community colleges. The implementation of legislation passed in 1985 is long past due. It is the antithesis of cost effectiveness to have a multiplicity of government entities responsible for such a great range of community colleges with little or no internal coordination or cooperation as presently is the case. The system of community colleges generally and indeed the polytechnics specifically are too vital a resource to be left to random decision-making. Left to continue in their present mode of administrative oversight (or lack thereof) flies in the face of financial efficiency and operational sensibility. The country should waste no time in effecting this change.

Long-term financial improvements will be seen in vocational technical education if heightened attention reflected in increased budgetary allocation is given to the Instructors and Supervisors Training Institute. This Institute is a key element in bringing about quality control and program delivery enhancement throughout vocational and technical education. This recommendation speaks specifically to the relationship between program effectiveness and financial efficiency. The upgrading of the Institute's capacity will result in financial savings as well as quality improvements in the teaching-learning arena.

Finally it cannot be overly stressed that vocational and technical education in Jordan is desperately in need of a comprehensive Management Information System (MIS) in order to provide for the efficient control, distribution, analysis and application of data. Such a system does not now exist and attention must be given to filling this obvious void. Combined with establishing an efficient and cost effective MIS, the creation of a

Total Quality Management (TQM) program should be designed to begin as soon as possible with a five year plan incorporating all aspects of the country's vocational and technical educational offerings. Recognized as a leading factor in generating qualitativeness within organizations in their entirety, it would be opportune to install a TQM effort now and could result in significant financial long-term efficiencies.

VII. COORDINATION FOR QUALITY IMPROVEMENT

A. Organizational Structure

The team felt that a number of significant changes could be made that would impact the vocational and technical training systems in Jordan. Most of these presented in this section cut across at least two of the three systems. All will require a major effort on the part system administration and staff and should result in a significant improvement in quality, cost and service to students, business and industry.

1. Strengthening the Structure of Vocational Education

Given the overlap of vocational training programs between VTC and MOE, it would be to the advantage of both if they were more closely coordinated. From the standpoint of efficiency, it would make sense to combine the MOE program with VTC since the latter has a stronger organization and program. There would, however, be structural and philosophical problems with putting part of public secondary programs under a semi-autonomous organization such as VTC. MOE's vocational program goal is to provide both work skills in business and industry and an opportunity to continue education at the intermediate level while VTC's secondary level program goal is the training of apprentices, primarily in the industrial areas.

A second alternative would be to transfer VTC to MOE, but that would defeat one of the basic reasons that VTC was made semi-autonomous, i.e., to be able to respond promptly to the needs of industry. The team discussed this dilemma at length and was hesitant to recommend either of the above alternatives for the obvious reasons. The team felt strongly that the evidence of the need for combining both main streams of vocational training were clearly evident, but only Jordan's leadership group could determine if joining the two programs would be feasible. As a first step at better coordination the team recommends the establishment of a National Policy Council.

2. Establishing a National Policy Council

The present system for providing vocational and technical education in Jordan has three main components that urgently need articulation and coordination, i.e. VTC, MOE and CCs. While VTC and MOE programs share much of the same curriculum, they each have specific roles, but there are significant areas of overlap. Since all three agencies are in related fields of human resource development, active coordination is needed to : (1) provide the optimum learning environment for students; (2) provide close collaboration with business and industry to ensure relevance of all programs; and (3), ensure that all funds provided for these expensive programs are disbursed in the most cost effective manner.

In order to facilitate close collaboration of the three agencies there needs to be

established a special policy-making body to provide leadership in all of the affairs of vocational/technical education and training, irrespective of where, or through which ministry each segment is administered or supervised. This special policy-making body could be called the National Policy Council for Vocational and Technical Education and Training (NPCVT). The Council should have at least one representative from each of the following:

Directorate of Community Colleges- MOHE
Vocational Training Corporation
Vocational Education and Training Department - MOE
Department of Vocational Educational Research and Development.
National Center for Educational Research and Development.
Ministry of Planning.
Ministry of Labor.
Amman University College for Applied Engineering.
Chamber of Industries.
Chamber of Commerce.
Jordan Association of Community Colleges (if established).
Jordan Labor Syndicates.

The purposes of the Council would be to:

- Coordinate and provide direction and guidance for all vocational/technical education and training in Jordan;
- interpret annual manpower needs as projected by the Ministry of Labor, determine which institutions would provide the required training and the numbers of persons to be trained;
- coordinate curriculum development and evaluation to ensure that the competency-based system is used to prepare curriculum and instructional materials;
- ensure the relevancy of training programs to the needs of businesses and industries;
- ensure the development, compatibility, and articulation of an MIS in each vocational/technical education and training administrative agency; and
- prepare annual reports of activities and recommendations for improvements of the vocational/technical education and training system in Jordan.

B. Teacher Training

In the proposed consolidation or articulation of MOE and VTC vocational programs a significant gain would be realized in the area of teacher training. As described in section III-F1., this is an area that needs urgent support for MOE. The ISTI has the facilities and curriculum in place to provide the necessary education for MOE

vocational teachers. Since both MOE, VTC, and CC technical teachers need the same basic curriculum they could easily be mixed in the same classes. However, a considerable increase in facilities, equipment, and teacher trainers would be required. The capacity would need to be expanded to accommodate the following MOE vocational teachers. (It is assumed that all the current teachers would need training.)

YEAR	NUMBER
1992	952
1993	412
1994	150
1995	148
1996	146

Note: Demand is based on current student teacher ratio of 11 to 1. This should be increased to 20 to 1.

This would be an ideal time to move the vocational teacher education program to a more professional level of excellence on a par with many of the industrialized nations.

If the consolidation can be brought about, the teacher training function should be under the Amman University as part of a degree program with 30 semester hours of credit for the equivalent of a one year program. Courses could be offered on extension in evening programs in several areas of the country to accommodate teachers in distant regions. This move would raise the quality of teacher preparation to a new level for not only MOE and VTC teachers, but also for technical subject teachers in the community colleges. The ISTI could still generate the program in its upgraded facilities with the University responsible for granting college credit.

Vocational and technical teachers should receive college credit for their work experience since, in effect, it is the equivalent of a technical specialty earned at a college. In most states of the U.S. for example, between 20 and 30 semester hours of college credit are awarded to vocational and technical teachers after completing a comprehensive theoretical and applied examination in their trade area. Most states require at least four years of verified work experience in the trade in order to qualify for taking the examinations. Nearly all vocational and technical teachers complete another year of liberal studies and earn a BS degree. Most states now require a masters degree for a permanent certificate, so many vocational and technical teachers continue their studies through the MS degree.

This is the time for vocational and technical education to take a giant step forward which will produce a significant change in the quality of teacher preparation resulting in improved learning opportunities for students and enhancement of the overall status of the profession.

C. Integrated Program Development

1. Facilities

There is evidence that VTC and MOE have cooperated in sharing shop facilities in some areas. What is needed is a frequency of use analysis, which should be a segment of the MIS, to determine the numbers of students in each shop/laboratory each hour of the day. This should be completed before any facilities are expanded or new ones added to either MOE or VTC. The goal should be to maximize the use of facilities for cost effective operation.

Since equipment repair is a constant problem especially at MOE, consideration should be given to having VTC instructors and students' repair MOE equipment as part of their training program where appropriate. Procedures would need to be established to ensure that the repairs matched the training needs of the programs.

2. Curriculum

Since the ILO type training models are in common use at MOE and VTC and MOE has a curriculum development department, it would be logical for both to work as a team in carrying out all related activities in this area from initial design, testing, revision, and publishing of trade courses to the production of basic instructional materials. There should be a financial advantage through an economy of scale but also a qualitative advantage and elimination of overlap.

D. Standard Testing and Training Project

1. Project Concept

The Amman Standard Testing and Training Center project is an ambitious, carefully planned major program of significant costs at 2.3 million JDs. This is only the beginning of a large annual cost to VTC for many years in the future. It should be noted, however, that the bulk of the initial expenditures will be for facilities and equipment needed for additional and new training areas. The goal of classification and certifying all workers may be overly ambitious. Most countries have job classifications primarily to identify what the person does on the job so that everyone in business, industry, and education accepts the basic job titles and their descriptions of duties.

However, all skilled trades do not require testing and certification in most of the world for two sound reasons. First, it is very costly since the test must be frequently upgraded due to the rapidly changing technology. Secondly, expert teams must review literally hundreds of tests every year and just the printing alone is a major cost.

not to mention the design and validation for each test. Further, examiners must be carefully trained to maintain a high level of objectivity, and careful control over the security of the tests is a difficult task. Another challenge is the "dated" certificate. Who will determine how long the certificate is valid in light of rapid changes in industry, or when to call for new certificates in a given trade?

Since the commitment has already been made to start the center, it is recommended that a review be made of the extent of the testing and certification program design. Serious consideration should be given initially to testing and certifying only those critical trades that relate to public safety, e.g., electricians, plumbers, bus and motor vehicle mechanics. Verification of competency for other trades should be satisfactory completion of the appropriate competency based courses in established and certified public or private school programs. The market place determines how skilled or efficient the workers are since if they are unable to perform they will be dismissed or required to take upgrading courses.

2. Teacher Training Addition

Consideration should be given to moving ISTI to the Amman Center with additional space provided to accommodate classrooms, offices and an instructional materials center. The new shops would become model or demonstration shops which would be used in conjunction with teacher training program and provide a practice teaching experience that would be totally realistic. Demonstration shops should be added for vocational subjects offered by MOE to facilitate the training of their instructors.

E. Changing the Perceptions of Vocational Education

1. Facilitating Choice

A major challenge to vocational education in Jordan is the negative perception that the majority of parents and students have of training for business and industry. This is reinforced by admitting students into the different streams on the basis of their cumulative scores in grades 8, 9, and 10, which limits students from having free choice, pressing those who do not score well into vocational programs. Students should be free to select any school program they so desire with the only determinant being their ability to successfully pass the courses as they are taken. Further, students graduating from any program should be able to take whatever additional work is needed in order to enter community college or the university if they can pass the minimum requirements for entry. It should be noted that changes are already underway to free up the 10th grade roadblock.

2. Vocational Industrial Clubs

While there are many ways to improve the status of vocational education, one of the most successful ever initiated in the U.S. was the Vocational Industrial Club (VIC) concept. Students in a given school with one or more vocational subjects have an opportunity to join a VIC for the purpose of enhancing their trade skills and knowledge, the development of democratic responsibilities, improving school relationships with business and industry, and expanding friendships. The group elects officers who run the club meetings; learn the responsibilities of leadership and in the process, all learn the rules of parliamentary procedure. A vocational teacher is selected to act as the club advisor. Activities include talks by key people from business and industry, visits to a variety of local firms, films about technology, sports, social events, and skill contests. Skill contests are the hall mark of VIC organizations. They involve establishing a problem in a trade area and then having a contest to see who can do the best work in solving the problem. For example, the problem in woodwork-program might be to construct a child's stool using power tools. The contestants would be given the drawings and materials to make the stool. Each student would be judged by experts from the community using the same criteria used by industry, such as accuracy, fit of joints, and finish. Winners from each school would go to a national contest along the same lines. Usually the contests are held on a holiday so parents and the public can attend. Each skill area would have a contest from typing and dressmaking to welding and metal fabricating. Business and industry participate by providing expert judges and others sponsor the contests and give prizes. The end result of the VIC activities is a sense of pride in craftsmanship by students and a new appreciation of vocational education by the community. The concept would work equally well for VTC, MOE vocational programs and CC technical programs.

