

The Hashemite Kingdom of Jordan



National Center for Human Resources
Development (NCHRD)

**TECHNICAL AND VOCATIONAL
EDUCATION AND TRAINING***

TVET Baseline Research
Focus on
Cost Analysis and Cost Comparison
Report Number 3

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Introduction and Acknowledgements

This is the third report conducted as part of an initiative dealing with baseline data in technical and vocational education. Each report relates to the overall thrust to identify indicators that can assist in assessing technical vocational education policy, practices and investments.

Report 1, TVET Baseline Research, deals primarily with the process of formulating indicators based on a consolidation of TVET system policy statements, strategies and mechanisms. In addition to identifying the steps within this process, relevant indicators and data sources are provided.

Report 2, Graduate Student Performance, deals with a review of tracer studies conducted during the past 10 years within the Ministry of Education, the Vocational Training Corporation and the Community College System. In addition to the review, recommendations on future initiatives are included.

Report 3, TEVT Financial Management Systems - Focus on Cost Analysis and Cost Comparison, is focused on the collection of key cost data from sixteen institutions, four from each of the TVET sub-systems. In addition to comparing the cost of delivery within each of these sub-systems, a review of the process of financial management is included in order to set the stage for further research in this area.

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TVET Cost Analysis and Cost Comparison

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Executive Summary

This study is based on data collected from four representative institutions from each of the Vocational Training Corporation (VTC), vocational schools and comprehensive secondary schools in the Ministry of Education (MOE), and community colleges) previously under the Ministry of Higher Education and now Al Balqa' Applied University). The focus is cost analysis and cost comparison. In all cases, it was difficult to secure comprehensive budget and expenditure data due to highly centralized financial management systems. Only in the case of the community colleges is there evidence of progress toward a program budgeting model whereby costs can be attributed to programs and courses.

For this reason, the research conducted must be considered as preliminary to a more comprehensive budget and expenditure study. Emphasis is directed to comparing data according to selected expenditure categories and administrative overheads at the central authority headquarters. Financial data is compared according to full time equivalent students and also according to the number of graduating students. Data is related based on actual enrolment and costing according to capacity. Facility and program utilization rates are also included as well as attrition and completion rates. Overall, there is sufficient data to draw some preliminary conclusions as to the cost of providing TVET among the different providers. It must be stressed, however, that the data is subject to a high margin of error due to the difficulty in attributing precise costs. It must also be stressed, that the results are indicative and provide a foundation for further research. Even with this preliminary data, it is clear that the costs of delivering TVET vary considerably and there is substantial room for increased efficiencies resulting from under-utilization and high attrition rates.

Because of the difficulty in getting the "correct" data, the Report also focuses on financial management systems and the data elements that should be applied in a relatively uniform way among the different service providers. Through the application of the recommendations herein, or some variance of them, it would be possible to complete a more thorough and reliable cost analysis.

The Report stresses the need for cost analysis and the fact that such study is part a continuum dealing with cost effectiveness and cost-benefit analysis. A series of questions are posed to assist the next stage of research. Also, recommendations for movement toward a more decentralized approach to budget development, expenditure control, and accountability are presented. This Report is a preliminary guide to further cost analysis and system efficiency research.

ACRONYMS

BAU	Al Balqa Applied University
CSS	Comprehensive Secondary Schools
FTE	Full Time Equivalent Student
MCC	Community Colleges
MOE	Ministry of Education
MOHE	Ministry of Higher Education
MOP	Ministry of Planning
NCHRD	National Center for Human Resources Development
ROI	Return on Investment
TVET	Technical and Vocational Education and Training
TOR	Terms of Reference
VTC	Vocational Training Corporation
VS	Vocational Schools

TVET Cost Analysis and Cost Comparison

1. Introduction

1.1 General

Most governments are facing difficult choices in effectively allocating scarce financial resources within their education systems. This is particularly evident in technical and vocational education where the cost per student is generally higher than that required for more general education. Because of these limitations, increased attention is being directed to (i) rationalizing the programs offered to reduce program duplication, and (ii) increasing attention on financial and program accountability.

In Jordan, there is a range of agencies involved in designing and delivering TVET. In some cases, courses and programs are similar; however each agency has a different set of circumstances and governance, which affects the cost of the services provided. Presently, there is not a clear sense of the differences in the cost in the overall provision of this level of education; nor are there estimates of comparative costs among similar programs.

1.2 Cost Analysis

Conducting cost-analysis is one step in a range of activities that are required to evaluate the relative merits of a particular investment and to enable improved allocations of resources. It is a *way of identifying, portraying and assessing costs*. These costs should be used in the broader activity of making rational choices among competing alternatives, which in turn should result in making choices on reallocations needed.

Cost-analysis requires access to relatively specific data and, to be of substantive value, such data should be available and obtained at the local (institute and department) level. In principle, cost-analysis is part of the conventional business profit-and-loss calculations. The focus in this study, however, reflects educational and social rather than private enterprise objectives. The process of cost-analysis is not easily applied, particularly if there are substantial differences in the way costs are apportioned, calculated and distributed. Also, it is more difficult to apply if the information is retained in a centralized system whereby funding is essentially a block allocation and not easily disaggregated by instructional program, by unit cost, etc. As detailed later in this Report, unfortunately, such a centralized system presently characterizes much of the TVET financial management system in Jordan.

1.3 Initial expectations

Originally, the focus of this study (see *Appendix I*) was to commence a process of comparing costs between different providers of similar programming. There were three core objectives specified:

1. To compare, among different TVET providers, the cost of providing similar courses or programs (output will compare, initially, only VTC and MOE institutions).
2. To establish a set of criteria, measurement indicators, and process for collecting cost data and conducting an analysis of the results.

3. To commence a process of linking cost-analysis studies with cost-effectiveness studies, and with cost-benefit analysis.

On a parallel basis, attention was also to be directed to two other themes:

- ❑ to review the relationship between the allocation of funds and the expected education and training outputs/outcomes (graduates with sufficient expertise to gain meaningful and productive employment) via transparent and effective financial management systems.
- ❑ to review the extent to which institutions assist themselves by generating income in order to help deal with limitations faced due to increased pressures on government resources.

The focus on financial management systems and the management of revenue generated by the institutions was considered valuable since information would be generated on:

- (i) The funding and financial management systems used in the various agencies involved in TVET
- (ii) System conditions that can be considered effective and those that can be considered detrimental (with the intent of establishing a baseline of past practice and an insight into potential practices).
- (iii) Based on this review, criteria for an efficient and effective financial management system could be established.
- (iv) The extent that Government and the current TVET providers operate according to these efficiency and effectiveness criteria.
- (v) Suitable finance and related indicators for developing a finance and cost performance framework, and thereby, a foundation for ongoing assessment and evaluation
- (vi) Mechanisms that (a) enable cost-savings, (b) eliminate expenses, and (c) secure benefits from high-value activities (case study reports if time permits).
- (vii) Initiatives that generate income from non-traditional sources to assist with operating expenses (case study reports if time permits). **Note:** Unfortunately there was insufficient time to conduct the case studies.

1.4 Actual accomplishments

Based on detailed reviews and data collection from sixteen (16) different TVET providers, it is clear that presently it is very difficult to secure a good understanding of the "cost of TVET" in Jordan. Certainly, it is not possible to compare programming costs except on a highly aggregated basis with considerable interpretation of data. Present systems make it almost impossible to conduct meaningful longitudinal studies or to identify delivery efficiencies that could be considered by other providers.

Due to the amount of time required to collect the basic cost analysis data, it was not possible, nor reasonable to pursue cost effectiveness. In reality, most institutions contacted had to recalculate their cost estimates provided to the consultants due to glaring inconsistencies or errors. After a considerable number of exchanges, it was not considered reasonable to ask these same individuals to provide other data.

The researchers, therefore, adjusted the focus in their work within the terms of reference. Greater emphasis was directed (i) to defining the costs that should be included in determining quality and efficiency in TVET programming and (ii) to establishing an analytical framework by setting forth a consistent body of concepts, definitions, assumptions.

By doing this, the researchers were able to refine the basic methodology for cost analysis and to identify its potential uses and limitations in determining the costs for delivering similar programs/courses between different providers.

2. Definitions

Defining costs depends on many points of view. For this reason, it is important that effort be directed to establishing common terminology to enable cost comparisons and also comparisons between the financial management systems used among the different providers and also to enable program comparisons. It is also necessary to make a distinction between funding and financing.

2.1 Funding

For the purposes of this Report, a "funding" system is one that relies solely on the disbursement, receipt and expenditure of government funds. This occurs in accordance with relatively rigid rules for expenditure and reporting. Essentially, this is the system under which most TVET programs in Jordan are offered.¹

2.2 Financing

"Financing" systems, on the other hand, incorporate other sources of income in addition to government funds (retained tuition, contributory fees, earned income, internal cost-savings and re-allocations, grants, loans, donations, etc.).

The financing approach implies the need for business and entrepreneurial expertise. It requires different attitudes toward institutional management when compared with the funding model which is oriented to a "work with what government gives us" approach and a parallel internal fund distribution system based on a grants or "this is all we have to offer" approach.

The financing model also requires a different attitude and approach by government, particularly in the degree of control it wishes to exercise over its educational institutions. The extent to which strict controls are applied within the financing approach (as compared to funding approach) relates to the degree of autonomy that is permitted among the individual institutions. Typically, in jurisdictions where there have been changes toward a financing rather than a funding model (at the institutional and at departmental levels) a substantially different institution tends to emerge. Education authorities have responded by granting greater latitude *(i)* to reallocate funding received from government due to internal efficiencies, cost-benefit measures, and value-added initiatives and *(ii)* to retain "other sources of income"

Gradually, such institutions are no longer totally dependent on the dictates of a government-funding agency (either from education or from finance) and are characterized by an internal energy and momentum to extend services within an entrepreneurial environment. Typically, such institutions are better able to respond to community needs and to uphold improved standards of instructional delivery. Certainly, such institutions have a well-established process of

¹ See Section 2.6 concerning the transition at Al Balqa' Applied University (ABAU) concerning their transition from a funding to a financing model

determining program budgets, ensuring fiscal accountability, and enabling fiscal control and audit systems.

2.3 *Cost-benefit*

Dealing with the costs of the design and delivery of courses and programs without looking into the benefits is really only half of the assignment. Calculating benefits introduces other techniques, particularly benefit-cost analysis. This Report does not deal at all with this technique. For the purposes of this Report, cost-benefit analysis deals with the cost of a particular sub-sector of education relative to the country as a whole and it aims *to quantify outputs and outcomes as benefits in monetary values*. The range of benefits to be considered in this scenario requires a much wider perspective than adopted in this study.

Integral to cost-benefit studies is an understanding of the actual costs of programs currently being delivered (cost-analysis). Without such data, it is impossible to start to establish a foundation and process for cost-benefit analysis e.g. data definition, data collection and the corresponding determination of suitable measurable indicators.

2.4 *Cost-effectiveness*

Also integral to cost-benefit analysis, is cost-effectiveness analysis. In this report, the term means analysing both the relative cost and the potential long-term value of each element of an education and training activity. The analysis aims *to develop strategies to optimize the costs associated with an activity and to compare, among institutions/programs, product(s) based on cost*. The technique **does not** deal with the value of outputs (graduates) and employment (outcomes) in monetary terms.

However, like cost-analysis, cost-effectiveness studies are one step in an overall cost-benefit analysis. Similarly, cost-analysis is the forerunner to cost-effectiveness studies. Essentially, therefore, the distinction between the three activities is one of degree and not of kind.

2.5 *Efficiency*

In order to evaluate efficiency in TVET as a form of "supply" to market needs, costs as well as benefits need to be considered. As indicated, cost-benefit techniques treat education costs as an investment and the future earnings of graduates as a return on investment. North American studies in the 1980's tended to show that the rate of return for technical and vocational education did not compare favorably with academic education.²

However, in the 1990's there has been a substantive shift whereby graduates of technical institutions are now securing much better salaries than before. In Jordan, as in many other developing countries, the public attitude to academic education and its value in broad knowledge as a foundation for further education and training, dictates that academic graduates command much higher salaries than TVET graduates. This scenario is likely to change as TVET programmers tailor their curriculum more to labor market requirements, particularly in information technology and related areas.

² Studies have also shown that the rate of return on technical and vocational education for women has a much higher rate of return than for men.

However, rates-of-return analysis need to be viewed with the same caution as cost analysis. Neither outputs should be interpreted in isolation, but in relationship with other types of evidence on the relevance and external impact of TVET.