F. Professional Organizations

In addition to the need for VIC, there is an urgent need for a vocational and technical professional organization with sub sections for trade teachers, technical teachers, training officers, program administrators, curriculum developers, guidance counselors, teacher trainers and instructional materials specialists (educational technology). The overall purpose of the organization would be to constantly improve the quality, relevance and status of vocational and technical education for the benefit of the students, employers and supporting professionals.

The organization should be imitated by the leadership groups from VTC, MOE, and technical Ccs. Activities of this professional organization would include such things as an annual conference at which professional papers are presented, a national magazine with articles of interest to the profession, publications on research, resources, public relations etc. It should also sponsor a national vocational and

technical education week. Help in establishing such an organization is available from the American Vocational Association.

G. Occupational Health and Safety Institute

The Occupational Health and Safety Institute (OSHI) of VTC has provided safety training for VTC vocational teachers since its inception. Although one of its major activities is safety training for VTC personnel, it has moved more toward the function of comprehensive responsibility for industrial health and safety in Jordan. As such, it should be concerned not only with the collection of accident data, but ultimately becoming the agency to monitor the compliance with safety and health standards. In short, training vocational teachers will become less important to the Institute's total responsibility and thus it should logically be returned to the Ministry of Labor.

Although VTC may not wish to lose jurisdiction over OSHI, the transfer has a significant advantage. It frees VTC to concentrate on its prime function of training skilled workers. Further, the transfer should not preclude a close association for the benefit of both organizations.

VIII. DEVELOPMENT COST ESTIMATE SUMMARY

The cost estimates presented below are a summary of the project development costs found at the end of each of the three vocational and technical training sections, i.e. MOE, VTC and Community Colleges. It should be noted that given the shortage of adequate funds for future development, every effort has been made by the team to limit costly expenditures, but there are areas of significant need. Much of the VTC currently planned development will be funded under the World Bank loan. However, to carry out the recommendations made for program improvement beyond what is already funded will require additional sources of revenue. The three entities should explore all sources for international funding both bi-lateral and multi-lateral. Additionally, each should seek to establish dynamic cost recovery programs using the country's resources with initiative and imagination. (Note: all figures are in US $.)

A. MOE Program

Curriculum Laboratory	230,000
Instruction Materials Center	265,000
Upgrading Facilities and Equipment	1,821,000
	2,543,000

B. VTC Program

Staff Development	867,000
Vocational Industrial Clubs of Jordan	217,000
Management Information System	5,074,000
	6,158,000

C. Technical Training Program

System Integration	30,000
Planning	55,500
Curriculum Center	271,000
Incubator Program	181,000
Linkages	70,500
Facilities and Equipment	490,000
Guidance and Placement	200,000
	1,297,500

Grand Total	9,998,500

APPENDIX I-A

JORDAN VOCATIONAL AND TECHNICAL TRAINING ASSESSMENT

VOCATIONAL AND TECHNICAL EDUCATION SCOPE OF WORK

BACKGROUND: The Government of Jordan is currently undertaking a far reaching reform of its entire educational system. The reform is focused on the primary and secondary levels as well as the vocational education system. This effort is being supported by $146 million in loan funds supplied equally by the World Bank and the Japanese Government. An important part of this effort involves support for vocational education. The IRBD has conditioned a portion of the support which it will supply to the sector on the execution of a demand study for vocational and technically trained labor. Other support for the sector may be forthcoming from the U.S. Government and other sources. In order to meet conditions for assistance, there is need for a thorough review of Jordan's entire vocational and technical training system. This review must encompass not only the demand aspects, but also must examine the structure of the current system and the implications of future demand on types of training, in which institutions such training should be offered, the geographic distribution of training units, and the size and cost of the overall program. The review must encompass the three main components of the sector; the technical streams of the Jordanian high school system, the Vocational Training Corporation (VTC), and the technical programs of the Jordanian community college system.

I. TITLE: Assessment of the Vocational and Technical Training System in Jordan

II. OBJECTIVES:

(1) to analyze the vocational and technical education sector in order to determine how effective it currently is in meeting the demand for skilled labor; (2) to examine the likely structure of future demand for skilled labor in Jordan and in the region to determine potential impact on the vocational and technical education system; and (3) to determine what improvements in the system need to be made and how they should be implemented and financed so that this future labor demand can be met.

III. STATEMENT OF WORK:

A. General Statement:

The contractor, in the course of this assessment shall (a) gather and analyze currently available studies and information on the existing vocational and technical education system including enrollment, course offerings, legal constraints, administrative policies, and employability of graduates (this review must encompass the high school

technical streams, the VTC and the technical programs of the community colleges); (b) analyze current Jordanian and regional labor needs and develop scenarios for future Jordanian and regional labor market demand; (c) make estimates as to likely training needs in regard to projected economic ? and resulting labor market demands, both in Jordan and regionally; and (4) determine what changes must be implemented in the vocational and technical education system to meet these needs.

B. Detailed Statement

1.) Review of the Existing Vocational and Technical Education System.

The contractor shall gather existing relevant documentation on the system and address the following issues:

- How is each component of the system administered? What laws and policies affect the administration of the system? Are there changes required to make the system more responsive and efficient?

- In what kind of occupations do vocational and technical graduates work? What percentage of graduates find work in their specialty? What percentage are unemployed and in what specialties? What do these statistics indicate about the effectiveness of the current system?

- Do employers feel satisfied with the vocational and technical students as apprentices and actual workers? Are they adequately and properly trained?

- Are graduates of one of the vocational or technical education streams (VTC), high school, community college, etc.) more marketable/competitive workers than others and why?

- What labor market projections are used, by whom and to what degree to plan future enrollments, specialty expansions and reductions?

- How are current teachers trained and what additional or different training is needed?

- Are existing facilities adequate in terms of both space and equipment?

2.) Labor Market Demand Assessment.

The contractor shall gather existing Jordanian and regional labor market data and evaluate its reliability. My reviewing the Jordanian

and regional economies and prospects for future growth, the contractor shall pinpoint the industries and specialties which will be most likely to exert the most impact on future labor market needs. The contractor is expected to rely largely on existing data, supplemented by interviews with industrial and governmental sources in Jordan, to produce scenarios for future Jordanian labor market demand. Secondary sources shall also be utilized for examining the regional economy and labor markets to determine the nature and magnitude of the demand for technical and vocation labor in those economies and the likelihood of Jordanian participation in these markets.

The contractor shall also examine the impact, both positive and negative, of educational and economic policies set by the Jordanian Government on labor demand creation.

3.) Training Needs Estimate.

On the basis of the foregoing analysis of likely labor demand, the contractor shall provide scenarios for the demand for training in various technical and vocational skills (in terms of both type and level of expertise) over the next five years (1991 through 1995). The objective is to provide as concrete a basis as possible for the near term future development of the technical and vocational training systems.

4.) Recommendations for System Development.

In accordance with the foregoing evaluations, the contractor shall identify modifications needed within the existing structure of the vocational and technical education system. Specific issues to be addressed include:

- improvements to current structure of the system and method of governments;
- modifications needed in the curriculum and specific course offerings;
- modifications needed in the apprenticeship system;
- projected faculty, equipment and facilities needs;
- location and number of training facilities.

The contractor shall provide detailed recommendations for implementing the necessary changes to the system - both administrative and physical - and estimates for the cost of such changes and suggested means of financing.

Annex A contains further details regarding the nature of all four phases of the expected review.

IV. REPORTS:

The contractor shall produce a report of all findings from the assessment including and executive summary focused on conclusions and recommendations in addition to a more detailed narrative which covers all activities outline in the scope of work. At the conclusion of the contractor's field work, the contractor shall submit a draft of the report for review by USAID/Jordan and the relevant technical offices of the Government of Jordan. Comments shall be supplied to the contractor within three weeks. Upon receipt of comments, the contractor shall revise and submit 20 copies of the final report to the responsible technical officer with thirty days.

V. RELATIONSHIPS AND RESPONSIBILITIES:

One of the vocational education experts (to be specified in the IQC) shall be the team leader for the contract team. The team shall work under the technical direction of a USAID/Jordan project officer from the Private Enterprise/Project Development office. Coordination with Jordan's Higher Council for Science and Technology shall also be arranged through the USAID project officer. The principal liaison for the HCST shall be Dr. Victor Billeh who also heads the newly established National Center for Educational Research and Development. The contractor shall also work in close liaison with selected counterparts from the Jordan Vocational Training Corporation and the Ministry of Education.

VI. PERFORMANCE PERIOD:

The expected start date for this work is May 1, 1990. The estimated completion date is twenty weeks after the actual start date.

VII. IMPLEMENTATION PLAN:

This assessment will be carried out in five phases, involving two separate trips to Jordan by the study team.

Phase 1: The first visit of the study team shall cover a two week period involving initial research and data collection. Additional data collection and research needs shall be defined and arrangements made to acquire the information needed. A subcontract shall be arranged to gather additional data and materials needed for the week.

Phase 2: Over a six week period the subcontractor shall undertake the collection of necessary data and research materials covering such areas as labor market demand and detailed information on the vocational and technical education systems themselves.

Phase 3: The expatriate team returns for a two week period. Working in association with the local professionals, they synthesize all available information and produce a draft report of all findings.

Phase 4: Over a three week period, USAID/Jordan and its Jordanian counterparts in education review the draft and provide comments to the contractor.

Phase 5: Upon receipt of comments, the contractor shall have thirty days to complete and submit a final report. The contract team leader shall have seven days during this period to provide final technical input and editing services for the report.

Position — Work Days

	1st Trip	2nd Trip	Final Report	Total
Vocational Education Specialist (#1)	14	14	7	35
Vocational Education Specialist (#2)	14	14		28
Labor Economist	14	14		28
Educational Management Specialist	14	14		28

Local Subcontracting

Sr. Researchers	48
Jr. Assistants (data collection)	120

VOCATIONAL EDUCATION SPECIALIST

These individuals must have an advanced academic degree in vocational and technical education. The individuals should have 5 to 8 years experience in education evaluation studies. Their main areas of concern shall be evaluating the current vocation education system and making recommendations for improvements specifically pertaining to the adequacy of teacher, curriculum, textbooks, equipment and facilities. It is anticipated that one specialist will investigate these concerns as they relate to the services sector industries while the other concentrates on the

Agricultural/Industrial sectors. These rules may be realigned as necessary at the Contractor's discretion. One of the vocational education experts shall be specified in the contract as the team leader for the assessment and shall be responsible for producing the final report.

LABOR ECONOMIST

This individual must have an advance academic degree in labor economics or a related field. The person should have 5 to 8 years experience in investigating labor markets, preferably in developing countries, and demonstrated ability to analyze, survey and predict labor market needs. The specialist shall be responsible, with local subcontractor assistance, for conducting the assessment of current Jordanian and regional labor market needs and developing scenarios for future Jordanian and regional labor market requirements in terms of both numbers and specialties.

EDUCATIONAL MANAGEMENT SPECIALIST

This individual must have an advance academic degree in educational administration and 5 to 8 years practical experience in a related field. The management specialist shall be responsible for examining the administrative structure of various vocational and technical systems, identifying their problems and recommending specific changes to the system. This includes both organizational and financial concerns.

APPENDIX I-B

JORDAN VOCATIONAL AND TECHNICAL EDUCATION ASSESSMENT

Preliminary Task Responsibility Schedule
(based on "Statement of Work")

Key • Prime responsibility
o Support role

Major Categories	#1 Voc. Ed. Specialist	#2 Voc. Ed. Specialist	Ed. Mgt. Specialist	Labor Economist	Finance Spec. VT
MOE programs:		•			
Vocational Training Corporation Programs	•				
Community College Programs			•		
Labor Market Demand				•	
Administration of Vocational and Technical Programs			•		
Financing VT					•
Administration					
1. How is each program administered?			•		
2. What laws and policies affect administration?			•		
3. What changes are needed to make system more responsive and efficient?			•		
Data on Programs					
1. Enrollment	•	•	•		
2. Course offerings	•	•	•		
3. Legal constraints	•	•	•		
4. Geographic distribution	•	•	•		
5. Guidance and Follow-up	•	•	•		
Employment of Graduates					
1. In what occupations do they find employment?	•	•	•		
2. What percent find work in their field of training?	•	•	•		
3. What percent are unemployed and in what specialities?	•	•	•		
4. What do statistics indicate about the systems effectiveness?	•	•	•		
5. Are employers satisfied with apprentices or workers programs?	•	•	•		
6. Are students adequately and properly trained?	•	•	•	o	
7. Are graduates of some of the 3 programs more competitive and marketable than others and why?	•	•	•	o	

	#1 Voc. Ed. Specialist	#2 Voc. Ed. Specialist	Ed. Mgt. Specialist	Labor Economist
Basis for enrollment Projections				
1. What sources are used?	•	•	•	
2. Who is responsible for making projections?	•	•	•	
3. How is expansion and reduction determined?	•	•	•	
Teacher Preparation				
1. What are the requirements for teacher preparation?	o	•	o	
2. What additional or different training is needed?	o	•	o	
3. Are existing facilities adequate in terms of both space and equipment?	o	•	o	
Labor Market Demand Assessment				
1. Gather existing data on Jordanian and regional labor market.				•
2. Determine prospects for future growth (1991-95)				•
3. What industries and occupations are most likely to show future labor market needs?				•
4. Supplement available data by developing instruments for interviews with industrial and governmental sources.				•
5. Produce scenarios for future labor market demands.				•
6. Review secondary sources to examine regional economy and labor market to determine nature and magnitude of demand for vocational and technical labor in those economies and the likelihood of Jordanian participation in these markets.				•
7. Review impact of GOJ economic and education policies on labor demand creation.	o	o	o	•
Training Needs Assessment				
Based on foregoing analysis, provide scenarios for training demand in the various vocational technical skills by types and level of expertise for 1991-95.	o	o	o	•

Recommendations for System Development

Identify modifications needed in existing systems:

		#1 Voc. Ed. Specialist	#2 Voc. Ed. Specialist	Ed. Mgt. Specialist	Labor Economist	Planning Spec. VT
1.	Improvements to current structure and method of governance	O	O	●		
2.	Modifications needed in curriculum and specific course offerings	●	●	●		
3.	Modifications to apprenticeship systems	●				
4.	Projected faculty, equipment and facilities needed	●	●	●		
5.	Location and number of training facilities needed	O	O	●		
6.	Recommendations for implementing necessary changes - administrative and physical-estimates of cost and means of financing	●	●	●	●	

Financing Vocational-Technical Education

1.	What is the nature and amount of financing over past 5 years?	O	O	O		●
2.	Compare financing for past 5 years with expected budgets in each part of the VT system; identify shortfalls/surpluses and indicate reason.					●
3.	Prepare projections of future spending requirements over next 5 years on basis of:					
	a. Operation of current system (taking into account projected flow of students into the systems).	O	O	O		●
	b. Operation of an improved system considering recommendations made in the assessment.					●
4.	Analyze availability of funds to support the system over next 5 years considering current finance sources only.					●
5.	Recommend other sources and methods of finance to support system.	O	O	O		●
6.	Recommend operational changes which would improve efficiency in use of financial resources in current and future systems.					●

APPENDIX I-C

Phase I Team Field Visits - August 1990

8/07/90	Center for Economic & Technical Studies	Crown Prince consultant for Economic Affairs, Managing Director
8/07/90	Ministry of Higher Education	Dr. Ahmad Bashayrah, Secretary General
8/07/90	Nat'l Center for Educational R & D	Dr. Victor Billeh, President
8/07/90	Ministry of Education	Dr. Ali Naserallah, Director, Vocational Ed. Dept.
8/08/90	Vocational Training Corporation	Dr. Ahmad Atwan, Director General
8/08/90	Ministry of Planning	Dr. Hussein Khatib, Researcher
8/12/90	Ministry of Education	Dr. Munther Al-Masri, Secretary General
8/15/90		Dr. M. Al-Rousan, Deputy Director for Community Colleges
8/16/90	Vocational Training Corporation	Dr. Ahmad Atwan, Secretary General
8/16/90	Follow-up Section, MOE	Mr. Salah Salameh

Schools Visited

8/13/90	Ain El-Basha Center (VTC)
8/14/90	Queen Nour Civil Aviation College
8/14/90	Sulleh Industrial School

USAID (frequent meetings were held with related personnel)

Mr. James Dempsey, Director, Private Enterprise and Project Development Office
Mr. Barry MacDonald, Deputy Director, Private Enterprise and Project Development Office
Ms. Marian Kettering, Private Enterprise and Project Development Office

Phase II Team Field Visits - February 1992

1/11/92	Ministry of Education	Mohammad Shihan, Director of Planning & Budget
1/13/92	Ministry of Education	Mohammad Seder, Director of Accountancy
1/15/92	Ministry of Education	Mohammad Seder, Director of Accountancy
1/15/92	Ministry of Education	Mohammad Shihan, Director of Planning & Budget
1/16/92	Ministry of Education	Mohammad Shihan, Director of Planning & Budget
1/17/92	Ministry of Education	Mohammad Seder, Director of Accountancy
1/29/92	Nat'l Ctr. for Educational R & D	Dr. Victor Billeh, President
1/30/92	Ministry of Higher Education	Mr. A'yesh Heyari, Head of Curriculum Division

1/30/92	Ministry of Higher Education	Mr. Mohammad Shihan, Head of Planning & Budget
1/30/92	Ministry of Higher Education	Dr. Ahmad Bashayrah, Secretary General
1/30/92	Ministry of Planning	Nabeel Amari, Director of Economic Planning
1/30/92	Ministry of Education	Dr. Ayesh S. Ayseh, Head of Curriculum Section
1/30/92	Ministry of Education	Dr. Fayes Rabeh, Deputy Director for Community Section
1/30/92	Ministry of Planning	Dr. Hussein Shakhatreh, Chief, Manpower Division
2/01/92	Ministry of Education, Follow-up Section	Mr. Salah Salameh, Head
2/02/92	Vocational Training Corporation	Dr. Ahmad Atwan, Director General
2/02/92	Vocational Training Corporation	Mr. Yousef Quraien , Director of Administration and Finance
2/02/92	Vocational Training Corporation	Dr. Awad Ouballi, Technical Director
2/03/92	USAID/Jordan	Barry MacDonald, Deputy Director, Private Enterprise & Devmt.
2/03/92	Ministry of Education	Dr. Izzat Jaradat, Secretary General Asst., for Planning & Dev.
2/03/92	Ministry of Education	Dr. Izzat Jaradat, Secretary General Asst., for Planning & Dev.
2/03/92	Ministry of Education	Mr. Ismail Abu Sondus, Chief, Publications Dept.
2/03/92	Ministry of Education	Manar Shawareb, Head, Nursing Education Division
2/03/92	Prevocational Education Division	Ghaleb Tuffaha, Head
2/03/92	Division of Statistics	Dr. Abdullah Al-Zo'bi, Chief, Popul. Surveys Div. (DOS)
2/03/92	Ministry of Education	Ms. I'tidal Dabbas, Head of Home Econ. Education
2/03/92	Ministry of Planning	Dr. Mahmoud Izza, ILO Consultnat to Manpower Division
2/03/92	Intermediate University College	Dr. Ahmad Mahmoud, Dean Academic Affairs
2/03/92	Ministry of Education	Mr. Abdelmajed Sultan, Head of cultural Center
2/03/92	Division of Statistics	Mr. Mashhour Shennaq, Chief, Price Division
2/03/92	Prevocational Education Division	Akram Abuairub
2/03/92	Ministry of Education	Dr. Munther Al-Masri, Secretary General
2/03/92	Ministry of Education	Eng. Ali Naserallah, Director, Vocational Education
2/03/92	Ministry of Education	Dr. Mohammad Atiyyah, Head of Technical Assistance
2/06/92	Intermediate University College	Ahmad J. Mahmoud, Dean, Member, board of Trustees
2/06/92	Intermediate University College	Yasin Sartawi, Chancellor
2/06/92	USAID/Jordan	Mr. Barry MacDonald,Deputy Director,Private Enterprise & Devmt.
2/06/92	Vocational Training Corp. Teacher Trg.	Eng. Samih Jabar, Director
2/06/92	Jordan Commercial Ctrs. Corp.	Dr. Rema Khalaf, L: Hunaidi, General Manager
2/06/92	USAID/Jordan	Mr. Nasr Nasr, Project Officer
2/08/92	Vocational Training Corporation	Dr. Yousef Quraien, Director of Administration and Finance
2/08/92	Ministry of Education	Mohammad Atiyyah, Head of Technical Assistance
2/08/92	Ministry of Education	Abdul Razzag Al-Manni, General Director of School Bldg. Proj.
2/08/92	Ministry of Education	Jamil Hijjawa, Procurement Division
2/08/92	Ministry of Education	Anwar Khasawneh, Division of Economic Education

2/08/92	MOE. Financial Affairs	Ahmed M. Agel, General Director Financial Affairs
2/08/92	Chamber of Industry	Dr. M. Halaiqua, Director General
2/08/92	Ministry of Education	Mohammad Seder, Director of Accountancy
2/08/92	Occupational Safety & Health Instit - VTC	
2/09/92	UNDP/Amman	Senior Program Officer
2/11/92	Vocational Training Corporation	Dr. Awad Ouballi, Technical Director
2/11/92	Intermediate University College	Yasin Shartawi, Chancellor
2/11/92	Intermediate University College	Marwan r. Kamal, Member, board of Trustees
2/11/92	Intermediate University College	Ahmad Mahmoud, Dean
2/11/92	Vocational Training Corporation	Dr. Amad Atwan, General Director
2/12/92	Vocational Education Follow Up Office	Raed Asryeh
2/12/92	USAID/Office of Health, Pop. & Nutrition	P.E. Balakrishnan, Director
2/12/92	Vocational Education Follow Up Office	Saleh Salameh
2/12/92	Vocational Training Corporation	Eng. Awad Ouballi, Technical Director
2/12/92	Vocational Education, Agriculture Div.	Ahmad Qutaifan, Head of Agriculture Education
2/12/92	Vocational Training Corporation	Dr. Ahmad Atwan, General Director
2/12/92	UNDP, Min. of Industry and Trade	Mrs. El-Ghul, Coordinator
2/12/92	Vocational Education Follow Up Office	Ghaleb Abedal Fatah
2/12/92	Vocational Education	Faisal Fares, Agricultural Education
2/13/92	Dept. of Curriculum & Ed. Tech., MOE	Ms. Suad Farkouh, Director of Educational Technology
2/13/92	Curriculum Division	Ahmad Shadeed, Head of Production Division
2/13/92	Curriculum Division	Mostafa Obaid, Head of Industrial Division
2/13/92	Ministry of Education	Ibrahim Al-Akash, General Director of Curriculum & Ed. Tech.
2/13/92	Ministry of Education	Ghaleb Tuffaha, Head of Prevocation Educational Division
2/13/92	Ed. R&D, MOE	Mohammad Ibrahim Rashed, Head of Follow-Up Division
2/13/92	Ministry of Education	Ali Nasrallah, Director of Vocational Education
2/13/92	Dept. of Curriculum & Ed. Tech., MOE	Mr. Aliyan Juneidi, Head, Vocational
2/13/92	Ministry of Education	Musa Abdul-Wali, Curriculum Directorate
2/13/92	UNFPA	Dr. Dirwas Alkhas, Senior Programme Officer
2/13/92	Vocational Training Corporation	Mr. Yousef Quraien, Director of Administration and Finance
2/13/92	UNDP/Amman	Senior Program Officer
2/13/92	Chamber of Industries	Dr. M. Halaiqah, General Director
2/13/92	MOE, Financial Affairs	Ahmed M. Agel, General Director Financial Affairs
2/13/92	National Ctr. for Educational R & D	Dr. Victor Billeh, President
2/15/92	Ministry of Education	Ali Nasrallah, Director of Vocational Education
2/15/92	MOE, Financial Affairs	Ahmed, M. Agel, General Director Financial Affairs
2/15/92	Ed. R & D, MOE	Mohammad Ibrahim Rashed, Head of Follow-Up Division