From another perspective, it is assumed that greater efficiencies will result with greater institutional autonomy.³ This is not always the case and cost-analysis is obviously a key technique to be applied in order to guarantee such efficiencies. The application of such measures are highly useful in ensuring that the "implementing parties" are held accountable, simply because they are aware such cost-analysis studies will be undertaken, the results published, and appropriate actions taken.

2.6 Financial management models

Implicit in this Study is the thrust to have officials look at different models of financial management. The TVET institutions in Jordan already reflect different systems. On the one hand, the Ministry of Education, other Ministries with community colleges, and the Vocational Training Corporation, reflect a budget distribution model of funding. On the other hand, ABAU, in its strategic plan, enunciates a move to a Planning Programming Budgeting System (PPBS). When fully operational, this system will be significantly different from the traditional form of government budgeting in that it concentrates on results (outputs) as opposed to a consideration only of the resources required.

Cost-analysis is an important step in moving toward a Planning Programming Budgeting System. The steps needed in this transition are outlined in this Study (this shift has occurred at all levels of education in many countries and it is only a matter of time before countries such as Jordan adopt similar measures).

3. Policy Framework

3.1 General

The process of determining costs, conducting cost-effectiveness or cost-benefit studies each yield valuable information that might not be apparent otherwise. The more one pursues costs and associated benefits, the more it is necessary to clearly identify basic objectives. Typically, this requires detailed discussions to achieve a clearer appreciation of the longer-term national strategy or policy.⁴

Based on the researchers' review of current policy statements, there is a priority concern for economic planning in the short and medium-term future in an effort to diversify the economy and to achieve greater employment and to assist in the alleviation of poverty. Implicit in the documents is the need for the application of systematic budget austerity, cost recovery, some

³ This is a common assumption by those advocating greater institutional autonomy. In order for this to be somewhat guaranteed, it is essential that cost-analysis studies are conducted to ensure institutional managers are constantly adjusting their management practices to secure such efficiencies.

⁴ This Study is part of a broader initiative dealing with baseline data, also conducted during this same period. In this TVET Baseline Data Report, an attempt is made to articulate a policy framework from which cost-analysis, cost-effectiveness, and ultimately cost-benefit studies can be conducted.

transfer of responsibilities to the private sector, while at the same time, increasing emphasis on efficiency in, and the decentralization of, the delivery of services.

Essentially, therefore, there is a foundation and some specific policy statements concerning TVET financing. However they are not clearly articulated and there appears to be a number of weaknesses in existing policies, strategies and mechanisms. For instance, although the role of the private sector is stressed, there does not appear to be enabling legislation and regulations to foster the existence of guarantees of strong support from the private sector (employers contributions). By the same token, there seems to be a need *(i)* to rationalize learners and parents' share in financing education, *(ii)* to encourage entrepreneurialism and efficiencies, and *(iii)* to institutionalize an effective information management system(s).

3.2 Economics of finance

According to the recently promulgated Human Resources Development Strategy, current initiatives do not include effective application of educational economics and the development of economic models and methods that enable less costly education and training systems. This is compounded by the net reductions in the funds allotted to education and training in the general budget and limited financing for studies that would enable a closer relationship between TVET supply and demand.⁵ This view is supported in other articles on TVET decision-making.⁶

According to the directives in this Strategy, there is a need to vary and develop the financial resources required for human resources development systems and programs (including TVET). There is a need to rationalize and apply labour economics in choosing systems and programs best suited to human resources development. Following are some of the policies, relative to TVET financing, that are either stated or implied in this Strategy and other significant government documents.

3.3 Role of Government

Government needs to retain a primary role in providing the necessary investment for TVET, primarily to ensure program quality (output matches objectives), relevancy (output matches demand), accessibility and social equity. There is a need, however, particularly due to the high costs for this education sub-sector, to involve beneficiaries - students, trainees, and employers. This sharing is part of the need to develop an element of self-reliance among TVET providers in order to reduce the burden on government.

3.4 Decentralization

Increased freedom from detailed central agency control carries with it increased responsibility to guarantee that resources are effectively utilized and that programming responds to community and broader societal goals. Such actions also carry a greater breadth of accountability. In addition to the central agency responsibilities, accountability is also mandated to include students, instructors, community, private sector, etc.

⁵ See Human Resources Development Strategy, approved by Cabinet, 21 November 1998.

⁶ See Jordan: The Dynamics of Educational Decision-Making, Prospects, Vol. XXVII, No. 4, December 1997 (Dr. Munther W. Masri)

Typically, although education departments are prepared to relax some of the standard rules, other government agencies (particularly finance) are more reluctant to grant such leeway, particularly in the way revenues are collected and retained. Efforts to ensure transparency and accountability help to enable the support and collaboration required among the respective government agencies.

3.5 *Role of private sector*

The contribution of the private sector in financing the various costs of TVET needs to be expanded and encouraged since the corporations that they represent are the direct beneficiaries of the supply of the systems' graduates. The 1999 - 2003 plan explicitly states that there is a need to develop the private sector in shouldering the burden of training (see pages ? and ?).

3.6 *Role of self-financing*

There is a need to develop institutional capacity and also that of human resources development corporations to generate income that can help sustain and support TVET (see Human Resources Development Strategy 1999 - 2003). This is supported by other statements relative to the need to develop the internal and external sources of financing institutional expenditures by encouraging investment, production and research initiatives.

3.7 *Equality of access*

Learners' who are financially able to contribute to financing their education and training should do so at a level that enables others who are less able can be subsidized in order that their socio-economic status does not stand in the way of their participation. Similarly, learners who reside in areas that are relatively geographically isolated need to be enabled to access selected programs that otherwise would be too expensive to provide in less densely settled areas (or where the overall demand is strong, but for a limited number of graduates).

3.8 *Instructional delivery*

Greater attention needs to be devoted to the economics of teaching and training human resources through the use of less costly technological applications and instructional methods. These should be undertaken within the context of comprehensive studies related to educational economics. Documents suggest the need to review alternate and more cost-effective models of instructional delivery as a means to effectively reduce expenditure or to extend the benefit and impact of TVET within existing or improved budgets (cost-benefit greater even though it requires an increased financial allocation).⁷

4. *Study Approach*

4.1 *Expected outputs*

The researchers refined the terms of reference in terms of expected outputs. These include:

- (i) A preliminary cost comparison, on an aggregate basis, between VTC, Comprehensive Secondary Schools, and Specialized Vocational Schools.

⁷ See Jordan: The Dynamics of Educational Decision-Making, Prospects, Vol. XXVII, No. 4, December 1997 (Dr. Munther W. Masri)

- (ii) A cost comparison between selected community colleges.
- (iii) A list of indicators and data elements and a list of the data that should be consistently defined and collected in order to enable comparative cost analysis.
- (iv) A review of revenue generation activities and disbursement practices within each of the TVET providers studied.⁸
- (v) Present difficulties or obstacles (issues and problems) faced in achieving financial management systems, particularly relative to policy, procedural, staffing and attitudinal aspects.
- (vi) Policy adjustments, procedural changes and human resources development initiatives to enable (a) financial management systems to function more efficiently and effectively and (b) programs and services of TVET providers to be more relevant, responsive and of a high quality.

4.2 Study phases

The above outputs were addressed within the two phases of work undertaken within this Study:

- I. The first was a pilot study to compare the cost of TVET among three distinct approaches -- Specialised Vocational Schools, Comprehensive Secondary Schools, the Vocational Training Corporation. The output focuses on a comparison of expenditures relative to enrollment capacity, registrants and graduates. The results include comparative cost data on VTC (training centers) versus Comprehensive Secondary Schools, Specialised Vocational Schools versus Comprehensive Secondary Schools, and VTC (training centers) versus Specialised Vocational Schools. Comparative data was also been collected on community colleges as a reference and potential comparison.
A total of 16 institutions were included in the sample (see *Section 4.4*). See also *Appendix 2* for sample forms and questionnaires designed to enable data collection. *Appendix 3* provides a list of the persons interviewed.

Note: Data collection sheets were given to respondents by mail/fax, with a follow-up interview and subsequent consultations to secure the required data. The questionnaires were intended as a guide for interviews concerning the financial management system; however, insufficient time was available to expand on this aspect of research.).

- II. The second focus identified the data elements that are required in a comprehensive information management system relative to cost analysis (and to a lesser extent, cost effectiveness and cost-benefit studies). This kind of data is required, in time, in order to compare at the course and program level, rather than at the institution or TVET approach (i.e. VTC, Specialised Vocational schools, etc.). As suspected when defining the terms of reference, presently it is difficult to collect much of this data. However, the work undertaken, will set the stage for further study in this aspect of TVET and provide experience in the requirements for more in-depth cost-analysis applications.

⁸ Data on revenues were collected, however there was insufficient time to conduct an analysis of this data.

4.3 Study process stages

The study was conducted in eight (8) stages:

- Stage 1: Development of work program, formulation of questionnaires for both phases, and determination of sample institutions.
- Stage 2: Distribution of questionnaires, completion of field visits to explain data required, follow-up consultations based on data submitted, verification of data for cross comparisons.
- Stage 3: Analysis of data for completion of phase 1 cost analysis and cost comparisons.
- Stage 4: Follow-up visits to review revenue data collected, verify initial data element listing, and formulate basic concepts, assumptions required for ongoing information management in cost-analysis.
- Stage 5: On a parallel basis with Stage 4, attempt to collect case study material on cost-effectiveness initiatives.
- Stage 6: Preparation of list of issues and problems identified through data collection and interviews conducted. Compilation of draft report on phase 1 and introduction to overall report.
- Stage 7: Preparation of phase 2 draft report, including list of data elements required for cost analysis and compilation of analytical framework for such studies.
- Stage 8: Review report via discussions within NCHRD, revise and produce final report.

4.4 Target institutions

Following is a chart of the sample institutes and schools used in the study. These target data sources were chosen after deliberation within NCHRD and with various central agencies in order to reflect the respective sub-system.

The Ministry of Higher Education was involved in these discussions since data was collected for a four-year period. Therefore, data was collected both from the Ministry and also from Al Balqa' Applied University as well as the designated community colleges.

Table ...

Sample Institutes and Schools

<i>Vocational Training Corporation Centers</i>	<i>Ministry of Education Vocational Schools</i>	<i>Ministry of Education Comp. Sec. Schools</i>	<i>MOHE/ABAU Community Colleges</i>
Hashimieh Ein Al Basha Hakama Al-Tafila	Ibn. Al. Nafees Nur Al-Dean Zanki Wasfi Al Tell Al-Tafila	Omer Bin Kattab Zarqa Al-Qabisi Ma'an	Amman Zarqa Al-Husn Al-Tafila

4.5 Method of data collection

A series of tables (forms) were prepared and discussed with the central authorities (see Appendix 3). Subsequently, these were sent to each head of the respective institute or school after the

individuals were advised of the importance of this study from their respective headquarters. Each sample center was visited or contacted by phone and the forms were reviewed in detail and advice provided on the data requirements and schedule for submission. Follow-up consultations occurred in all cases. The data collection commenced in early October but was not completed until the third week of November.

In addition to the tables, several questionnaires were designed to secure information concerning the financial management system and the management of revenues. As indicated earlier, because the overall systems to date have been highly centralized much of the information the researchers hoped to collect was unavailable.

In terms of financial management systems, the intent was to secure information on budget planning, budget allocation, budget expenditure, revenue generation, cost effectiveness and financial audit, and staff training. The intent of these questions was directed at assessing the degree to which financial management systems ensure a direct relationship between funds allocated and expected TVET outputs/outcomes.

The following tables outline the categories of financial management, indicators and questions and data that should be sought in such a study.