2/15/92	Ministry of Education	Abdul Razzag, Al-Manni, Director of Projects
2/15/92	Ministry of Planning	Dr. Hussein Shakhatreh, chief, Manpower Division
2/15/92	Vocational Training Corporation	Mr. Yousef Quraien, Director of Administration and Finance
2/15/92	Ministry of Education	Mohamad Atiyyah, Head of Technical Assistance
2/15/92	Ministry of Education	Ghaleb Tuffaha, Head of Prevocation Educational Division
2/16/92	Vocational Training Corporation	Mr. Yousef Quraien, Director of Administration and Finance
2/16/92	Ministry of Education	Ghaleb Tuffaha, Head of Prevocation Educational Division
2/16/92	Ed. R&D , MOE	Mohammad Ibrahim Rashed, Head of Follow-Up Division
2/17/92	Ministry of Education	Ali Nasrallah, Director of Vocational Education
2/18/92	Ministry of Higher Education	Mustafa Al-Idwan, Head of Examination Section, Com. Coll.
2/18/92	Ministry of Higher Education	Mohamad Hiary, Accountant, Community Colleges
2/18/92	Ministry of Higher Education	Fayez Al-Rabi, Director of Community Colleges
2/18/92	Ministry of Higher Education	Rabah Izzat, Research Section. Community Colleges

School Visits

2/06/92	Vocational Training corporation	Eng. Shamir Jabri, Director, Instructor & Supervisor Trg. Instit.
2/06/92	The Intermediate University College	Dr. Ahmad J. Mahmoud, Dean
2/06/92	The Intermediate University College	Dr. Yasir Sartawi, Chancellor
2/06/92	The Intermediate University College	Dr. Marwan R. Kamal, Member. Board of Trustees
2/08/92	Yajouz Zarqa	
2/08/92	Marka (Girls) Amman	
2/08/92	Arabic College	Dr. Mohammad Orabi, Dean
2/08/92	Arabic College	Mr. Ahmad Rafed, Director of Teacher Training
2/08/92	Arabic College	Mr. A. Nakhleh, Asst. Director of Teacher Training
2/08/92	The Arab Community College	Dr. Fawaz Abul-Al Ghanam, Dean
2/08/92	The Arab Community College	Mr. Abu Shaker, Asst. to the Dean
2/08/92	The Arab Community College	Mr. Ghaleb M. Ismail, Asst. Dean & Director of Admissions
2/08/92	The Arab Community College	Mr. Abdul Rahman M. Darwish. Laboratories Manager
2/08/92	Amman University College for Applied Engineering	Dr. Mohammad Alia. Dean
2/12/92	El Hashemieh Zarqa	
2/12/92	Sahab Amman	
2/12/92	Queen Alia'a Community College	Dr. Samih Abu Moghi, Dean & Chancellor
2/12/92	The Hotel Training College. MOE	Dr. Faysal Haj-Deeb, Director
2/12/92	The Hotel Training College. MOE	Mr. Salah S. Anani, Manager. Hotel Amman
2/12/92	Princess Alia Community College, MOHE	Dr. Nazek Qoeshat, Dean
2/12/92	Princess Alia Community College, MOHE	Mr. Bahbouh Al-Qaba, Ast. Dean (Academic)
2/12/92	Princess Alia Community College, MOHE	Dr. Nader Al-Qaseem,Teacher

2/12/92	Princess Alia Community College, MOHE	Mr. Ahmad Abu Salleh, Dept. of Evaluation
2/12/92	Amman University College for Applied Engineering	Dr. Mohammad Alia, Dean
2/13/92	Ein-Elbasha, Balqa	
2/20/92	Amman University College for Applied Engineering	Dr. Mohammad Alia, Dean

Industries

2/12/92	RUM (Metal Fabricators)	
2/12/92	Jordan Pipe Manufacturing	Eng. Abdel Jaber
2/12/92	Jordan Pipe Manufacturing	Rafig Alayan, Technical Manager
2/12/92	Jordan Pipe Manufacturing	Mohammad Tokatly, Training Officer

APPENDIX II - A

VOCATIONAL EDUCATION IN JORDAN

SURVEY OF ESTABLISHMENTS ENGAGING (5) PERSONS OR MORE IN JORDAN (SURVEY OF JORDANIAN EMPLOYERS AND EMPLOYEES) SURVEY DESIGN

Dr. Fathi Aroui

October 1990

Amman - Jordan

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Table No. (1)

Establishments Engaging (5) Persons or More

Industry	Number of Employees						
	5-9	10-24	25-49	50-99	100-99	200 or more	Total
Mining & Quarying	69	7	0	4	2	3	85
Manufacturing	799	233	116	52	26	21	1247
Electricity, Gaz & Water	0	1	1	0	0	3	5
Construction	10	17	18	15	13	1	74
Commerce (Wholesale, retail, trade, Restaurant Hotels)	239	175	50	32	9	4	500
Transport, Storage & Communication	63	44	16	7	0	9	139
Financing, Insurance & Real Estate	12	20	20	12	7	11	82
Services							796
Total							2922

Table No. (2)

Sample Design for Survey of Establishments Engaging (5) persons or More
(First Design)

Industry	Number of Employees						
	5 9	10 24	25-49	50-99	100-199	200 or more	Total
Mining & Quarying	1	0	0	0	1	1	3
Manufacturing	10	5	5	4	3	3	30
Electricity, Gaz & Water	0	0	0	0	0	2	2
Construction	1	0	0	0	0	1	2
Commerce (Wholesale, Trade, Restaurants Hotels	2	3	3	2	2	2	14
Transport, Storage & Communications	1	0	1	1	0	1	4
Financing, Insurance & Real Estate	1	0	0	1	0	2	4
Services							
Total	16	8	9	8	6	12	59

Table No. (3)

Sample Design for Survey of Establishments Engaging (5) Persons or More (Second Design)

Industry	Number of Employees						Total selected
	5 9	10 24	25-49	50-99	100-199	200 or more	
Mining and Quarying	2	0	0	1	1	2	6
Manufacturing	12	8	6	5	5	4	40
Electric Gas and Water	0	0	1	0	0	2	3
Construction	2	0	0	0	0	1	3
Commerce Wholesale Trade , Restaurants Hotel	3	5	3	2	3	1	17
Transport storage and Communication	1	0	1	1	0	5	8
Financing , Insurance and Real Estate	1	0	2	0	0	2	5
Services	0	0	0	2	1	0	3
Total	21	13	13	11	10	17	85

5. QUESTIONNAIRES USED IN THE STUDY:

This study aims at collecting data and informations from the employers and their employees who have any kind of vocational training and community colleges graduates. Therefore, two questionnaires has been designed for the purpose of this study, one for employers (form no.1) and the other for employees (form No. 2). The first drafts of these questionnaires were in English. These drafts has been discussed and adjusted. The English forms of these questionnaires translated to Arabic with few adjustments. Suitable coding system for these questionnaires has been used (See Annex no. 1).

For the purpose of the sample survey (100) copies of the questionnaire form (1) (employers questionnaire) and (600) copies of the questionnaire form (2) (employees questionnaires) has been prepared.

The final Arabic forms of questionnaires used to collect the data from the field translated to English (see Annex no. 2).

6. THE FIELD WORK:

By 9/4/1990 all the office work including the questionnaire, the final survey design and the preparations for the field work was completed.

From the 9/4/1990 enumerators started collecting the data from the field by distributing questionnaires (employers and employees questionnaires) one the base of one questionnaire to the employer and a number of questionnaires to employees depend on the size of the firm and the number of VTC, MOE Vocational Education and Community Colleges graduates (one questionnaire to every one who have any kind of Vocational Training in small firms engaging 5 - 9 persons, (2%) of employees in firms engaging (10 - 199) persons, (10%) of employees in firms engaging (200 or more).

During the first week of the field work we found that the number of questionnaires (employers and employees) collected were less than it was expected, especially from the vocational training graduates. Therefore, we decided to adjust the sample size and its distribution by size, economic sector and governorate in order to increase the size of the vocational training employees in the sample survey (see table no. 4).

By 24/10/1990 the total number of questionnaires collected from the field were (70 from employers and (484) from employees (see table no. 5).

All questionnaires has been reviewed, coded and entered on computer (by using SPSS program). Few questions in the questionnaires (Comments, suggestions,...etc) were tabulated manually.

Table No. (4)

Sample Design for Survey of Establishments Engaging (5) Persons or More (Second Design)

Industry	Number of Employees						
	5 9	10 24	25-49	50-99	100-199	200 or more	Total selected
Mining and Quarying	1	1	-	-	1	2	5
Manufacturing	7	6	11	8	7	8	47
Electric Gas and Water	-	-	-	-	-	2	2
Construction	-	-	-	-	2	-	2
Commerce Wholesale Trade, Restaurants Hotel	-	2	2	2	2	1	9
Transport storage and Communication	0	1	2	0	0	4	7
Financing , Insurance and Real Estate	0	0	1	0	0	1	2
Services	0	0	0	2	1	0	3
Total	8	10	16	12	13	18	76

Table No. (5)

Sample Size of Establishments Engaging (5) Persons or More

Industry	Number of Employees						Total Selected
	5 9	10 24	25-49	50-99	100-199	200 or more	
Mining and Quarying	1	1	-	-	1	2	5
Manufacturing	5	6	11	8	6	7	43
Electric Gas and Water	-	-	-	-	-	1	1
Contruction	-	-	-	-	2	-	2
Commerce Wholesale, Trade, Restaurants Hotel	-	2	2	2	2	1	8
Transport storage and Communction	0	1	2	0	0	3	7
financing Insurance and Real Estate	0	0	1	0	0	1	2
Services	0	0	0	2	1	0	3
Total	6	10	15	12	12	15	70

7. SOME OF THE MAIN PRELIMINARY RESULTS OF THE SURVEY:

To get some of the preliminary results of the survey, frequency tables has been used for each question used in the survey (employers and employees forms), see annex (3). The questions contains comments, suggestions....etc. were tabulated manually and the main of these comments and suggestions ..etc. will be mentioned in the final report.