Table 1
Budget Planning

Intended Standard	Indicator	Question/Data
Program manager has direct input into determining the funds required for their program.	✓ Detailed expenditures for current costs for previous year exist and in hands of program manager.	▪Do you have access to the total salary cost for your instructors? ▪Do these salary costs include the cost of benefits?
Program manager has access to all budget allocations within the institution.	✓ Cost calculations on a per student (FTE) basis exist and in hands of program manager.	▪Do you have a calculation on the cost per student for your program based on current expenditures?
Budget for Administration in comparison to program design and delivery remains an acceptable level whereby increases in administration allocations do not occur at a ratio greater than the percentage growth in Full Time Equivalent students.	✓ Cost calculations on a per graduate basis exist and in hands of program manager. ✓ Administrative overhead charges per program exist (assessed based on # of students/sq. meter space allocated) and in hands of program manager. ✓ Cost calculations for materials and supplies required by each student exist. ✓ Administration current budget allocation is no	▪Is there an overhead administration charge for your program? ▪Do you know the number of students in each of your programs/ courses for the past two years? ▪Do you know the number of graduates (%) in each program/course during the past two years? ▪Do you know how much the materials and supplies costs will be for each student (eg. Lab or workshop)?

	greater than 20% of the overall current budget allocation.	<ul style="list-style-type: none"> ▪ What is the ratio of administrative budget compared with the instructional current budget? ▪ Is there an analysis of the cost of administration and a breakdown of expenditures?
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Table 1 (continued)
Budget Planning

	<ul style="list-style-type: none"> ✓ Courses operate at 100% of capacity. ✓ Attrition rate is no greater than 10% per year. 	<ul style="list-style-type: none"> ▪ Is your program operating with full student capacity? ▪ If no, what capacity are you operating at? ▪ What is the attrition rate in the program during the previous year?
	<ul style="list-style-type: none"> ✓ Program manager prepares his budget and defends the request on a line-by-line basis to the institute's financial manager. 	<ul style="list-style-type: none"> ▪ How much time did you spend explaining your budget request to the institute's financial manager?
	<ul style="list-style-type: none"> ✓ Forecasted shortfalls in budget requirements reduced by independent revenue generation and the opportunity to retain a substantial portion of the funds. ✓ Guidelines exist that establish uniform procedures for the declaration of revenues generated and expended. 	<ul style="list-style-type: none"> ▪ Do you generate revenue that you are able to retain for your own program? ▪ What percentage of the revenue you generate can you retain as compared with that to be shared with other unit? ▪ Do you have a report, by activity, on the revenues generated? ▪ During last year, what percentage increase resulted in your current budget for last year from your revenue generation? ▪ During last year, what percentage increase resulted in your capital budget from revenues generated?

Table 2
Budget Allocation

Intended Standard	Indicator	Question/Data
Program manager is familiar with the overall institutional budget allocation and understands the complexity and difficulties faced in distributing scarce financial resources.	✓ Budget allocations by program are published and readily available to all program managers.	▪ During last year, do you know the budget allocations given to other program areas? If so, was this as a result of readily accessible information or did you find out by other means?

Table 3
Budget Expenditure

Intended Standard	Indicator	Question/Data
Program managers have clear authority and definite responsibility to expend funds according to their defined priorities, in accordance with established institutional limits.	✓ Policy guidelines exist and are adhered to in respect to the level of expenditure authority. ✓ Process of securing approval from a higher authority for expenditures within a budget allocation is efficient (takes less than 14 days).	▪ Can you expend funds directly and under your signature? If so, what is the maximum limit for which you can sign? ▪ Does the process of receiving higher level approval for a requested expenditure take a long time (15-25 days, one month, more than one month)?
Program managers have an understanding of efficiencies that need to exist within their programs and within the overall institution.	✓ Guidelines exist that enable program managers to seek and apply efficiencies in order to manage within their budget allocation. ✓ Guidelines exist that suggest to program managers and instructors on methods to reduce overall institutional expenses.	▪ Do you have an instructor utilization study indicating in-class and out-of-class (but working) hours per instructor? ▪ Do you have a space utilization study, which indicates the efficiency with which your allocated space is used? ▪ Do you have a guide for your instructors on how to conserve funds?

Table 4
Cost Effectiveness, Financial Audit and Staff Training

Intended Standard	Indicator	Question/Data
Financial Audit		
An annual audit of all budget and expenditures is conducted.	✓ Guidelines exist and funds allocated for an annual audit.	▪ Do you hire external auditors or do you use government auditors?
Staff Training		

Program management staff are well trained in all aspects of program planning, budgeting and cost effective management.	<ul style="list-style-type: none"> ✓ Courses/seminars are offered to all staff and instructors involved in financial management. ✓ Campaign to conserve costs established. 	<ul style="list-style-type: none"> ▪ Have you attended a seminar or a workshop sponsored by the institute in financial management? If so, when, for what length and what topic?
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Table 5
Revenue Generation

Intended Standard	Indicator	Question/Data
Institution manages to offset the shortage in governmental funds to provide for sustainable and sufficient finances for recurrent operations and for reasonable capital acquisitions.	<ul style="list-style-type: none"> ✓ Institution has a policy to enable and encourage revenue generation. ✓ Institution has well-articulated procedures for managing revenue generated through non-traditional means (not tuition, exam costs, housing, etc.) ✓ Government has instituted program to match funds generated as an incentive to greater institutional self-reliance. ✓ Individual departments are charged with the task of generating income to assist in meeting their own budget targets. ✓ Guidelines exist on the how to disperse revenues generated. ✓ An internal reward system exists for instructors/departments that successfully secure "outside funds". 	<ul style="list-style-type: none"> ▪ How much revenues do you collect each year and from what sources ▪ How is this revenue generated by program area? ▪ What criteria do you use to allocate the revenues and what records are retained on their use? ▪ To what extent do you have to redirect funds generated to central authorities? ▪ Has there been an increase in revenues generated or a decrease? Please explain the reasons for the changes.
Private sector is encouraged and enabled to contribute to the costs of TVET.	<ul style="list-style-type: none"> ✓ Systems exist to enable private enterprise to secure a taxable benefit from donations. ✓ Systems exist to assure private donors that their contributions are secure and used for dedicated purposes. 	<ul style="list-style-type: none"> ▪ Do you actively promote the private sector to contribute to the institution? If so, in what ways? ▪ Do you work with other agencies to increase the potential benefits for donors in order to enable further contributions? If so, with whom and what ideas have emerged?

4.5 Cost Analysis and Cost Comparison

The next part of this Report focuses on the actual data collection and the two main objectives:

- ♦ Cost comparisons between TVET sub-systems
- ♦ Cost analysis data requirements

Section 5 - Findings - includes the comparative results of the data collection on the sixteen institutions and on their respective sub-systems. The data is aggregated for these comparisons. Included in the section are a series of observations (listed as (i) to (xx)). Due to the limitations in the data collected, none of these observations should be considered final. Rather, they should be considered as indicative and providing a basis for further research.

Section 6 deals with observations relative to the process of financial management systems, data collection and data requirements. *Section 7* reviews recommendations and future studies.

These three sections are the core of the research output and comprise the final part of **Section A** of this Report. They are followed by **Section B**, which is divided into four sub-sections and data on each institution studied is recorded.

More detail on the data collected is included in the Appendices under *Appendix 4 - Statistical Data Collected - Backup Information*. This Appendix includes the raw data collected on expenditures as well as many of the backup data required for the tables on each sub-system and for the comparative analysis reviewed in

5. Findings - Sub-system Comparative Analysis

5.1 Central Agency Administrative Costs

In order to calculate comparative costs according to full-time equivalent students (FTEs) and also on a per graduate basis, data was collected on institution re-current expenses, depreciated capital assets and administration overhead expenses (administration refers to the parent headquarters offices such as VTC, MOE, MOHE, ABAU). The current expenses were collected directly from the institutes. The depreciated capital assets were derived from data from the respective ministry and the institutes and schools. Annexes 1-4, in *Appendix 4*, include the expenditure data for each sample institute or school.

Administration expenses in the central offices were calculated based on expenditure data secured from the respective administrative jurisdiction (see Annexes 5 - 7, *Appendix 4*), compared with enrolment data from the individual institutes (see Annexes 8 - 11, *Appendix 4* for enrolment data). It was not possible to include capital depreciation expenses for buildings and equipment that constitute part of the central administrations. This is because some data is not available from some of the jurisdictions. On the other hand, data relating to the sample institutes does include capital depreciation on their buildings and equipment. It should be noted, however that data on capital assets was very difficult to secure (See *Section 7.1 - Recommendations*).

Since central administration costs need to be included in determining institute costs, this section on comparative expenses commences with the central administrative expenses for each of the sub-systems based on the system FTEs (**Table 5.1.1**). The data are based on current prices.⁹

⁹ In some calculations, constant prices have been calculated. These take into consideration the cost of living index based on 1995 at 100; 1996 at 106.6; 1997 at 109.8; and 1998 at 113.2 (government statistics as the source).

Table 5.1.1
Individual Central Jurisdiction Administration Overheads Per FTE
 (at Current Price at JD's per FTE)

<i>Year</i>	<i>Vocational Training Corporation</i>	<i>Ministry of Education (MOE)</i>	<i>Ministry of Higher Education **</i>
1995	105.0	23.4	50.9
1996	127.0	24.4	47.3
1997	109.0	23.3	53.9
1998	106.0	26.7	40.9

** Ministry of Higher Education includes, in 1998, administrative costs for Al Balqa Applied University.¹⁰

- (i) It is clear that the administrative cost per FTE for VTC is substantially higher than the other sub-sectors and that the MOE has the lowest cost. This is due to a large extent by the fact that in the VTC system, students are in work settings for 50% of their studies therefore the number of students are lower, plus the cost of managing work placements adds to the administrative overhead costs.
- (ii) The MOE administrative cost for vocational schools and comprehensive schools is the same because it is based on the overall MOE budget compared with overall student enrolment.
- (iii) The administrative cost for Community Colleges in 1998 includes both MOHE and BAU. Given the decrease when compared with earlier years suggests that the shift in responsibility for community colleges, based on present information, may result in lower administrative overheads.
- (iv) The MOE, however, has substantially lower administrative cost per FTE when compared with the other sub-systems. This level of efficiency, when compared with the other two sub-sectors, is undoubtedly due to the higher enrolment levels at this level of education.

5.2 Institutional Expenditures and Central Administrative Costs

Annexes 1 - 4, *Appendix 4* include the detailed expenditure data by institute or school. These are aggregated in this section and detailed by sample center in later sections. When the above administrative costs are added to the sample institute or school expenditures on a per FTE basis, the following comparisons can be made (see **Tables 5.2.1** and **5.2.2**):

Table 5.2.1
Cost per FTE Comparisons based on Actual Enrolment 1995 to 1998
According to (i) Institute and (ii) Institute and Administration Expenditures
 (at Current Rates in JD's)

Note: highlighted column includes institute and administrative costs

<i>VTC Institutes</i>	<i>VTC Inc.</i>	<i>Voc. Schools</i>	<i>Voc. Schools</i>	<i>Comp. Schools</i>	<i>Comp. Schools</i>	<i>Com. Colleges</i>	<i>Com. Colleges</i>
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¹⁰ A previous study by Dr. Ahmad Husban (see bibliography) was based on data provided by MOHE that indicated 30% of current expenditure was for the non-university sector and that approximately one third of this amount was directed to public institutions. Therefore, Dr. Husban calculated that one third of the original 30% of overall expenditure was for the public community college system. In this current research, a figure of 80% of this original 30% and not one-third of the 30% has been used. Based on discussions with the MOHE and ABAU, it is suggested that approximately 20% of the original allocation for the non-university allocation is for non public community college activities.

		<i>Admin</i>		<i>inc. MOE</i>		<i>inc. MOE</i>		<i>& Admin</i>
95	463.5	568.5	571.3	594.7	317.1	340.5	959.8	1,010.7
96	481.0	570.4	577.4	601.8	316.4	340.8	954.0	1,001.3
97	430.0	490.9	578.6	601.9	353.2	378.5	1,067.2	1,121.1
98	408.0	454.1	576.6	603.3	344.2	376.9	1,063.9	1104.8

The following table is an elaboration of the aggregated data in Table 5.1.2 (a).

Table 5.2.2
Cost Per FTE Based on Institutional and Administration Expenses
On the basis of each Sub-System and Actual Enrolment: 1995 - 1998
(at Current Price at JD's per FTE)

<i>Year</i>		<i>Vocational Training Corporation</i>	<i>MOE Vocational Schools</i>	<i>MOE Comprehensive Secondary Schools</i>	<i>Ministry Community Colleges</i>
1995	<i>Institute FTE Cost</i>	463.5	571.3	317.1	959.8
	<i>Admin. Cost per FTE</i>	105.0	23.4	23.4	50.9
	<i>Combined FTE Cost</i>	568.5	594.0	340.5	1010.7
1996	<i>Institute FTE Cost</i>	481.0	577.4	316.4	954.0
	<i>Admin. Cost per FTE</i>	127.0	24.4	24.4	47.3
	<i>Combined FTE Cost</i>	608.0	601.8	340.8	1001.3
1997	<i>Institute FTE Cost</i>	430.0	578.6	355.2	1067.2
	<i>Admin. Cost per FTE</i>	109.0	23.3	23.3	53.9
	<i>Combined FTE Cost</i>	539.0	601.9	378.5	1121.1
1998	<i>Institute FTE Cost</i>	408.0	576.6	344.2	1063.9
	<i>Admin. Cost per FTE</i>	106.0	26.7	26.7	40.9
	<i>Combined FTE Cost</i>	514.0	603.3	370.9	1104.8

- (v) A comparison within the sub-systems managed by the MOE shows that the full cost (institution and administration cost) of service delivery for one FTE in a comprehensive school is substantially lower than in a vocational school. Over the period 1995-1998, there has been a slight increase in cost in vocational schools and a larger one in comprehensive schools. Nevertheless, based on current data, comprehensive school costs per FTE are much lower than vocational school education (1998 data comparison can be considered as indicative). This difference is primarily due to the fact that approximately 80% of comprehensive school students are in academic studies which are less costly, and, typically approximately 90% of the overall student body incorporates these academic students plus commercial vocational students. This latter vocational cluster is one of the least expensive program areas to operate due to relatively lower equipment costs and greater enrolment efficiencies (larger classes).