From frequency tables annex (3) we can study the characteristics of the employers and VTC, MOE Vocational Education and C.C. graduates employees in the firms included in the survey. In the following we will mention some of these characteristics (all the data are on the disc) and problems were revealed by the survey:

I. EMPLOYERS SURVEY:

Frequency tables revealed some of the main characteristics of the employers in the survey such as:

1. 60.0% of the firms in the survey are working in industrial sector, 12.9 wholesale & retail trade, restaurants and hotels.
2. 43.0% of the firms established since 1980, and 73.0% of them established since 1970.
3. 45.0% of the firms engaging less than 50 persons, 17% engaging 50-99, 14% engaging 100-199 and 24% engaging 200 or more.
4. 61.4% of the firms increased the number of their employees during the last, 12.9% of them decreased the number of their employees and 24.3% remained the same.
5. 25.7% of the firms working with their full capacity and 8.6% of them working with less than 50% of their capacity.
6. 71.4% of employers have very important local demand problems, 28.6% have very important regional demand problems and 21.4% have very important outside the region demand.

II. EMPLOYEES SURVEY:

From the frequency table we can notice that:

1. 2.3% of the employees are less than 18 years of age, and only 0.8% of them are 60 years or more.
2. 85.3% of the employees are males.
3. 20% of the employees are working on administration and supervision, 45.7% skilled workers and 0.8% unskilled workers.
4. Only 4.6% of the employees have less than one year of work experience and 5.4% of them have 20 years or more of work experience.
5. 15% of the employees are working in current firm for less than one year and 9.7% worked for more than 10 years in current firm.
6. Only 0.8% of the employees are with university education, 30.4% with secondary vocational education, 10.3% with VTC training and 38.2% with Community Colleges education.
7. 31.4% of the employees mentioned that training is very useful and 1.2% of them mentioned that it is not useful.
8. 77.3% of the employees feel that their training helped them getting their jobs.

9. 39.7% of the employees mentioned that they were unemployed.
10. 74.3% of those who were unemployed spend less than one year as unemployed.
11. 56.0% of the employees have some type of job training.

APPENDIX II-B

NATIONAL CENTER FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

VOCATIONAL EDUCATION DEVELOPMENT IN JORDAN QUESTIONNAIRE
FORM (1)

SURVEY OF JORDANIAN EMPLOYERS
QUESTIONNAIRE

Name of firm _____
Address _____
Position of respondent _____

1. What does the firm make or do?

_____

2. Is the enterprise part of a larger company?

Yes: 20% No: 80%

3. How old is the firm (date of establishment)?

7 years: 20% 30 years: 20%

4. How many workers are employed by the firm?

0-10: 10% 10-20: 11.4% Over 50: 54.3%

5. Over the last year, has the number

a. increased? 62.9%
b. decreased? 12.9%
c. stayed at about the same level? 24.3%

6. What percentage of employees are

a. managers?
b. administrators?
c. technicians?
d. semi-skilled?
e. unskilled?

7. Capacity utilization

a.	90 - 100%	24.3%
b.	60 - 90%	44.3%
c.	50 - 60%	21.4%
d.	less than 50%	8.6%
e.	no answer	1.4%

8. How do you consider the following factors in determining the profitability of your firm?

		Very Important	Important	Not So Important	No Answer
8-a	Market demand				
a.	local	72.9%	17.1%	8.6%	1.4%
b.	regional	28.6%	32.9%	37.1%	1.4%
c.	outside region	20.0%	15.7%	61.4%	2.9%
8-b	Costs				
a.	material, equipment and supplies	71.4%	22.9%	2.9%	2.9%
b.	labor costs	57.1%	38.6%	2.9%	1.4%
c.	wages	55.7%	37.1%	5.7%	1.4%
d.	other labor costs	30.0%	44.3%	21.4%	4.3%
e.	energy costs	47.1%	32.9%	17.1%	2.9%
f.	subcontracts (please indicate the kinds of activities for which you subcontract)	10.0%	17.1%	55.7%	17.1%
g.	taxes	37.1%	42.9%	18.6%	1.4%
h.	interest payments	41.4%	32.9%	24.3%	1.4%
i.	transportation costs	25.7%	38.6%	34.3%	1.4%

		Very Important	Important	Not So Important	No Answer
8-c	Availability of credit	31.4%	31.4%	25.7%	11.4%
8-d	Government regulations (licenses)				
	a. on imports	37.1%	31.4%	30.0%	1.4%
	b. on exports	22.9%	22.9%	47.1%	7.1%
	c. labor regulations	31.4%	47.1%	20.0%	1.4%
8-e	Distance to markets	37.1%	25.7%	34.3%	2.9%
8-f	Communications	62.9%	24.3%	11.4%	1.4%
8-g	Competition from abroad	47.1%	30.0%	21.4%	1.4%
8-h	Skills of workforce				
	a. motivation to work	60.0%	34.3%	2.9%	2.9%
	b. attitude to work	54.3%	40.0%	1.4%	4.3%
	c. average productivity	65.7%	25.7%	4.3%	4.3%
	d. difficulty in finding specific skills at prevailing wage rates	37.1%	44.3%	15.7%	2.9%
	f. management skills	67.1%	27.1%	4.3%	1.4%
	g. supervisory skills	71.4%	24.3%	2.9%	1.4%
8-i	Lack of appropriate technology	35.7%	38.6%	21.4%	4.3%

9. Of the above factors which two would you consider most important in determining your firm's profitability?

1.
2.

10. How do you consider the following problems in setting up a firm like yours?

		Very Important	Important	Not So Important	No Answer
a.	licensing	37.1%	25.7%	32.9%	4.3%
b.	capital investment	85.7%	8.6%	2.9%	2.9%
c.	credit	35.7%	32.9%	22.9%	8.6%
d.	qualified employees	60.0%	31.4%	5.7%	2.9%
e.	management	65.7%	28.6%	2.9%	2.9%
f.	markets	85.7%	10.0%	1.4%	2.9%
g.	other (specify)				

11. Do you export any of your output or services?

Yes: 55.7% No: 44.3%

12-a Do you recruit workers for your firm?

Yes: 70.0% No: 30.0%

12-b If yes how do you (or would you) recruit workers?

		Yes	No	No Answer
b.	advertise in newspapers, radio, television	41.4%	51.4%	7.1%
c.	ask employees for suggestions	31.4%	60.0%	8.6%
d.	recruit from other firms in industry	14.3%	77.1%	8.6%
e.	check with labor offices	47.1%	44.3%	8.6%
f.	professional associations	28.6%	62.9%	8.6%
g.	get lists of graduates from VTC and vocational institutions	12.9%	78.6&	8.6%
h.	ask friends or family	17.1%	74.3%	8.6%
i.	combinations	45.7%	45.7%	8.6%

13. What do you look for in new employees?

		Very Important	Important	Not So Important	No Answer
a.	experience	61.4%	30.0%	7.1%	1.4%
b.	education	38.6%	45.7%	15.7%	
c.	technical training	47.1%	37.1%	15.7%	
d.	attitude, motivation	55.7%	35.7%	5.7%	2.9%
e.	wage demands	25.7%	58.6%	15.7%	
f.	willingness to work long hours	22.9%	37.1%	37.1%	2.9%
g.	other (specify)				

14. Do you prefer to hire

a.	already trained workers?	28.6%
b.	to provide the training yourself?	12.9%
c.	a little of each?	58.6%

15. DELETED

16-a Do you ever have problems finding specific skills?

Yes: 55.7% No: 44.3%

16-b If yes, which kinds of skills?

[To be tabulated by Jordanian contractors]

17. Do you provide any training for your employees?

Yes: 81.4% No: 18.6%

18. Is this training

a.	part of the regular job?	62.9%
b.	special planned programs?	18.6%
c.	unknown; not applicable?	18.6%

19. Could any of your programs be provided by VTC?

Yes: 40.0% No: 51.4% No answer: 8.6%

20. Do you ever send your employees for training outside of your firm?

Yes: 41.4% No: 54.3% No answer: 4.3%

21. If yes, please specify where.

a.	VTC		5.7%
b.	Vocational of Education, Ministry of Education	37.1%	
c.	Other (Specify)		57.1%

22. Do you provide any training for others, such as VTC?

Yes: 70.0% No: 28.6% No answer: 1.4%

23. Have any of your employees gone through

		Yes	No	No Answer
a.	VTC?	64.3%	25.7%	10.0%
b.	Ministry of Education Vocational Education?	64.3%	28.6%	7.1%
c.	other?	74.3%	12.9%	12.9%

24. How would you rank employees with vocational training in relation with other workers.

a.	much better	61.4%
b.	worse	8.6%
c.	no real difference	21.4%
d.	no answer	8.6%

25. If you are aware of any vocational training programs, how would you rate them?

a.	rather good	75.7%
b.	waste of time	4.3%
c.	doesn't seem to matter much	4.3%
d.	no answer	15.7%

26. DELETED

27. Some employers note some particular problems with the quality of their workers or with the kinds of training programs offered in the country. Please indicate whether you feel the observations apply to your employees.

		Agree	Disagree	No Strong Feelings	No Answer
a.	My employees require too much supervision.	78.6%	15.7%	4.3%	1.4%
b.	I have had to redesign jobs to fit limited workers skills.	30.0%	58.6%	8.6%	2.9%
c.	My workers know how to do their jobs, but they don't always do their jobs well.	44.3%	47.1%	7.1%	1.4%
d.	My workers are good. My business problems come from other sources.	41.4%	28.6%	25.7%	4.3%
e.	When hiring a new employee I don't really want a worker who is already trained. Just give me someone who is motivated and disciplined, and I'll teach him what I want him to know.	50.0%	42.9%	5.7%	1.4%
f.	If I could find better workers, I could expand my business.	44.3%	47.1%	7.1%	1.4%
g.	There are plenty of good workers available.	38.6%	50.0%	10.0%	1.4%
h.	I am hesitant to give my workers too much training because they may get hired away by another firm.	24.3%	64.3%	10.0%	1.4%
i.	I could get by with fewer workers if they were better workers.	37.1%	57.2%	4.3%	1.4%

28. What recommendations do you have for improving vocational training in Jordan?

		Agree	Disagree	No Strong Feelings	No Answer
a.	No ideas, have not really thought about the problem.	24.3%	52.9%	10.0%	12.9%
b.	Need more practical experience, less theory.	80.0%	10.0%	8.6%	1.4%
c.	Need to teach students better discipline.	77.1%	5.7%	14.3%	2.9%
d.	Need to teach students to be more interested in the quality of their work.	91.4%	1.4%	5.7%	1.4%
e.	Need to teach multiple skills for worker flexibility.	68.6%	24.3%	4.3%	2.9%
f.	Need to teach with machinery and equipment of the type used in industry.	87.1%	1.4%	8.6%	2.9%
g.	Change curriculum to better reflect required job skills.	78.6%	1.4%	14.3%	5.7%
h.	Teach better attitudes.	91.4%	1.4%	2.9%	4.3%
i.	Teach improved safety awareness.	92.9%	1.4%	2.9%	2.9%
j.	Need instructors with better experience in industry.	87.1%	1.4%	4.3%	7.1%
k.	VTC and Vocational schools need to have more contacts with employers.	94.3%	2.9%	2.9%	

NATIONAL CENTER FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

VOCATIONAL EDUCATION DEVELOPMENT IN JORDAN QUESTIONNAIRE FORM (2)

SURVEY OF EMPLOYEES QUESTIONNAIRE

For Computer Use

Name of Firm .....

1. Age — Month 11 Year 28

2. Sex — Male 85.3 Female 14.5 mis 0.2

3. What is your job here?

a.	Administration	18.6
b.	Supervisor	3.9
c.	Technician	45.7
d.	Skilled worker	16.9
e.	Semi-skilled worker	12.6
f.	Unskilled worker	0.8
g.	Other (specify)	0.6
h.	Missing	0.8

4. How many years total work experience do you have?

.....

5. How many years have you been with this company (or firm)?

.....