- (vi) Despite having a high administrative overhead cost, the VTC Training Centres have a lower cost per FTE than vocational schools (more than 50% less in 1995-1997).
- (vii) Similarly, VTC centers operate at approximately 45-50% less than data for community colleges. Therefore, VTC has the lowest overall FTE cost despite having the highest central administration cost.
- (viii) Community College institutional costs are much higher per FTE than the others and substantially higher with the inclusion of central administrative costs.

5.3 Cost Per Graduate

The above tables reviewed FTE costs. Following are statistics (same financial data) *based on the number of graduates*. It should be recognized that it would be better if data on employed graduates or employed non-graduates was available for inclusion in such cost comparisons. For purposes of this study, however, data is only available on individuals who successfully graduated. Following as **Table 5.3.1** is a summary of the cost per graduate according to each sub-system as compared with Table 5.2.1, which dealt with actual enrolment:

Table 5.3.1
Cost per Graduates Comparisons based on Number of Graduates:- 1995 - 1998
According to (i) Institute and (ii) Institute and Administration Expenditures
(at Current Rates in JD's)

	<i>VTC* Institutes</i>	<i>VTC Inc. Admin</i>	<i>Voc. Schools</i>	<i>Voc. Schools inc. MOE</i>	<i>Comp. Schools</i>	<i>Comp. Schools inc. MOE</i>	<i>Com. Colleges</i>	<i>Com. Colleges & Admin</i>
94/96	1350.8	1680	2628.9	2745.9	1201	1291.6	2724.1	2864.1
95/97	1313.7	1765	3748	3946.8	1521.5	1634.5	3311.2	3476.8
96/98	* VTC duration of study is three years.		3358.5	3510.6	1175.1	1273.2	3925.7	4162.9

The above table needs to be compared with Table 5.2.2, which deals with cost per enrolled FTE. Following are some observations that are specific to cost per graduate:

- (ix) The cost per graduate in VTC centers and in community colleges is almost **three times** their cost for one FTE. In the case of Vocational Schools, the cost per graduate is almost **six times** higher when compared with an FTE cost; whereas, in comprehensive schools the cost is approximately **five times** higher than the cost per FTE.
- (x) The VTC graduate cost is not unreasonably dissimilar to the graduate cost in comprehensive schools (e.g. 1995-1997: VTC Dinar 1,765 compared with 1,634.5 in comprehensive schools).
- (xi) There is an enormous difference in cost of graduates from VTC and comprehensive schools when compared with those from vocational schools and community colleges.
- (xii) Vocational school graduate costs are somewhat similar to those in the community college system (approximately the same in 1994-1996 and about Dinars 500 difference in other years, although initially higher for vocational schools and most recently for community colleges i.e. Dinars 4,162.9 in 1996-1998 in community colleges).

5.4 Facility Utilization Rates

A full review of costs requires an analysis of the degree to which costs could be reduced given greater utilization of the facilities.¹¹ Following as **Tables 5.4.1** the overall utilization rates are presented. These are followed by **Tables 5.4.2** where the rates for each of the sample centers in each sub-system are presented.

Table 5.4.1
Percentage Utilization of Full Capacity
TVET Sub-Systems 1995 - 1998

<i>Year</i>	<i>Vocational Training Centers</i>	<i>MOE Vocational Schools</i>	<i>MOE Compre-hensive Schools</i>	<i>Ministry Community Colleges</i>
1995	54.0 %	88.6 %	91.1 %	80.4 %
1996	51.5 %	86.5 %	92.5 %	84.2 %
1997	56.6 %	87.5 %	85 %	78.4 %
1998	59.1 %	88.7 %	88.4 %	68 %

Table 5.4.2
Utilization Rates in Sample Centers

A. Vocational Training Centers

<i>Year</i>		<i>Hashimieh</i>	<i>Ein Al. Basha</i>	<i>Hakama</i>	<i>Al-Tafila</i>	<i>Aggregate</i>
1995	<i>Percent Utilization</i>	47.5	64.6	58.8	30.5	54
1996	<i>Percent Utilization</i>	47	53.7	58.4	37	51.5
1997	<i>Percent Utilization</i>	54.7	61.7	58.3	26.4	56.6
1998	<i>Percent Utilization</i>	53	63	68.5	33.5	59.1

B. Vocational Schools

<i>Year</i>		<i>Ibn. Al. Nafees</i>	<i>Nur Al-Dean Zanki</i>	<i>Wasfi Al Tell</i>	<i>Al-Tafila</i>	<i>Aggregate</i>
1995	<i>Percent Utilization</i>	94.5	78	99.7	65.9	88.6
1996	<i>Percent Utilization</i>	90.7	78	90.4	63.4	86.5
1997	<i>Percent Utilization</i>	88.8	85.3	97.4	67.9	87.7
1998	<i>Percent Utilization</i>	84.2	88.3	97.8	79.1	88.7

¹¹ Similarly, delivery costs should also be reviewed according to instructor/student ratios and instructor workload in order to ascertain a broader perspective on costs.

C. Comprehensive Secondary Schools

<i>Year</i>		<i>Omar Bn Al-Kattab</i>	<i>Zarqa</i>	<i>Al-Qabisi</i>		<i>Aggregate</i>
1995	<i>Percent Utilization</i>	89.8	113	75.6	59.3	91.1
1996	<i>Percent Utilization</i>	86.5	110	110	90.9	92.5
1997	<i>Percent Utilization</i>	76.2	101	84.2	74.7	85
1998	<i>Percent Utilization</i>	76.4	107	98	67.3	88.4

D. Community Colleges

<i>Year</i>		<i>Amman</i>	<i>Zarqa</i>	<i>Al-Husn</i>	<i>Al-Tafila</i>	<i>Aggregate</i>
1995	<i>Percent Utilization</i>	31.6	116.8	83.3	41.5	80.4
1996	<i>Percent Utilization</i>	61.5	115.4	92.4	41.5	84.2
1997	<i>Percent Utilization</i>	49.3	112	81.6	54.5	78.4
1998	<i>Percent Utilization</i>	66	81.5	69.6	58	69

As can be seen from the above tables, the overall utilization rates for each institute are substantially less than capacity. For this reason, the average utilization rates presented in **Table 5.4.1** have to be reviewed based on each scenario. It is clear that with more students the cost of TVET could be substantially reduced (see **Table 5.1.3**). Following are general observations:

- (xiii) The highest utilization rates occur in comprehensive schools (approx. 90%) whereas the lowest occurs in VTC (approx. 55%). Vocational schools average around 88% and community colleges around 80% except for in 1998 where a low figure of 68% occurred.
- (xiv) These utilization rates obviously effect the cost per FTE and cost per graduate. Given VTC's low utilization, it is clear that they could improve on their costs given greater utilization of facilities. This would mean that their cost per FTE and graduate, which are already very competitive or better than the other sub-systems, could be improved greatly.
- (xv) In the comprehensive schools there is over-utilization of some facilities suggesting overcrowding. This may have an impact on the number of graduates if the teaching-learning process is affected.
- (xvi) The inclusion of Al-Tafila in VTC, Vocational Schools and Community College calculations has an impact due to the quite low utilization rates.

Table 5.1.3 provides a comparison of FTE costs adjusted for the above utilization rates:

Table 5.1.3
FTE Cost based on Percentage Comparison of Actual Enrolment vs. Full Capacity
TVET Sub-Systems 1995 - 1998
 (according to JD's at Current Price)

Year	Vocational Training Centers		MOE Vocational Schools		MOE Comprehensive Schools		Ministry Community Colleges	
	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity
1995	568.5	306.7	563.2	478.7	340.5	310	1,010.7	913
1996	608.0	312.9	572.8	495.7	340.8	315.4	1,001.3	843.5
1997	539.0	304.8	573.3	501.5	378.5	321.7	1,121.1	879
1998	514.0	303.7	548.4	486.5	376.9	333.2	1104.6	762.2

Note: data on each sample institute or school is included in the respective sub-section following. See also Annexes 21 - 24 and 29 - 32, Appendix 4.

The above table provides the cost per FTE based on actual enrolment and the forecasted cost (if expenditures remained the same) if operations occurred at full capacity. The table is somewhat misleading since an increase in number of students is likely to result in an increase in operating costs (instructors, materials, etc.), however it is indicative and should be considered. Following are some observations:

- (xvii) Given that the VTC utilization is between 50-60% on average (much lower in some training centers), there is substantial room for increasing the number of students based on facilities.
- (xviii) Given the relatively high utilization rates, there would be less impact per FTE in the comprehensive schools. However, given the large number of students in this sub-system, the efficiencies would be substantial and could enable improved teacher working conditions and student learning.
- (xix) In the other sub-systems, vocational schools and community colleges, there is also a substantial cost benefit to increased enrolment, however, not to the same extent as the potential in VTC. If 1997 was taken as a sample year, vocational schools could reduce their costs by approximately Dinars 70 per FTE and community colleges by Dinars 240 per FTE.

5.5 Attrition Rates

In order to provide a comparison among the sub-sectors, the researchers calculated the average rate over the four-year period of study. This is necessary because of the differing periods of study among the sectors. The rate of attrition for each institute or school studied is provided in detail in **Section B**. Based on the average assessment, the results show that there is a very high attrition rate within the overall system.

The vocational schools have a completion rate of only 31.9 % which is slightly better than VTC with a completion versus attrition ratio of 43.9 to 56.1 %. Only the comprehensive schools and the community colleges have a completion rate greater than 50 %, with attrition at comprehensive schools amounting to 48 % and at community colleges at 42.2 %.

5.6 Instructor - Student Ratios

Data was collected on instructor-student ratios only for the years 1999-2000. It shows (**Table 5.6.1**) that the aggregate number of students per instructor in all systems is quite low. In the case of VTC and the community colleges, the ratio is approximately 1:17 students. The aggregate for community colleges is affected to a degree by the situation at Amman Community College where the instructor-student ratio is at 1 : 35.

In the comprehensive schools it averages 1 : 13.7 and in the vocational schools it is 1 : 9.3. It is suggested that these figures indicate that the earlier comments about the concern about increases in operating costs if greater numbers of students attended (and graduated) from these institutions is perhaps too alarmist. It is suspected that there is considerable capacity within the four sub-systems without the need to incur much additional cost.

Table 5.6.1
Ratio of FTE to Teachers and Instructors in the Year 1999/2000

<i>Vocational Training Center</i>	<i>Hashimieh</i>	<i>Ein Al-Basha</i>	<i>Hakama</i>	<i>Al Tafila</i>	<i>Aggregate</i>
No. of FTE	1,039	1,726	882	200	3,845
No. of Teachers	63	87	55	23	228
Ratio	16.3	19.8	16	8.7	16.9
<i>Vocational Schools</i>	<i>Ibn Al -Nafees</i>	<i>Nur Al-Dean Zanki</i>	<i>Wasfi Al- Tell</i>	<i>Al Tafila</i>	<i>Aggregate</i>
No. of FTE	470	303	653	274	1,700
No. of Teachers	53	35	64	31	183
Ratio	8.9	8.7	8.4	8.4	9.3
<i>Comprehensive School</i>	<i>Omer Bn Al-Kattab</i>	<i>Zarqa Com. School</i>	<i>Qabisi</i>		<i>Aggregate</i>
No. of FTE	865	677	523	215	2,280
No. of Teachers	54	45	40	27	166
Ratio	16.1	15	13.1	8.1	13.7
<i>Community Colleges</i>	<i>Amman</i>	<i>Zarqa</i>	<i>Husn</i>	<i>Al Tafila</i>	<i>Aggregate</i>
No. of FTE	980	800	1,200	420	3,400
No. of Teachers	28	44	80	46	198
Ratio	35	18.2	15	9.3	17.2

5.7 Summary

Sections A6 and A7 expand on the observations included in the above section and also provide a guide to the steps that need to be considered for future studies. Section B follows these two sections. It provides detail on each of the institutions within each sub-system.

6. Observations

6.1 General observations

6.1.1 Fiscal capacity and funding sources

There are quite severe limits on the growth of the Government budget. Standard government policy emphasizes the need for careful limits on overall public expenditures, which implies the need for cost-recovery and self-sufficiency. TVET policy confirms the necessity of alternate sources of funding (e.g. development of production units, continuing education, etc.), including a greater role for the prime beneficiaries (students, parents and the private sector).

6.1.2 Assessing costs

Existing measurements of the cost of providing technical and vocational education are approximate and inconsistent. Because of the multiple types of technical and vocational providers, there is a wide variation of costs among schools/colleges and there are numerous local factors that impinge on the calculations.

The researchers felt that cost analysis should be conducted in large part on the basis of data collected at the local level; however, it is presently difficult to secure the level of detail required. Given that the researchers had a prior understanding of this potential situation, they conducted interviews in support of the data collection at each of the sample institutions. These interviews confirmed that much of the data remains centralized and not apportioned on a program basis, particularly direct and indirect instructional costs. Similarly, there is an absence of good qualitative data to support an assessment of program costs. This overall scenario makes it very difficult to draw definitive conclusions based on the existing information.

Inconsistencies in reporting the same data from within the same institution also compound the problem of securing accurate data. There were even some instances of receiving conflicting information from the same sources.

This suggests and reminds the researchers of the fact that there is a substantial margin for error that characterizes this kind of data and information. It also reaffirms the need for common terminology, a sound analytical framework, accurate data records and data input according to a consistent standard.

6.1.3 Existing budget preparation

The process of budget preparation is essentially only for operational or current expenditures since the bulk of salary expenditures are managed directly from a central agency. Therefore, the process does not involve individuals in the more detailed budget development activity that would be required in order that cost analysis could be conducted. Real allocations, therefore, tend to be based on percentage increases rather than on an activity needs basis.

Clearly, the model for financial management is highly centralized (i.e. a **funding model**) with little evidence of support for a more independent approach (i.e. a **finance model**). Even at ABAU, where the degree of autonomy from the higher education authorities has enabled a more decentralized approach to community college funding, the operational system is presently a mirror-image of the traditional centralized approach. There is clear evidence that this will change to a more program budgeting system; however, this is at the very early stages of introduction.

Although some policy directives exist that endorse other financial management models there is little evidence that any substantive changes are being contemplated (i.e. a levy-grant model, a tuition-escalator model (user-pay schemes), or a training market-place model (where training is purchased from institutions on an as-required basis). Essentially, therefore, the thrust of the current system seems primarily oriented to the maintenance of centralized management systems. If the researchers had been able to collect the data required, it is expected that significant variations would exist between TVET programs/services among the different providers. It is likely that such differences could be reduced in areas/institutes that have not had the benefit of adequate investment. It is difficult, however, to determine where the lowest cost per student

exists or to determine what this means relative to the quality of the graduates. Based on current data, it is impossible to determine what is the minimum limit of expenditures below which an institute no longer has sufficient resources to be realistically called a quality or a genuine TVET provider.

6.2 General issues and problems

Given the above scenario, the critical issue, regardless of whether one is discussing a centralized versus a de-concentrated or a decentralized financial management model, is the absence of a sound management information system for finance. Without attention to the development of disaggregated cost detail according to program and student criteria, it will remain almost impossible to conduct cost-analysis, cost-effectiveness, or cost-benefit studies.

Following is a list of related issues, problems or obstacles that need to be reviewed when considering changes to the existing system. Some of these relate to policy and others to operational procedures (from both government and institutional perspectives). The following list is simply a listing and is not intended to suggest any order of priority (also some points are a repeat of earlier statements):

- ❑ In all TVET institutions visited, the criteria for allocating re-current and development budgets is not based on program costs.
- ❑ There are relatively restrictive controls on TVET program managers' expenditure of funds allocated.
- ❑ Even where there is some degree of autonomy granted within the system (e.g. ABAU), the stage of budget development based on a program budgeting approach is in its infancy and college officials perceive that many restrictions exist.
- ❑ Data on costs according to the criteria required for conducting cost analysis and cost comparisons between similar programs and institutions is not readily available in any of the institutions visited.
- ❑ Financial decisions in some sub-sectors do not seem to be sensitive or responsive to institutional missions and objectives but rather seem to be relatively ad hoc depending on expenditure status within a fiscal year.
- ❑ Budget allocations are not made on the basis of program costs.
- ❑ Budgets are not designed based on program planning and institutional strategy.
- ❑ Program managers are not sufficiently involved in budget planning.
- ❑ Program managers and organization officials do not have the benefit of detail program costings in order to make informed judgements on budget requirements.
- ❑ There is insufficient data on variables that can affect budget requests.
- ❑ There is a move toward a decentralized approach to some aspects of education therefore there is a need to define the meaning and degree of autonomy that can be expected.
- ❑ There do not appear to be a set of consistent institutional guidelines for the management of financial resources.
- ❑ There is not a culture or attitude that is conducive to the systematic search for 'external funds' in an effort to become more self-reliant.
- ❑ There is not sufficient appreciation that income from other sources is vital to a movement toward greater effectiveness.
- ❑ There is a need to provide support to institutions in order for them to maximize the return from 'production unit' income earned.

- ❑ There is a need for an assessment of the balance between expenditures on administration compared with instruction
- ❑ The institutional budget controlled by a process or a person or few persons with little transparency or information dissemination
- ❑ There is a need for a management information system to enable financial decision-making.
- ❑ There is a good attitude in support of a commitment to seek change.

6.3 Cost Analysis Analytical Framework

Conducting cost analysis can be made easier, and more reliable, if TVET providers adopt some of the procedures advocated. The most important of these procedures is that the key authorities need to adopt an information management process that makes the collection of required data easier. Such data retrieval, supported by thorough analysis and interpretation, would be a substantive step forward. The purpose of this section is to help work toward a standard that can be applied by TVET officials and managers to identify the cost of planning, designing, and delivering TVET. It attempts to identify the costs incurred in enabling the graduation of students who benefited from a quality experience and are well prepared for entry into the job market or pursue more advanced studies.

The control of costs is an increasingly important component of public sector expenditure, just as it is within business. Integral to the process is the need to identify all the "expenditure categories", the data required to determine budgets and to assess costs, and also common terminology to enable consistency and comparisons. There are many costs involved in the overall process of TVET within an institution. There are also many costs within the overall system administration. The focus here is more at the institutional level; however, the output has a direct relationship to assessing internal and external efficiencies within the overall system. If applied, system administrators will have a better opportunity, in time, to make comparisons and assess effectiveness within and between TVET providers.

Cost-analysis techniques of measurement are still in a state of evolution, and much work remains to be done in refining them. The intent here, therefore, is to stimulate further thinking and discussion of the processes and issues. It is hoped that the recommendations on data elements required, data collection requirements, and data retrieval, be given priority attention by the appropriate parties.

6.4 Data elements

Following is a listing of data elements that need to be included in a financial management system. In addition to expenditures, revenue categories are outlined. In the application of cost-analysis, all costs should be deducted for revenues that are a direct result of the program. In this way, data on the actual budget for each program can be ascertained. Similarly, in order to establish accurate estimates, costs of an indirect nature (e.g. administration, non-instructional support) have to be calculated as a percentage of the overall institutional budget.

The following data elements are required in a comprehensive information management system relative to cost analysis (and to a lesser extent, cost effectiveness and cost-benefit studies). This kind of data is required in order to compare at the course and program level, rather than at the institution or TVET approach (i.e. VTC, Specialised Vocational schools, etc.). The adoption of

the data elements as part of an analytical framework will be one step closer to the resolution of a relatively complicated process. Certainly, their adoption will set the stage for further study in this aspect of TVET and provide experience in the requirements for more in-depth cost-analysis applications. The data elements identified are:

- ❑ Direct instructional costs - salary and benefits paid to any person who provides direct instruction to students.
- ❑ Direct instructional support costs - salary and benefits paid to any person who provides a support function to the instructor or to the student as part of their theoretical or practical learning experience.
- ❑ Direct material costs - cost of all materials and supplies that are part of the teaching-learning process that occurs during the theoretical or practical instructional sessions. Such materials and supplies should have a life of no more than 1 year and should include only individual item costing no more than 200 Dinars. Items beyond these parameters fall into the Capital Asset Category (see below).
- ❑ Indirect costs including administrative overheads within the institution. Similar costs should also be calculated for system administration (central offices, which are typically not based at the institution e.g. VTC central office, MOE office for TVET, etc.)
- ❑ Indirect instructional support costs - salary and benefits paid to any person who performs a support function to the instructional process (including examinations and certification) but not as part of the theoretical or practical student contact hours (e.g. library, sports, social services, health services, curriculum design, materials production, facilities maintenance, etc.).
- ❑ Indirect administrative support costs - salary and benefits of all persons who occupy non-instructional and non-instructional support positions (include percentage of time spent by instructional personnel who act in administrative or para-administrative positions). Should include costs for planning, instructional design, maintaining quality management programs, etc.
- ❑ Indirect material costs - cost of all materials, supplies, services and utilities that enable instructional process to occur (should include all other expenses that cannot be applied to other indirect costs referred to above).
- ❑ Capital Asset costs - buildings, physical infrastructure or equipment with a life span of greater than one year and a unit cost greater than 200 Dinars. Standard depreciation rates will be applied to such assets on the basis of the following rates:
Equipment at 8.5 % and Furniture at 12.5 %
Vehicles at 10 % and Buildings at 2.5 %
- ❑ Student services costs not included above but subject to some form of subsidy e.g. student allowances, student dormitories, textbooks, transportation, bursaries, scholarships, etc.

6.5 Linking Cost-Analysis with Other Cost Studies

6.5.1 General observations

The primary theme within TVET is the necessity to match the capability of graduates to the demands of the private sector and other employers, both in technical and problem-solving skills

and in an array of work oriented behaviors and attitudes.¹² The essential point here is to stress that TVET is different from general or academic education.

Unfortunately, in many jurisdictions, the policies and practices applied by education departments do not consider the unique nature of TVET programming. Also unfortunately, government finance agencies tend to apply standard rules and regulations to TVET systems when there is a need to provide for greater flexibility. It is hoped that the output of this study can enable discussions among the appropriate parties to gradually move to greater flexibility while retaining the same or greater degree of accountability

Implicit in this overall study is the recognition that technical and vocational education is focussed on employment and economic growth, thereby its primary orientation is to employer requirements and employment mobility. This is not to suggest that a link to further education (academic, technical or vocational streams) is not a priority. In today's rapidly changing work environment, everyone has to retain a keen interest and capacity to pursue further study regardless of its orientation.

6.5.2 *Transition stage*

The shift from a funding model to a financing model is in the nascent stage and really only presently applied at ABAU. Its program budgeting system initiative is at its early stages with the budget development for 2000 in seven of the member colleges being derived from program budget requests based on the individual colleges' approved strategic plan. Under this new mandate many community colleges will have greater freedom-to-act relative to financial matters, indicating a willingness by Government to entertain new systems to deliver TVET. Having said this, the process will retain, in the short term, many of the central management approaches that characterized the former system under the Ministry of Higher Education (and currently exists in both VTC and MOE program management).

¹² This focus is the subject of another study recently completed at NCHRD - Labour Market Indicators, December 1999 (R. Pearson, et.al.)

7. Summary and Recommendations for Future Activity

The following section includes recommendations already stated in the document. Some additional comments are included for this concluding section of the report. Suggestions on future studies are also included.

7.1 List of Recommendations

- All budget allocations for TVET should be based on consistent data elements and derived as a result of program comparisons.
- All programs should be categorized according to a costing index based upon three years of comparing similar programs.
- Research needs to be conducted to establish the appraised value of existing equipment and buildings and an allocation be determined for the year 1999. In this way, future studies have baseline data that has been uniformly calculated. This requires a capital asset inventory being established for each institution and for each central jurisdiction. All future acquisitions need to be added to the respective inventory and actual and depreciated values assigned.
- All budgets should be derived as a result of a strategic plan for the institution and for the specific programs relative to institutional and program objectives.
- Each institution should improve their internal budget allocation and financial management processes by establishing a strong planning and budgeting office, establishing departmental budgets, involving key personnel in the budgeting process, and revising expenditure formats to link expenditures to program outputs.
- Flexibility in the use of operating budgets should be established and enable by operating procedures.
- Each provider should conduct a detailed space, equipment and staff utilization study of its institutions to determine current student capacities and efficiency of operations in order to maximize the use of overall resources.
- All TVET institutions should be given sufficient freedom to act in order to become more self-reliant and less dependent on government funding. Clear policy guidelines with respect to the level of authority given to TVET institutions, procedures and requirements for financial responsibilities should be developed in order to enable greater independent actions.
- All TVET institutions should be encouraged to see additional financial support from alternate sources.
- All TVET managers and key personnel should receive staff development in how to operate as a "business unit" within an entrepreneurial environment (including marketing and financial management). Such a training program(s) should be the responsibility of a joint TVET initiative.
- Government should enable tax incentives for the private sector to be a more active partner in reducing the financial burden on the government exchequer.