6. Have you completed your military services?

Yes 57.9 No 19.6 Missing 22.5

7. What is the highest level of education you have?

a.	University graduate	0.2	Specialization.....
b.	Some University	1.4	(specify the period of study)..... 0.2
			Missing 18.4

c. Community College 38.4 Period of study....46.5.....

d. Secondary Vocational Education 30.6

place of training..... period of training....31.8.....

e. Secondary Education 6.8 Type of Study .....

f. VTC Specialization..... Period of training .....

place of training .....

g. Apprenticeship training 4.8 specialization.....

period of training..... place of training .....

h. Preparatory 5.6

i. Elementary 1.4

j. Missing 0.4

Amman	16.5
Bulqa	4.5
Zarqa	7.0
Irbid	3.5
Maa'n	5.6
Missing	62.2

8-a Have you ever taken any short-term training courses?

Yes No

8-b If yes

a. What is the title of the course

b. Who sponsored your training

9. How useful that training course was for you?

a. Very useful 31.8

b. Useful 21.5

c. Somewhat useful 4.1

d. Not useful 41.3

10. At what age were you when first started to look for your first full-time job?

Year(s)

11. How long did it take you fo find that full-time job?

Month (s) Year

12. Was that first job related to your earlier training or education?

Yes 68.2 No 21.3 Missing 1.9

13. Do you feel your education or training helped you get that first job?

Yes 77.7 No 21.3 Missing 1.0

14. During your military service did you work in a job related to your education or training?

Yes 20.9 No 43.0 Missing 36.2

15. How many jobs have you had since your first full-time job?

Distribution:

0-1	200	5 or more	34
2-4	211	Missing	39

16-a Have you ever be unemployed?

Yes 40.7 No 57.6 Missing 1.7

16-b If yes for how long was the longest you have ever been unemployed?

Month(s) Year(s)

17. Do you think previous education or training has helped you on your current job?

a. Relevant, has helped 71.7
b. Not really relevant to current job 13.2
c. Relevant, but hasn't made much of a difference 13.4
d. Missing 1.7

18-a Do you feel you need further skill training ?

a. to improve your current job performance ? Yes 52.1; No 40.1; Missing 7.0
b. to increase your chances for a better job in the future ? Yes 46.1; No 45.7; Missing 8.3

18-b Please indicate type of training felt needed.

19-a Have you had further training on the job at any point during your work experience.

Yes 56.0 No 39.9 Missing 4.1

19-b If yes how helpful it was for your job?

a. very helpful 27.9
b. helpful 21.3
c. somewhat helpful 7.0
d. very little help 1.2
e. missing 42.6

20-a What has been most helpful in preparing you for your current job?

a. Education 19.4

b. Previous work experience 24.8
c. Vocational Training 50.2
d. Training provided by this firm 2.4
e. Missing 5.6

20-b If vocational training, please specify which type of training:

a. Community College 9.5
b. Vocational education 11.6
c. VTC 22.1
d. On job training 6.4
e. Missing 50.4

21. What suggestions would you have for improving training in the VTC or MOE or Community College programs?

a. More practical training	Yes	47.1	No	48.6	Missing	4.3
b. Better equipment	Yes	46.9	No	49.0	Missing	4.1
c. Training after military service	Yes	18.4	No	77.5	Missing	4.1
d. Better instructors	Yes	27.7	No	68.2	Missing	4.1
e. Need to offer different courses (specify)	Yes	10.7	No	85.1	Missing	4.1
f. Other						

22. Are you happy on your current job?

Yes 74.4 No 24.2 Missing 1.4

23-a Did anyone in particular help in securing your current job?

Yes 46.1 No 53.3 Missing 0.6

23-b If yes who helped you most?

a. Ministry of Labour Office 3.1
b. Educational teacher during education or training 7.0
c. Your relatives 21.1
d. Others: Friends 15.9
(specify)
e. Previous employer 52.9

24-a Did your vocational of technical school have a program to assist you in making a choice of which occupation to study?

Yes 31.8 No 64.3 Missing 3.9

24-b If yes how helpful it was?

a. Very helpful 18.6

b. With little help 13.2
c. Not at all 3.2
d. Missing 64.5

25. Where there enough hand tools in the shop or laboratory for you to use them whenever needed?
a. Enough 29.3
b. Somehow enough 47.3
c. Not at all 16.7
d. Missing 6.6

26. How would you describe the condition of the mechanical or laboratory equipment in the school shop or laboratory or VTC or the secondary vocational school or the Community College you graduate from?
a. All were in operable condition 29.1
b. Most were in operable condition 48.1
c. Many were not operable 15.1
d. Missing 7.6

27. If you served in the military before taking your first full-time job, would a refresher course in your occupational speciality have been?
a. Very helpful 41.7
b. Helpful 18.4
c. Not needed 5.4
d. Missing 34.5

28. Are you working for the same employer where you trained?
Yes 22.1 No 75.2 Missing 2.7

29. If yes did the program provide sufficient experience so that you feel confident while you at work.
a. Very much
b. Not enough

30. How would you rate the training provided by vocational education at VTC, MOE and Community Colleges in relation to the following:

	Excellent	Satisfactory	Need Improvement	missing
a. Instructors practical knowledge	23.6	31.2	36.4	8.9
b. Instructors theoretical knowledge	30.6	35.1	25.2	9.1

c. Use of Audio visual materials and

equipment	excellent	satisfactory	need improvement	missing
	18.0	36.4	36.6	9.1

31. What suggestions would you have for improving in the Vocational Training Programs at VTC, MOE programs and Community Colleges?

.....

32. Are there other courses that are needed for improving the Vocational Program?

Yes 47.1 No 40.1 Missing 12.8

33. If Yes specify the courses needed?

.....

.....

.....

APPENDIX III-A
Curriculum for Applied Vocational Education

	Subjects:	Classes/Week	
		11th Grade 1 st. sec	12th Grade 2nd sec
Core Curriculum	Islamic Studies Arabic Language English Language Science & Technology Social Studies	1 2 2 2 1	1 2 2 2 1
Total		8	8
Basic Science	Chemistry Biology	2 2	2 2
Total		4	4
Applied Sciences Vocational Sciences	Training Modules (practice & Occupational sciences Drawing Home Economics (females)	30 (Male) 28 (Females) 3 2	30 (Males 28 (Females) 3 2
Total		33	33
Supplementary Subjects			
Total		45	45
Practical Training			
Additional Basic Sciences			

Curriculum for Applied Vocational Education
(Industrial)

	Subjects:	Classes/Week	
		11th Grade 1 st. sec	12th Grade 2nd sec
Core Curriculum	Islamic Studies Arabic Language English Language Science & Technology Social Studies	3 3 3 3	3 3 3 3
Total		12	12
Basic Science	Mathematics Physics Chemistry	2 2 2	 4 3
Total		6	7
Vocational Sciences	Special Industrial Science Drawing Industrial Safety & Administration	3 3 2	4 4
Total		8	8
Supplementary Subjects		2	2
Total of Theoretical Courses		28	28
Practical Training		16	16
Additional Basic Sciences	Mathematics (add'l) Physics	2 2	2 2

Curriculum for Applied Vocational Education
(Nursing)

	Subjects:	Classes/Week	
		11th Grade 1 st. sec	12th Grade 2nd sec
Core Curriculum	Islamic Studies Arabic Language English Language Science & Technology Social Studies	3 3 3 3	3 3 3 3
Total		12	12
Basic Science	Chemistry Biology	2 2	2 2
Total		4	4
Vocational Sciences (Nursing)	Physiology Nutrition English Nursing & Care Medicine	2 2 2 4	2 4 2
Total		10	8
Supplementary Subjects		2	2
Total of Theoretical Courses		28	28
Practical Training		16	16
Additional Basic Sciences	Chemistry (additional) Biology (additional)	2 2	2 2

Curriculum for Applied Vocational Education
(Agriculture)

	Subjects:	Classes/Week	
		11th Grade 1 st. sec	12th Grade 2nd sec
Core Curriculum	Islamic Studies Arabic Language English Language Science & Technology Social Studies	3 3 3 3	3 3 3 3
Total		12	12
Basic Science	Chemistry Biology	2 2	2 2
Total		4	4
Vocational Sciences (Agricultural)	General Agri. sc. Special Agri. sc. Land & Irrigation Agri. Administration	2 4 2	2 4 2
Total		8	8
Supplementary Subjects		2	2
Total of Theoretical Courses		26	26
Practical Training		16	16
Additional Basic Sciences	Chemistry (additional) Biology (11)	2 2	2 2

Curriculum for Comprehensive Vocational Education Administrative & Finance/Commercial

	Subjects:	Classes/Week	
		11th Grade 1 st. sec	12th Grade 2nd sec
Core Curriculum	Islamic Studies Arabic Language English Language Science & Technology Social Studies	3 3 3 3 -	3 3 3 - 3
Total		12	12
Basic Science	Mathematics English	2 2	2 2
Total		4	4
Vocational Sciences (Admin & Finance)	Accountancy Office Work & Comm Computers Math. & Statistics Comm. Services Economics	4 4 2 - - 2	4 or 4 - 2 2 -
Total		12	8
Supplementary Subjects		2	2
Total of Theoretical Courses		30	26
Practical Training		8	8
Additional Basic Sciences	Mathematics (additional) English (11)	2 2	2 2

Curriculum for Applied Vocational Education
(Home Economics)

	Subjects:	Classes/Week	
		11th Grade 1 st. sec	12th Grade 2nd sec
Core Curriculum	Islamic Studies Arabic Language English Language Science & Technology Social Studies	3 3 3 3 -	3 3 3 - 3
Total		12	12
Basic Science	Chemistry Biology	2 2	2 2
Total		4	4
Vocational Sciences (Home Economics)	Special Voc. Course Admin. & Occup. Safety Drawing & Voc. Ed. Home Econ./Socials	4 2 2 2	4 - 2 2
Total		10	8
Supplementary Subjects		2	2
Total of Theoretical Courses		28	26
Practical Training		16	16
Additional Basic Sciences	Mathematics (add'l) Biology (add'l)	2 2	2 2

Curriculum for Applied Vocational Education
(Hoteling)

	Subjects:	Classes/Week	
		11th Grade 1 st. sec	12th Grade 2nd sec
Core Curriculum	Islamic Studies Arabic Language English Language Science & Technology Social Studies	3 3 3 3 -	3 3 3 - 3
Total		12	12
Basic Science	Math Biology	2 2	2 2
Total		4	4
Vocational Sciences (Nursing)	French Language Tourism Health & Nutrition Food Production Hotel Services	2 1 2 3 3	- - - 4 4
Total		11	8
Supplementary Subjects		2	2
Total of Theoretical Courses		29	26
Practical Training		16	16
Additional Basic Sciences	Math (additional) Biology (additional)	2 2	2 2

APPENDIX III-B

Industrial Traders

Occupational Categories	Major Components
1. Electricity/Power	1. Use 2. Generation 3. T and D 4. Cars
2. Electronics	1. Commercial 2. Radio and Television 3. Industrial Electronics 4. Maintenance of Computers
3. Maintenance of Electro-Mechanics Equipment	1. Office Equipment Maintenance 2. Industrial Maintenance
4. Maintenance and Repair Vehicles	1. Car Mechanics (gas) 2. Car Mechanics (diesel) 3. Farming equipment
5. Heating and Air-conditioning and plumbing	1. Air Conditioning 2. Refrigeration
6. Sheet Metal	1. Metal Casting 2. Car Engine Casting 3. Plant Maintenance
7. General Mechanics	1. General Mechanics 2. Foundry and Metal Casting 3. Metal Fabrication
8. Auto Body and Metal Fabrication	1. Auto Body 2. Welding
9. Construction	1. Building Construction 2. Finishing
10. Wood work and Decoration	1. Woodwork 2. Decoration