7.2 List of Future Studies

- In Report 1 (Baseline Indicators) and Report 2 (Graduate Performance Studies), a number of additional research initiatives are identified. Following are some other, but these are more specific to financial management. For a comprehensive review of recommended future research, it is recommended that the other two reports be considered. Following are some studies that should be considered:

- Administrative overheads, particularly within VTC, should be reviewed in order to ascertain a more accurate comparison between the three sub-sectors. Given the recent shift in responsibility for community colleges, it is likely that a stable administrative overhead cost will require another two or three years of operation and full decentralization of the overall mandate (both public and private colleges) to BAU.
- Data on employed graduates or employed non-graduates was available for inclusion in such cost comparisons.
- Some programs are offered regardless of cost, because of social rather than economic priorities. A high development priority is assigned to education for under-privileged and
- Revenue generation was not emphasized in this study; however, it is recognized as important and some data was collected. It is appropriate that a comprehensive study of revenues gained from the regular business of the TVET providers and other initiatives undertaken. By sharing the experiences of the different institutions, it is likely that others will get ideas that can be applied within their own situation.

Introduction

This section provides aggregated details on each of the sample institutions. The data for each sample site is presented according to the following categories:

- Center Student Capacity
- Capacity Utilization - Actual Enrolment
- Student Attrition
- Administrative Costs
- Administration and Institution Costs - actual enrolment and capacity
- Cost per FTE - current and constant price
- Cost per Graduate - current and constant price

In some cases, observations are made on the specific table, although for the most part, the individual reader is left to draw their own conclusions.

B1 Vocational Training Centers

1.1 Center student capacity

Following is the capacity within each of the sample vocational training centers studied. No change in capacity has occurred in 50% of the sample during the period of study.

Table B1.1
Student Capacity in VTC Sample Centers

Year	Hashimieh	Ein Al Basha	Hakama	Al-Tafila	Totals
1995	1,450	1,700	1,000	200	4,350
1996	1,450	2,000	1,000	200	4,650
1997	1,450	2,000	1,000	316	4,760
1998	1,490	2,000	1,000	316	4,806

Table B1.1 shows that capacity in the sample centers has changed only in Ein Al. Basha and Al-Tafila, with the latter providing the greatest increase. As will be noted in the following tables, despite this increase, overall enrolment at Al-Tafila remains low.

1.2 Capacity utilization - actual enrolment

Table B1.2 outlines the actual enrolment and **Table B1.3** the percentage utilization. It is clear that in all cases there is substantial physical capacity to increase the enrolment, particularly in Al-Tafila where the utilization rate is no higher than 37%. Overall system utilization, based on these sample centers, is at a high of nearly 60%.

Table B1.2
Actual Student Enrolment in VTC Sample Centers

Year	Hashimieh	Ein Al Basha	Hakama	Al-Tafila	Totals
1995	689	1,099	588	61	2,437
1996	681	1,074	554	74	2,383
1997	793	1,234	583	85	2,695
1998	790	1,259	685	106	2,840

Table B1.3
Percentage of Capacity Utilization in Sample VTC Training Centers

Year	Hashimieh	Ein Al. Basha	Hakama	Al-Tafila	Aggregate
1995	47.5 %	64.4 %	58.8 %	30.5 %	56 %
1996	47 %	53.7 %	55.4 %	37 %	51.2 %
1997	54.7 %	61.7 %	58.3 %	26.9 %	56.6 %
1998	53 %	63 %	68.5 %	35.5 %	59.1 %

B1.3 Student attrition

Attrition rates at each of the centers is very high for the three years of study. In all cases, it is greater than 50%, including the aggregate total for the four institutions as a sample. **Table B1.4** includes an indication of the completion rates among those who remained in their studies. These rates are all very low with none of the institutes having a success rate equaling 50%. For this data to be valid, it would be necessary to follow-up on both graduate and non-graduate students to ascertain the employment rates. It is possible that despite not having completed, many students gain employment.

Table B1.4
Accumulated Attrition and Completion Rates for Students Enrolled in 1995

	Hashimieh	Ein Al. Basha	Hakama	Al-Tafila	Aggregate
Yr. 1 to Yr. 2 Attrition	33.5 %	25.8 %	42.4 %	36.8 %	32.8 %
Yr. 2 to Yr. 3 Attrition	7.4 %	18.0 %	7.4 %	16.7 %	12.3 %
Yr. 3 to Graduate Year Attrition	34.7 %	20.0 %	23.9 %	6.7 %	25.5 %
Accumulated Attrition	59.8 %	51.4 %	59.4 %	50.9 %	56.1 %
Completion Rates	40.2 %	48.6 %	40.6 %	49.1 %	43.9 %

B1.5 Administration costs

In order to provide some information on administrative overhead within VTC, detailed costs were established for re-current expenses and for employee salaries and benefits for the central and directorate operations. It was not possible to secure capital costs for buildings and equipment and apply depreciation calculations.¹

Following, as **Table B1.5** are the administrative costs for the headquarters and vocational directorates within the Vocational Training Corporation derived from the combined total of apprentice and medium term FTEs:

¹ Depreciation calculations are based on 8.5% for equipment, 12.5% for furniture, 10% for vehicles, and 2.5% for buildings. Land, on the other hand, has appreciated substantially but original costs are not available and the study does not include sufficient time to secure assessed values.

Table B1.5
VTC Administrative Costs Based on Actual Enrolment - 1995 to 1998

Year	Employee Salaries/Benefits	Current Expenditures	Enrolment in FTEs			Cost per FTE
			Apprentices	Medium Term	TOTAL	
1995	508,260	62,485	4,577	861	5,438	105.0
1996	662,371	65,886	4,848	879	5,727	127.0
1997	693,587	82,717	6,178	962	7,140	109.0
1998	737,170	77,642	6,658	1,053	7,711	106.0

B1.6 Administration & institution costs - actual enrolment and capacity

Table B1.6
Comparison of FTE Costs based on Actual Enrolment and Capacity
1995 - 1998

(according to JD's at Current Price and FTE Costs including Institution and Administration)

Year	Hashimieh		Ein Al. Basha		Hakama		Al-Tafila	
	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity
1995	523.0		468.0		689.0		1,052.0	**
		248.5		288.8		405.1		320.9
1996	541.0		516.0		703.0		1,913.0	
		311.9		277.1		389.5		707.8
1997	472.0		444.0		653.0		1,778.0	
		233.5		251.7		380.7		478.3
1998	471.0		443.0		555.0		1,408.0	
		275.6		310.5		380.2		472.3

Note: For detail on FTE cost at actual enrolment, see Annex 1, Appendix 4. ** At this time, Al-Tafila was not established and its programming was situated at the Al Tafila Vocational School.

B1.7 Cost per FTE - current and constant price

The following table, **Table B1.7**, provides detail on FTE costs according to actual enrolment and full capacity, based on both current and constant price. As indicated in Section 5.1, constant price takes into consideration the cost of living index based on government statistics.

Table B1.7
Cost per FTE at Constant and Current Prices based on Full Capacity & Actual Enrolment with Costing Including Institution & Administration - 1995 to 1998

Year	Constant Price		Current Price	
	Cost per FTE Full Capacity	Cost per FTE Actual Enrolment	Cost per FTE Full Capacity	Cost per FTE Actual Enrolment
1995	306.7		306.7	
1996	292.7	568.5	312.9	568.5
1997	277.6	570.4	304.8	608.0
1998	268.3	490.9	303.7	539.0
		454.1		514.0

Note: Current price calculations for actual enrolment see Annex 21; for constant price based on actual enrolment, see Annex 25; and, for current and constant price at full capacity, see Annex 29, Appendix 4.

As can be seen in the above comparison table between constant and current prices for capacity versus actual enrolment, there is limited indication of a trend. In 1996, the costs seem unusually high for actual enrolment under current prices. This is likely a result of lower enrolment and increased investment. Overall, however, it is clear that there are substantial inefficiencies in the system due to under-enrolment given the capacity of the institutions. This is affected by the inclusion of Al-Tafila with its low enrolment, however, the sample is reflective of the overall situation.

B1.8 Cost per graduate - current and constant price

Table B1.8
Cost Per Graduate based on Current and Constant Price
Including Institutional and Administrative Expenses for Two 2-Year Cycles

Year	Price	Hashimieh	Ein Al. Basha	Hakama	Al-Tafila	Aggregate
1995 to 1997	Current	1,377	1,441	2,219	3,411	1,680 Current
	Constant	1,335	1,396	2,160	3,280	1,631 Constant
1996 to 1998	Current	1,618	1,344	1,741	4,365	1,765 Current
	Constant	1,435	1,246	1,717	4,042	1,527 Constant

B2 Vocational Schools

B2.1 Center student capacity

Table B2.1
Student Capacity in Sample Vocational Schools

Year	Ibn Al. Nafees	Nur Al-Dean Zanki	Wasfi Al Tell	Al-Tafila	Totals
1995	600	400	680	340	2,020
1996	600	400	680	340	2,020
1997	600	400	680	340	2,020
1998	600	400	680	340	2,020

B2.2 Capacity utilization - actual enrolment

Table B2.2
Actual Student Enrolment in Sample Vocational Schools

Year	Ibn Al. Nafees	Nur Al-Dean Zanki	Wasfi Al Tell	Al-Tafila	Totals
1995	576	312	678	224	1,790
1996	544	312	676	216	1,748
1997	533	341	662	231	1,767
1998	505	353	665	269	1,792

Table B2.3

Percentage of Capacity Utilization in Sample MOE Vocational Schools

Year	Ibn Al. Nafees	Nur Al-Dean Zanki	Wasfi Al Tell	Al-Tafila	Aggregate
1995	94.5	78	99.7	65.9	88.6
1996	90.7	78	99.4	63.5	86.5
1997	88.8	85.3	97.4	67.9	87.5
1998	84.2	88.3	97.8	79.1	88.7

B2.3 Student attrition

Table B2.4

Number of Students Who Pass Exam in Sample Vocational Schools by Year

Year	Ibn Al. Nafees	Nur Al-Dean Zanki	Wasfi Al Tell	Al-Tafila	Totals
1995	128	45	142	48	363
1996	58	74	166	60	358
1997	98	41	87	32	258
1998	100	63	103	22	288

Table B2.5

Students Exam Pass Rates as % of Second Year Enrolment

Year	Ibn Al. Nafees			Nur Al-Dean Zanki			Wasfi Al Tell			Al-Tafila			Total Pass Rates
	2 nd Year Class & No. Passed & %			2 nd Year Class & No. Passed & %			2 nd Year Class & No. Passed & %			2 nd Year Class & No. Passed & %			
1995	304	128	42.1	145	45	31	290	142	49	107	48	44.9	42.9
1996	244	58	23.8	137	74	54	309	166	53.7	98	60	61.2	45.4
1997	258	98	38	155	41	26.5	302	87	28.8	102	32	31.4	31.6
1998	237	100	42.2	170	36	21.2	279	103	36.9	125	22	17.6	32.2

Table B2.6

Accumulated Attrition and Completion Rates

	Ibn Al. Nafees			Nur Al-Dean Zanki			Wasfi Al-Tell			Al-Tafila		
	A: Attrition between Year 1 & Year 2			B: Attrition between Year 2 & Graduation			C: Accumulated Attrition					
Year	A	B	C	A	B	C	A	B	C	A	B	C
94-95	10.3	76.2	78.7	18.0	46.0	55.7	20.4	46.3	57.2	16.2	38.8	48.7
	21.3 % Completion			44.3 % Completion			42.8 % Completion			51.3 % Completion		
95-96	14.0	62.0	67.3	11.4	73.5	76.6	17.7	71.2	76.3	13.6	68.4	72.9
	32.7 % Completion			23.4 % Completion			23.7 % Completion			27.1 % Completion		
96-97	13.8	57.8	63.6	08.6	62.9	66.1	22.5	63.1	71.4	03.1	82.4	82.9
	36.4 % Completion			33.9 % Completion			28.6 % Completion			17.1 % Completion		

The above figures are rather startling in that in only five of twelve opportunities were the completion rate greater than ONE THIRD of the potential graduating class. And, in one of these cases, Nur Al-Dean Zanki (1996-1997), the rate is 33.9%, therefore barely deserving of inclusion.