11. Press Printing

1. Design
2. Lettering
3. Pictures production
4. Offset printing
5. Plastics and cloths printing
6. Book binding

Agriculture:

1. Plant Reproduction
2. Animals Reproduction

Commercial:

1. Administration
2. Finance

Hoteling:

1. Hoteling

Home Economics:

1. In house manufacturing
2. Child care
3. Crafts
4. Cloth Production
5. Cosmetics

APPENDIX IV-A

VTC Trade Areas and Courses

Training Programme	Male	Females
1- Electrical (power)		
- Substation fitters	x	-
- Cable jointer	x	-
- Overhead line network	x	-
- Electrical installations	x	-
- Electrical home appliancies repair	x	x
- Auto electricity	x	-
2- Auto Mechanics		
- Light vehicle mechanic	x	-
- Diesel mechanic (trucks & buses)	x	-
- Heavy equipment mechanic	x	-
- Light vehicle services	x	x
- Truck driver	x	-
3- Metal Fabrication and General Mechanical Maintenance		
- Metal fabrication and welding	x	-
- General mechanics	x	-
- Plant mechnical maintenance	x	-
- Metal casting	x	-
- Metal profile fabricator	x	-
- Metal structure fabricator	x	-
- Aluminum profile fabricator	x	-
- Thick sheet metal fabricator	x	-
4- Plumbing and Climatization		
- Central heating mechanic	x	-

- Plumber	x	-
- Domestic refrigeration and airconditioning mechanic	x	-
- Domestic refrigerator maintenance	x	x
- Household plumbing maintenance	x	x
5- Building and Construction		
- Shutterer	x	-
- Stone mason	x	-
- Plastering	x	-
- Steel reinforcing fixer	x	-
- Block laying	x	-
- Tiles finishing	x	x
- Insulation worker	x	-
- Decoration	x	x
6- Electronics		
- Measuring and control instruments maintenance	x	-
- Radio and TV repair	x	x
- Radio and tape recorder maintenance	x	x
- Office machines repair	x	x
7- Wood work		
- Joinery	x	-
- Wood furniture making	x	-
- Wood furniture maintenance	x	x
8- Others		
- Food preparation	x	x
- Food servicing	x	-
- House keeping	x	x
- Ready made cloth making	x	x

- Dress making	-	x
- Clerk typist and office work	-	x
- Cloth flower making	-	x
- Ceramic flower making	-	x
- Copper flower making	-	x
- Toy making	-	x
- Bakers	x	-
- Retail sales	x	x
- Leather shoe making	x	-
- Spinning and weaving	x	x
- Sweets preparation	x	x

APPENDIX IV-B

VTC Number of Teachers Resigning by Program, Center

Vocational Center	Type of Work for Resigning Teachers	Numbers	Year
Hakama	-	-	-
Yajouz		2	89
	1 Mechanics Trainer	1	89
	2 Training Officer	1	89
	3 Vocational Guide	1	89
	4 Teacher	1	89
	5 Librarian Trainer	1	89
	6 Wood Work Trainer	1	89
	7 Auto Mechanics Trainer	1	90
Hashmeyeh	1 Trainer	1	89
	2 Central Heating Trainer	1	89
	3 Electricity Trainer	1	89
	4 Training Officer	1	89
	5 Driving Trainer	1	89
Ein El-Basha	1 Electiricty Trainer	1	89
	2 Hoteling Trainer	3	89
	3 Hoteling Training Officer	1	89
	4 Mechanics Trainer	1	89
	5 Auto body repair painting Trainer	1	89
	6 Air Condition and Refrigirator Trainer	1	80
	7 Mechanics Trainer	1	90
	8 Typing Trainer	2	90
	9 English Teacher	1	90
	10 Hoteling Trainer	2	90
Sahab	1 Hoteling Trainer	1	89
	2 Electricity Trainer	2	89
	3 Central Heating Trainer	2	89
Middle Ghor	Mechanics Trainer	1	89
Marqa	- Sewing Supervisor	1	89
	- Typing Trainer	1	89
Mashare'	Teacher	1	89
Aqaba	1 Metal Casting Trainer	1	89
	2 Electricity Trainer	1	89
	3 Hoteling Trainer	1	89
	4 Teacher	1	89
Queismeh	1 Mechanics Trainer	1	90
	2 Auto Mechanics Trainer	1	90
	3 Auto Body Repair Painting Trainer	1	90

APPENDIX IV-C

Trainee Enrollment by Subject and Location - 1989

Subject / Center		Welding and Metal formation	Mechanics Benzine Diesel	Auto body repair painting	Auto-Electricity	Professions electricity	Central heating	Air-Cond. and refrigeration	Mechanics maint.	Woodwork and decorating	Machining	Metal casting	Building and shuttering	Plastering and tiling	Pipes systems	Hotel Man. services of food produc.	Graphics printing	Farm mech. mech.	Sewing and dress-making	Radio and telev.	Office mach.	Sales	Typing and office works	Total of trainees	Grand total of	Number of employers	Number of employees
Hakkarou	1	10	55	19	22	60	33			29	23													251			
	2	12	65	12	15	53	22			43	18													240	714	306	
	3	7	50	13	13	67	29			27	12			5										223			
Tyouz	1	22	61	31	31	36	30	32		76	30	16												383			
	2	12	85	50	40	34	45	31		77	25	14				31					18			449	1253	438	
	3	22	82	33	40	55	58	30		74	19	13												426			
Hashemyeh	1	9	50		41	33	22		45	36														236			
	2	36	73		25	44	30		19	44					20									291	739	273	
	3	8	48		28	31	18		40	39														212			
Ein El-Basha	1	21	54	23	26	27	39	30	29	46	15			12		60	47							429			
	2	25	70	27	19	45	48	32	25	31			4	9		59	44							438	1326	503	
	3	25	59	28	24	37	50	31	16	52	12		6	8		73	38							459			
Sahab	1	32				23	45	23	15	60	21													219			
	2	39				41	50	18	12	69	32					27								288	816	339	
	3	38				55	60	17	14	66	39													309			
Marsa	1																		15	8	9	3	12	47			
	2																		34	11	11	13	36	105	152	57	
	3																										
Central Ghor	1		27	11																				38			
	2		25																					25	99	38	
	3		36																					36			
Trainers College	1					38																		38			
	2					58																		58	149	1	
	3					53																		53			
Qweismeh	1		115	34	40																			189			
	2		101	24	29																			154	548	179	
	3		119	41	45																			205			
Aqaba	1	8	11			11				7	8													55			
	2	21	35			22				12								10						90	177	42	
	3	13	19																					32			
Mushare	1					18		14		17														49			
	2	7				16				19														42	145	73	
	3	11				16		12		15														54			
Ramadiyeh	1		7			6			19															32			
	2	7	7			9			9															32	64	1	
	3																										
Hasse	1					6			15															24			
	2	12				11																		23	74	1	
	3	14				13																		27			
Ma'an	1																										
	2		13																					13	13	1	
	3																										
Totals	1	102	380	118	160	261	166	99	123	271	97	16		12		60	47	10	15	8	27	3	12	1990			
	2	171	474	113	128	333	195	81	65	291	75	14	4	9	20	117	44		34	11	11	13	36	2243	6269	2252	
	3	158	413	115	150	327	215	90	70	273	82	13	6	13		73	38							2036			
G. Totals	1	341	1274	386	438	921	576	270	258	836	254	43	10	33	20	250	129	10	49	19	38	16	48	6269			

Hashmite Kingdom of Jordan

Vocational Training Corporation

APPENDIX IV-D

Expected Training Opportunities Over The Next Five Years

Item	1992	1993	1994	1995	1996	Total
Apprenticeship	6730	7400	8140	8960	9860	41090
Mid. Term Training/One Yr.	2000	2200	2420	2660	2930	12210
Short Term Training/Beginners	1150	1270	1400	1540	1700	7060
Short Term Training Urban Development	900	1000	1100	1210	1330	5500
Short Term Training/ Unemployed	3270	3600	3960	4360	4800	19990
Short Term/Upgrading	1000	1100	1210	1330	1470	6110
Training of Trainers	700	770	850	940	1040	4300
Training in Safety & Occupational Health	400	450	500	550	600	2500
Total:	16150	17790	19580	21550	23730	98800

Text for Jordanian Proposal

MANAGEMENT INFORMATION SYSTEM

The continued development of Jordanian technical and vocational education is very dependent upon the proper allocation of resources both to that sector and within the sector itself. A key to judging when resources are being allocated is the establishment of certain standards for operational performance and the provision of sufficient teachers, facilities, and expendable funds to operate a program correctly. To accomplish this within a reasonable time frame requires that students are allocated among the existing facilities, that new facilities can be planned depending upon population growth and specialty requirements, that sufficient teachers are provided to the necessary school sites, that the requisite specialty laboratories are constructed and supported, and that sufficient expendable funds remain to continue operation of a facility.

Accordingly, an effective management information system for a vocational technical system requires the following five components as a minimum:

1. Student enrollment, by gender, by region, and by specialty;
2. Teachers, by gender, by specialty, by experience;
3. Curriculum, including textbooks and special requirements;
4. Facilities, including available square feet, specialty areas and condition;
5. Budgetary support, including allocations to salaries and direct expenses, and unit costs such as cost per student, cost per specialty, and cost per school.

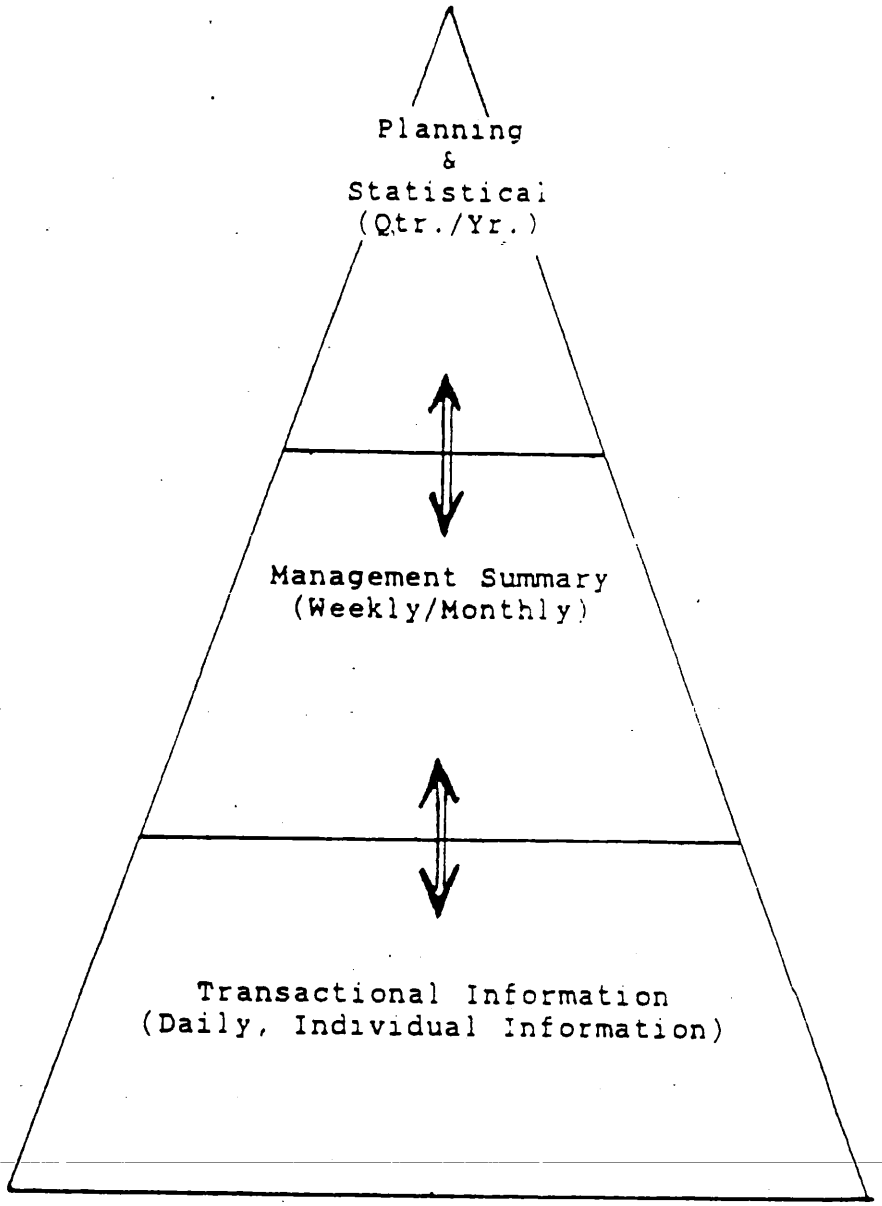
Initially, in a centrally planned system, such information can be gathered via survey, or on a quarterly basis from an inspectorate. Typically such a system involves a computer supported system which automates the actual processing, compilation, and analysis of such data. In later stages of the development of such a system, individual schools will operate their own base level system in order to quickly return the same information which is being reported centrally. Such a school or institution-level system supports improved management at the site level, and supports the more efficient allocation of local resources before such re-allocation is requested centrally. Exhibit 1 following describes a pyramid of information which is part of a general management information system.