B2.4 Administration costs

Table B2.7
MOE Administrative Costs Based on Actual Enrolment - 1995 to 1998

Year	Employee Salaries/Benefits	Current Expenditures	Enrolment in FTEs	TOTAL	Cost per FTE
1995	14162316	6972766	903305	31135082	23.4
1996	15041594	7678807	930790	22720401	24.4
1997	15116046	6892788	945279	22008834	23.3
1998	15746354	10177646	967887	25824000	26.7

B2.5 Administration & institution costs - actual enrolment and capacity

Table B2.8
Comparison of FTE Costs based on Actual Enrolment and Capacity - 1995 - 1998

(according to JD's at Current Price and FTE Costs including Institution and Administration)

Year	Ibn Al Nafees		Nar Al Dean Zanki		Wasfi Al Tell		Al-Tafila	
	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity
1995	520.4		734.1		503.1		533.4	
		500		572.6		501.6		351.4
1996	548.6		744.6		522.4		557.6	
		497.4		580.8		519.8		354.2
1997	558		694.6		539.6		526	
		495.7		592.1		525.3		357.4
1998	587.2		683.7		553.9		462.2	
		494.2		603.4		541.8		365.7

Note: For detail on FTE cost at actual enrolment, see Annex 1, Appendix 4.

B2.6 Cost per FTE - current and constant price

The following table, **Table B2.9**, provides detail on FTE costs according to actual enrolment and full capacity, based on both current and constant price.

Table B2.9
Cost per FTE at Constant and Current Prices base on Full Capacity and Actual Enrolment with Costing Including Institution & Administration

Year	Constant Price		Current Price	
	Cost per FTE Full Capacity	Cost per FTE Actual Enrolment	Cost per FTE Full Capacity	Cost per FTE Actual Enrolment
	487.7		478.7	
1995		563.2		563.2
1996	465		495.7	
		537.3		572.8
1997	456.7		501.5	
		522.1		573.3
1998	429.8		486.5	
		484.5		548.4

Note: Current price calculations for actual enrolment see Annex 14; for constant price based on actual enrolment, see Annex 28; and, for current and constant price at full capacity, see Annex 30, Appendix 4.

B2.7 Cost per graduate - current and constant price

Table B2.10

**Cost Per Graduate base on Current and Constant Price
Including Institutional and Administrative Expenses for Three 3-Year Cycles**

Year	Price	Ibn-Al Nafees	Nur Al Dean Zanki	Wasfi Al Tell	Al-Tafila	Aggregate
1994 to 1996	Current	4748.4	3035.2	2149.3	1950.9	2745.9
	Constant	4665.4	2949.9	2089	1893.7	2667.7
1995 to 1997	Current	3148.4	5804.1	4078.9	3732.8	3946.8
	Constant	2913.2	5372.9	3774.9	3454.2	3652.6
1996 to 1998	Current	2926.2	3895.6	3386.4	5710.4	3510.6
	Constant	2626.9	3497.5	3042.9	5129.2	3152.7

B2.3 Comprehensive Secondary Schools

B3.1 Center student capacity

Table B3.1

Student Capacity in Sample Comprehensive Secondary Schools

Year	Omer Bin Kattab	Zarqa	Al-Qabisi	Ma'an	Totals
1995	1100	810	500	300	2710
1996	1100	810	500	300	2710
1997	1100	810	500	300	2710
1998	1100	810	500	300	2710

B3.2 Capacity utilization - actual enrolment

Table B3.2

Actual Student Enrolment in Sample Comprehensive Secondary Schools

Year	Omer Bin Kattab	Zarqa	Al-Qabisi	Ma'an	Totals
1995	988	915	378	187	2468
1996	952	894	452	210	2508
1997	838	820	421	224	2303
1998	840	864	490	202	2396

Table B3.3

Percentage of Capacity Utilization in Sample Comprehensive Schools

Year	Omer Bin Kattab	Zarqa	Al-Qabisi	Ma'an	Aggregate
1995	89.8	113	75.6	59.3	91.1
1996	86.5	110	90.9	70	92.5
1997	76.2	101	84.2	74.7	85
1998	76.4	107	98	67.3	88.4

Note: Zarqa is operating at overcapacity.

B3.3 Student attrition

Table B3.4
Accumulated Attrition and Completion Rates

	Omar Bn Kattab			Zarqa			Qabisi			Ma'an		
	<i>A: Attrition between Year 1 & Year 2</i>			<i>B: Attrition between Year 2 & Graduation</i>			<i>C: Accumulated Attrition</i>					
Year	A	B	C	A	B	C	A	B	C	A	B	C
94-95	4.5	45.2	48.3	-0.9	40.9	40.9	21.6	41.4	54.1	16.5	78.3	74.7
	51.7 % Completion			59.1 % Completion			45.9 % Completion			25.3 % Completion		
95-96	13.5	53.9	60.1	-4.3	51.4	49.3	26.3	48.2	61.8	-29.8	76.3	69.2
	39.9 % Completion			50.7 % Completion			38.2 % Completion			30.8 % Completion		
96-97	2.5	33.3	34.9	-17.6	37.4	26.3	4.3	63.9	65.5	-10.1	72.4	69.7
	65.1 % Completion			73.7 % Completion			34.5 % Completion			30.3 % Completion		

B3.4 Administration costs

Table B3.5
MOE Administrative Costs Based on Actual Enrolment - 1995 to 1998

Year	Employee Salaries/Benefits	Current Expenditures	Enrolment in FTEs	TOTAL	Cost per FTE
1995	14162316	6972766	903305	21135082	23.4
1996	15041594	7678807	930790	22720401	24.4
1997	15446046	6892788	945279	22008834	23.3
1998	15746354	10177646	967887	25824000	26.7

B3.5 Administration and institution costs - actual enrolment and capacity

Table B3.6
Comparison of FTE Costs based on Actual Enrolment and Capacity 1995 - 1998
(according to JD's at Current Price and FTE Costs including Institution and Administration)

Year	Omar Bn Al- Kattab		Zarqa Com. School		Al- Qabisi School		Maan School	
	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity
1995	226.2	203.2	269	303.9	534.6	404.2	901.8	562.4
1996	242.3	209.7	282.5	311.8	432.6	390.8	9391	587.4
1997	272.1	207.3	297.4	301.1	480	404.2	882.3	658.8
1998	293.3	227	278.9	297.5	445.5	436.6	905.9	610

Note: For detail on FTE cost at actual enrolment, see Annex 1, Appendix 4.

B3.6 Cost per FTE - current and constant price

Table B3.7: Cost per FTE at Constant and Current Prices base on Full Capacity &

Actual Enrolment with Costing Including Institution & Administration

Year	Constant Price		Current Price	
	Cost per FTE Full Capacity	Cost per FTE Actual Enrolment	Cost per FTE Full Capacity	Cost per FTE Actual Enrolment
	310		310	
1995		340.5		340.5
1996	300		315.4	
		319.7		340.8
1997	313.9		321.7	
		344.7		378.5
1998	294.2		333.2	
		333		376.9

Note: Current price calculations for actual enrolment see Annex 18; for constant price based on actual enrolment, see Annex 25; and, for current and constant price at full capacity, see Annex 28, Appendix 4.

B3.7 Cost per graduate - current and constant price

Year	Price	Omar Bn Al – Kattab	Zarqa Com. School	Al Qabisi	Maan	Aggregate
1994 to 1996	Current	884.5	954.2	1901	7435.1	1291.6
	Constant	856.8	899.3	1795.6	7195.5	125.2
1995 to 1997	Current	1198	1169.4	1795.6	6449.3	1634.5
	Constant	1107.7	1169.4	2059.8	5947	1510.3
1996 to 1998	Current	857.2	849.1	2624.4	6196.4	12732
	Constant	769	761.2	2356.7	5552.7	1141.8

B4 Community Colleges

B4.1 Center student capacity

**Table B4.1
Student Capacity in Sample Community College**

Year	Amman	Zarqa	Al-Husn	Al-Tafila	Totals
1995	465	1,170	1,200	600	3,435
1996	540	1,170	1,200	600	3,510
1997	720	1,170	1,200	600	3,690
1998	1,030	1,170	1,200	600	4,000

B4.2 Capacity utilization - actual enrolment

Table B4.2
Actual Student Enrolment in Sample Community Colleges

Year	Amman	Zarqa	Al-Husn	Al-Tafila	Totals
1995	147	1,367	1,000	249	2,763
1996	332	1,269	1,109	249	2,957
1997	355	1,232	979	327	2,893
1998	680	897	835	348	2,760

Table B4.3
Percentage of Capacity Utilization in Sample Community Colleges

Year	Amman	Zarqa	Al-Husn	Al-Tafila	Aggregate
1995	31.6 %	16.8 %	83.3 %	41.5 %	80.9 %
1996	61.5 5	115.4 %	92.4 %	41.5 %	84.2 %
1997	49.3 %	112 %	81.6 %	54.5 %	78.4 %
1998	66 %	81.5 %	69.6 %	58 %	69 %

B4.3 Student attrition

Table B4.4
Number of Students Who Pass Exam in Sample Community Colleges by Year

Year	Amman	Zarqa	Al-Husn	Al-Tafila	Totals
1995	1	536	281	59	877
1996	82	510	412	38	1042
1997	140	478	232	40	890
1998	95	346	196	96	733

Table B4.5
Students Graduates as % of Original Enrolment - Years 1996-1998

Year	Students Graduates as % of Original Enrolment - Years 1996-1998												Total Pass Rates
	Amman			Zarqa			Al-Husn			Al-Tafila			
	Original Enrolment, No. Passed & %			Original Enrolment, No. Passed & %			Original Enrolment, No. Passed & %			Original Enrolment, No. Passed & %			
1996	144	82	56.4	683	510	74.7	566	412	72.8	156	38	24.4	57 %
1997	228	140	61.4	618	478	77.3	543	232	42.7	153	40	26.1	51.9 %
1998	183	95	51.9	617	346	56.1	466	196	42.1	244	96	39.3	47.4 %

Table B4.6
Accumulated Attrition and Completion Rates

	Amman			Zarqa			Al-Husn			Al-Tafila		
A: Attrition between Year 1 & Year 2				B: Attrition between Year 2 & Graduation			C: Accumulated Attrition					
Year	A	B	C	A	B	C	A	B	C	A	B	C
95-96	22.8	21.2	43.1	04.5	26.6	27.0	0.0	27.2	27.2	38.5	60.4	75.6
	56.9 % Completion			73.0 Completion			72.8 % Completion			24.4 % Completion		
96-97	24.6	18.6	38.6	05.5	22.3	22.7	05.5	54.8	59.0	45.8	51.8	73.9
	61.4 % Completion			77.3 % Completion			41.0 % Completion			26.1 % Completion		
97-98	06.1	44.1	48.1	09.9	38.0	43.3	27.9	41.7	61.8	48.4	23.8	60.7
	51.9 % Completion			56.7 % Completion			38.2 % Completion			39.3 % Completion		

Table B4.7
Aggregate Attrition Rates Among Sample Community Colleges

Year	A Attrition between Year 1 and Year 2	B Attrition between Year 2 and Graduation	C Accumulated Attrition	Completion Rate
1995-96	8.5 %	26.5 %	32.7 %	67.3 %
1996-97	10.3 %	35.6 %	42.3 %	57.7 %
1997-98	21.2 %	38.4 %	51.5 %	48.5 %

B4.4 Administration costs

In order to provide some information on administrative overhead within the community colleges, detailed costs were established for re-current expenses and for employee salaries and benefits for the central and directorate operations. It was not possible to secure capital costs for buildings and equipment and apply depreciation calculations.² Following, as **Table B4.8** are the administrative costs for the appropriate units within the MOHE and BAU:

Table B4.8
Community College Administrative Costs Based on Actual Enrolment – 1995-1998

Year	Employee Salaries/Benefits	Current Expenditures	FTEs	Cost per FTE
1995		484,997	9,524	50.9
1996		492,238	10,412	47.3
1997		539,280	11,049	53.9
1998	715,083	429,050	10,496	40.9

* Current expenditures include only MOHE since BAU was not involved until 1997 when administration cost remained in MOHE

** Includes BAU administration costs

B4.5 Administration and institution costs - actual enrolment and capacity

Table B4.9
Comparison of FTE Costs based on Actual Enrolment and Capacity 1995 - 1998
(according to JD's at Current Price and FTE Costs including Institution and Administration)

Year	Amman		Zarga		Al-Husn		Al-Tafila	
	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity	FTE Cost Enrolment	FTE Cost Capacity
1995	1,533.9	484.9	356.9	417.0	1,672.9	1,394.1	1,620.9	672.7
1996	736.3	452.7	376.3	468.1	1,579.3	1459.5	2,005.3	821.2
1997	706.9	348.5	403.9	425.3	1,965.0	1,603.1	1,734.9	945.5
1998	438.4	289.4	554.4	425.0	2,000.4	1,391.9	1,659.4	362.5

Note: For detail on FTE cost at actual enrolment, see Annex 1, Appendix 4.