As noted on Exhibit 1, the top level and typically narrowest point is strategic planning information which is on a longer time frame and involves comparisons between general country-wide needs and general country-wide capacities to fill such needs. The mid-level is considered operational management information. At this level, the headmasters or principals of schools have accessible information about the operation of their own organization typically on a monthly basis in order to determine whether efficiencies are increasing or decreasing, whether allocations of internal resources are happening according

to plan, and whether certain specialty areas are being properly or improperly supported. The widest base, the one involving the most numbers of transactions is generally called operational information. This is a highly individually-based, daily income and outflow of information. The operational level of information in the student region would be, for example, the registration of an individual student at the school. It would also be the processing of an individual paycheck for a teacher. Operational information by its nature must be highly specific, involve identifiers for each of the persons participating in the system, and typically is much too disaggregated to serve analytical and planning purposes.

In the case of Jordan which has in most cases a highly centralized system, with certain decentralized components, this basic pyramidal design would apply.

EXHIBIT 1
LEVELS OF A MANAGEMENT INFORMATION SYSTEM



APPENDIX VI-A

BUDGET DETAIL
1987-1991

Category	1987	1988	1989	1990	1991
Revenue					
VTC Self-generated	358,419	317,050	321,000	315,277	281,551
Government Support					
Current	1,500,000	1,425,000	1,000,000	1,453,750	1,850,000
Capital	500,000	665,000	500,000	300,000	311,815
Loans and Grants					
IBRD Loan	274,728	582,099	733,000	365,335	114,263
Provident fund Loan	130,500				
Industrial Dev'ment Loan Grant		11,714	50,000	26,000	
British Loan			410,000		
Australian Grant			156,000		
Social Security Corporation Grant				50,000	50,000
Loans Interests Grant					172,922
Local Grants					7,149
Total Revenue	2,763,647	3,000,891	3,170,000	2,511,303	2,787,700
Current Expenditure					
Salaries, Wages and Allowances	1,220,814	1,362,533	1,374,000	1,427,500	1,568,352
Transport Costs	44,042	52,903	34,700	23,500	34,824
Power Services	71,868	64,382	48,300	93,000	92,510
Maintenance	53,500	60,500	7,000	24,000	37,818
Stationery	11,006	12,000	5,000	18,000	37,780
Training Materials	150,000	162,000	45,000	60,000	277,627
Misc.	213,649	89,725	74,000	73,000	70,375
Social Security	41,551	105,000		50,000	241,558
Rewards and Overtime	48,830	47,938	30,000	21,000	64,820
Provident Fund	51,453	50,146	21,000	22,000	25,000
Equip and Furniture					11,380
Total	1,906,713	2,007,127	1,639,000	1,812,000	2,462,044
Capital Expenditure					
Land Purchase					27,365
Settlement of Loans	187,959	102,000	179,000	189,417	310,335
Vehicles, Machinery and Equipment All Centers	49,875	262,897	1,208,000	326,197	6,280

Appendix VI-A (Cont'd)

Category	1987	1988	1989	1990	1991
Driver's Center					169,600
Hoteling Center					43,912
Construction					
Safety Institute	200,000	89,190			
Safi TTC	30,000	175,000	175,000	60,018	
Aqaba TTC	200,000	175,238			
Driver's TTC	61,509				
Extensions	169,799	73,258			
Safi Housing		11,742	55,000	45,256	5,336
Ramtha TTC		50,000			
Amman T&TC					5,509
Extension of Ein-Albasha TTC					52,272
Total Capital	899,142	939,325	1,617,000	620,888	620,609
Total C&C	2,795,855	2,936,452	3,256,000	2,432,888	3,082,653
Balance (R-E)	(32,208)	(64,439)	(86,000)	(78,415)	(294,956)
Cumulative Balance	(364,524)	(396,732)	(332,293)	(418,283)	(339,878)
Total	(396,732)	(332,293)	(418,293)	(339,878)	(634,834)

APPENDIX VI-B

BUDGET DETAIL
1992-1996 Projections

Category	1992	1993	1994	1995	1996
Revenue					
VTC Self-generated	640,000	657,000	755,000	850,000	950,000
Government Support					
Current	2,200,000	2,619,000	2,737,000	3,121,000	3,438,000
Capital	1,490,000	1,395,000	874,000	779,000	505,000
Loans and Grants					
IBRD Loan	392,000				
Sector Loan	1,110,000	1,622,000	1,000,000	2,000,000	
Australian Grant	320,000				
Loans Interests Grant		42,000			
Total Revenue	6,194,000	6,311,000	5,366,000	4,950,000	4,893,000
Current Expenditure					
Salaries, Wages and Allowances	1,901,000	2,250,000	2,250,000	2,860,000	3,150,000
Transport Costs	35,000	40,000	50,000	58,000	65,000
Power Services	131,000	140,000	157,000	176,000	190,000
Maintenance	71,000	78,000	90,000	105,000	125,000
Stationery	37,000	40,000	50,000	60,000	68,000
Training Materials	300,000	330,000	365,000	400,000	440,000
Misc.	74,000	95,000	105,000	120,000	125,000
Social Security	320,000	206,000	45,000	50,000	55,000
Rewards and Overtime	75,000	100,000	110,000	122,000	135,000
Provident Fund	2,000				
Equip and Furniture		150,000	20,000	250,000	35,000
Total	2,946,000	3,294,000	3,492,000	3,976,000	4,388,000
Capital Expenditure					
Land Purchase	50,000	310,000	140,000		
Settlement of Loans	224,000	224,000	244,000	244,000	
Vehicles, Machinery and Equipment					
All Centers	1,145,000	80,000	90,000	100,000	11,000
Driver's Center	85,000				
Trucks and Trailers	160,000				
Double cabin pickup	60,000	60,000	120,000	150,000	120,000
Mini Bus	50,000	50,000	50,000	125,000	75,000
Manara TTC	40,000				

Appendix VI-B (Cont'd)

Category	1992	1993	1994	1995	1996
Quesmeh TTC	75,000				
Mid-ghor TTC	75,000				
Bakery in Yajouz and Hashimyah	130,000				
Yajouz, Ein-Elbasha, Hashimyah TTC, Hair dressing Equipment	75,000				
Training of Trainers Institute			180,000		
Amman Testing Center			680,000	200,000	
Karak/Mazar TTC			100,000	14,000	
Mafraq	100,000		140,000		
Tafeila TTC		100,000	140,000		
Madaba TTC			70,000	100,000	
Ma'an TTC			70,000	100,000	
Zarqa N. Girls TTC			70,000	100,000	
Irbid Girls TTC		80,000	120,000		
Marfaz Girls TTC				40,000	60,000
Deban/bani Hamida Girls TTC				40,000	80,000
Karak Girls TTC				40,000	80,000
Tafeila Girls TTC		40,000	60,000		
Ma'an Girls TTC			40,000	100,000	
Beit ras Urban Development TTC			50,000		
Zarqa Urban Dev. TTC			50,000		
Aqaba Hoteling TTC	60,000				
Text Books			100,000	200,000	250,000
Construction					
Ma'an Housing	55,000				
Amman T&TC	550,000	653,000			
Tafeila TTC	150,000	350,000			
Ein-Basha Extension	30,000				
in all Centers	15,000	120,000	150,000	180,000	200,000
Beit ras Urban Development TTC	15,000	75,000			
Zarqa Urban Development TTC	15,000	125,000			
Manara TTC	29,000				
Quesmeh TTC	19,000				
Mid-ghor TTC	25,000				
Aqaba Hoteling Center	43,000				
Bakery in Yajouz & Hashimyah	29,000				
Karak/Mazar TTC			250,000	260,000	
Mafraq TTC				250,000	260,000
Madaba TTC		150,000	190,000		
Ma'an TTC		150,000	190,000		
Zarqa N. Girls TTC			70,000	100,000	

Appendix VI-B (Cont'd)

Category	1992	1993	1994	1995	1996
Training of Trainers Inst.	80,000				
Headquarters	150,000	200,000			
Zarqa Girls TTC		140,000	190,000		
Irbid Girls TTC	110,000	570,000			
Mafraq Girls TTC			80,000	120,000	
Deban/bani Hamida Girls TTC			100,000	175,000	
Karak Girls TTC			100,000	175,000	
Tafeila Girls TTC	40,000	130,000			
Ma'an Girls TTC		40,000	130,000		
Total Capital	3,354,000	4,107,000	3,978,000	2,543,000	1,021,000
Total C&C	6,300,000	7,401,000	7,470,000	6,519,000	5,409,000
Balance (R-E)	(106,000)	(1,090,000)	(2,104,000)	(1,569,000)	(516,000)
Cumulative Balance	(634,834)	(740,834)	(1,830,834)	(3,934,834)	(5,503,834)
Total	(740,834)	(1,830,834)	(3,934,834)	(5,503,834)	(6,019,834)

APPENDIX VI-C

Ministry of Higher Education
Five Year Funding Display
Polytechnical Institutions
1987-91

Institution	Year	Amount Requested	Amount Allocated	Shortfall
Hussun Poly	1987	320,000	80,000	(240,000)
	1988	380,000	51,000	(329,000)
	1989	540,000	55,000	(485,000)
	1990	560,000	10,000	(550,000)
	1991	600,000	30,000	(570,000)
	1987	44,000	60,000	
Amman University	1988	69,000	60,000	(9,000)
College	1989	247,000	35,000	(212,000)
	1990	273,000	37,800	(235,200)
	1991	301,000	191,000	(110,000)
Tafilah College	1987	not yet open		
	1988	45,000	45,000	
	1989	-	-	(12,000)
	1990	20,000	8,000	
	1991	-	-	
Total		3,399,000	662,800	(2,736,200)

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