² Depreciation calculations are based on 8.5% for equipment, 12.5% for furniture, 10% for vehicles, and 2.5% for buildings. Land, on the other hand, has appreciated substantially but original costs are not available and the study does not include sufficient time to secure assessed values.

B4.6 Cost per FTE - current and constant price

Table 4.10
Cost per FTE at Constant and Current Prices base on Full Capacity and Actual Enrolment with Costing Including Institution & Administration

Year	<u>Constant Price</u>		<u>Current Price</u>	
	Cost per FTE Full Capacity	Cost per FTE Actual Enrolment	Cost per FTE Full Capacity	Cost per FTE Actual Enrolment
	913.0		913.0	
1995		1,010.7		1,010.7
1996	791.3		843.5	
		939.3		1,001.3
1997	800.5		879.0	
		1,021		1,121.1
1998	673.4		762.2	
		976		1,104.6

Note: Current price calculations for actual enrolment see Annex 24; for constant price based on actual enrolment, see Annex 28; and, for current and constant price at full capacity, see Annex 32, Appendix 4.

B4.7 Cost per graduate - current and constant price

Table B4.11
Cost Per Graduate base on Current and Constant Price
Including Institutional and Administrative Expenses for Two 2-Year Cycles

Year	Price	Amman	Zarqa	Al-Husn	Al-Tafila	Aggregate
1994 to 1996	Current	3,627.5	959.3	4,467.8	11,720.2	2,864.1
	Constant	3577.3	928.6	4333.5	11406.5	2779.8
1995 to 1997	Current	2,067.6	1,006.2	8,041.4	11,270.2	3,476.8
	Constant	1925.6	929.7	7367.2	10473.7	3214
1996 to 1998	Current	2,127.4	1,597.4	8,083.1	6,573.7	4,162.9
	Constant	1916.6	1431	7268.4	5927.6	3687.8

Profile of Comparative Research Activity

Cost Analysis and Cost Comparison

*Component of TVET Baseline Study,
Economic Development through Skills Development Project
September-December, 1999*

1. Problem

There are different agencies involved in designing and delivering TVET. In some cases, courses and programs are similar. In all cases, there is a different set of circumstances and governance regarding the TVET providers. Presently, there is not a clear sense of differences in cost in the overall provision of this level of education.

There are two focuses to this study. The first is to conduct a pilot study to compare the cost of TVET among three distinct approaches - Specialised Vocational Schools, Comprehensive Secondary Schools, and the Vocational Training Corporation. The output will focus on comparing expenditures relative to enrollment capacity, registrants and graduates (see table on next page as data collection sample). The result of this study will be to provide comparative cost data on VTC (training centers) versus Comprehensive Secondary Schools, Specialised Vocational Schools versus Comprehensive Secondary Schools, and VTC (training centers) versus Specialised Vocational Schools. Data will be collected on community colleges as a reference and potential comparison.

A second focus will be to work toward identifying the data elements that are required in a comprehensive information management system relative to cost analysis, cost effectiveness and cost-benefit studies. This kind of data is required, in time, in order to compare at the course and program level, rather than at the institution or TVET approach (i.e. VTC-, Specialised Vocational schools, etc.).

Although it will be difficult to collect much of this data at this stage, the work will set the stage for further study in this aspect of TVET and, perhaps, provide an insight into the existing situation. It may provide experience in more in-depth cost-analysis applications. The long-term need is to design appropriate tools for this purpose.

2. Objectives

1. To compare, among different TVET providers, the cost of providing similar courses or programs (output will compare, initially, only VTC and MOE institutions).

2. To establish a set of criteria, measurement indicators, and process for collecting cost data and conducting an analysis of the results.
3. To commence a process of linking cost-analysis studies with cost effectiveness studies, and with cost-benefit analysis.

3. Constraints

It is expected that there will be difficulty in determining the precise cost for a given course or program in situations where the financial management system is based on block-funds. Therefore, certainly the primary focus area is Objective 1, where the emphasis will be on aggregated costs at the institutional level. Even in scenarios where there appears to be a more program budgeting system underway (e.g. ABAU), it is likely that detailed allocations based on the following cost categories are not in place yet.

For these reasons, the researchers will be required to spend considerable time in determining precise costs in order to enable consistency in approach. Perhaps, given time and budget limitations, the pilot study will concentrate on a representative sample of five (5) institutions from throughout Jordan.

4. Costs

Defining costs depends on many points of view. In the first phase of the study, essentially aggregated institutional costs with minimal breakdown will be considered. In the second phase, the researchers will try and focus on defining data on actual costs incurred over the normal duration of the program (i.e. preferable three years of data). Essentially, this will be a "snapshot" study (with two phases), but will try and collect data for a three-year period in order to get some information on past costs and to cover the costs of the duration of the program. At the very least, data on the most current year will be collected. This will provide a relatively crude basis for comparison between institutions. However, it will provide a baseline for timeline assessments within the institution and between institutions (comparative analysis).

All costs will be deducted for revenues that are a direct result of the program, regardless if the revenues are directed to government or to the institution (e.g. tuition, examination charges, material charges). It is important, therefore, to collect data on the actual budget for each program. Costs of an indirect nature (e.g. administration, non-instructional support) have to be calculated as a percentage of the overall institutional budget (which may be based on the inclusion of revenues).

Following are some of the categories of costs that should be included in a more comprehensive financial study:

- Capital (incl. standard depreciation factor for equipment with a life over 2 years and buildings, using standard government rates; then assign an annual "cost")
- Current operating costs (non-labour) - classroom consumables
- Current operating costs (non-labour) - laboratory and workshop expenses
- Current operating cost (direct labour) - includes direct instructional labour (and fringe benefits/allowances)
- Maintenance costs - facilities maintenance, utilities, etc. (based on square meters, number of hours in direct use for program)

- Planning and management costs - including indirect labour for administration & non-instructional staff support
- Dormitory and student allowances
- Wastage - student attrition
- Wastage - instructor substitution
- Wastage - student/staff ratio below capacity
- Books - library and texts Diploma and certificate expenses
- Transportation
- In-industry practical experience
- Other... requires detailing for comparison purposes

It is likely that a price adjustment will have to be made for the cost of inflation over the three years of data. In this way, costs can be compared in constant values (within the program, and between the program and other institutions).

5. Analysis

In order to secure a means to measure costs in a relative sense, it is necessary to collect data on student intake, attrition and graduation (ideally, the data should be gender disaggregated), instructor-student ratios (relative to the overall instructor workload), and administration/non-instructional support staffing. At this stage, it is expected that the following kinds of analyses could be considered:

- Cost per student per year by selected TVET approaches (total, by gender)
- Cost per graduate (total, by gender) (needs deductions as a result of attrition probably assigning a "zero" to anyone who withdraws, which may be unreasonable in an outcome study).
- Cost comparison based on 100% capacity utilization compared with actual
- Other areas to be determined

6. Results Dissemination

Approximately 80% of the overall assignment will be devoted to completing Objective 1 - cost comparison between VTC and MOE institutions. The remainder will be directed to developing a foundation for a comprehensive information system relative to cost and cost efficiencies/benefit studies (Objectives 2 and 3).

It is expected that the results of the study will be published by NCHRD as a basis for discussion on the results and the methodology. It is known that the overall approach is relatively crude and requires data that, presently, may not be easy to secure. From this perspective, therefore, it is expected that the output will enable discussion on mechanisms to record cost data (and other data) in order to enable ongoing research.

**Cost Comparison of TVET Providers:
Specialised Vocational Schools, Comprehensive Secondary Schools, VTC, and Community College**

TVET Sub-system	Expenditure Categories			Revenue Categories				Enrollment		
	Direct Instruction	Operating	Non-Instruction	Traditional	Non-Traditional	Capacity	Regis-transf	Regis-transf	Attrition	Student Staff Ratio
Al Qabisi Com. School										
VTC Hakam Trg. Center										
Wasfi Al. Tell (Irbid) VS.										
Al-Husn Comm. College										
Middle Jordan										
Omer Bn Khattab C.S.										
Ein-Al. Basha Trg. Cen.										
Ibn Naffec (Seileh) V.S.										
Amman Comm. College										
Zarqa Comm. College										
South Jordan										
Ma'an Community Sch.										
Tafeleh Training Center										
Tafelah Voc. School										
Tafelah Comm. College										

Task Listing	Weeks of Activity												
	1	2	3	4	5	6	7	8	9	10	11	12	13
	September/October	September/October	September/October	October	October/November	October/November	October/November	October/November	November/December	November/December	November/December	November/December	January
	11-17	18-24	25-01	02-08	09-15	16-22	23-29	30-05	06-12	13-19	20-26	27-03	04-08
1 Compile list of strategic policy on finance/decentralization													
2 Compile list of strategic policy on revenue generation													
3 Prepare Excel files for reference library collection report													
4 Compile a list of existing laws, rules, regulations													
5 Complete a review of laws, etc. re: enabling, restrictive, lacking													
6 Determine detailed focus of work for Objectives 1, 2 and 3													
7 Prepare list of effectiveness criteria and prepare questionnaire(s)													
8 Review existing practices in ABAU													
9 Conduct interviews with 5 Comprehensive Schools													
10 Conduct interviews with 5 VTC Training Centers													
11 Conduct interviews with 5 Specialised Vocational Schools													
12 Conduct interviews with 5 ABAU colleges													
13 Conduct interviews with relevant MOE, VTC and other officials													
14 During interviews compile case studies on examples of cost savings													
15 During interviews compile case studies on examples of cost-benefits													
16 During interviews compile case studies on revenue generation													
17 Review results of field visits concerning private sector contribution													
18 Prepare draft report on field visits & incorporate private sector inform.													
19 Prepare list of potential policy adjustments for consideration													
20 Prepare list of potential legislative adjustments for consideration													
21 Revise effectiveness/efficiency criteria & questionnaire(s)													
22 Revise draft report after discussions with NCHRD													
23 Prepare review report of ABAU data collected													
24 Prepare Access database for indicators/data element record													
25 Analyze criteria and prepare list of performance indicators													
26 Compile list of performance indicators & identify data elements													
27 Prepare draft final report													
28 Conduct seminar and secure input for final report													
29 Consolidate all information secured and revise report													
30 Review within NCHRD and submit final report													
Participation of Dr. Mahdi Krunz													
Participation of Dr. Arwan													
Participation of Mr. John Rostrom (total of 7 weeks)													

Data Collection Forms (Translated from Arabic)

A.

School , College

	1995		1996		1997		1998	
	Enrollment	Capacity	Enrollment	Capacity	Enrollment	Capacity	Enrollment	Capacity
First Year								
Second Year								
Graduate								

B.

Center

	1995		1996		1997		1998	
	Enrollment	Capacity	Enrollment	Capacity	Enrollment	Capacity	Enrollment	Capacity
<u>Apprenticeship</u>								
First Year								
Second Year								
Third Year								
Graduate								
<u>Mid Term</u>								
First Year								
Graduate								

Appendix 2

Data Collection Forms (Continued)

Employees Salaries, Wages and Allowances (1995-1998)				
Job	1995	1996	1997	1998
Administration				
Technical				
Services Staff				
Total				

Current Expenditures and Depreciation (1995-1998) in JD				
Description	1995	1996	1997	1998
Current Expenditures				
a) Transport and Travel Allowances				
b) Operation and Maintenance				
c) Raw Materials				
d) Prints, Stationary Accessories				
e) Others				
Total				
Depreciations				
a) Equipment Depreciation (8.5%)				
b) Furniture Depreciation (12.5%)				
c) Vehicle Depreciation (10%)				
d) Building Depreciation (2.5%)				
Total				
Total Expenditures				

Revenues in JD (1995-1998)				
	1995	1996	1997	1998
Training Fees				
Occupational Organization Fees				
Training Products				
Other Revenues				
Total				

Questionnaire

Financial Management Systems within TEVT

Current Budgeting Process

A. Organization

1. What units are involved in the budget development process within your institution?
Specify their specific role and their inter-relationships,
2. What unit, if any, is responsible for supplying data needed in the budgeting process?
Describe the required data and the process of securing the data you need.

B. Budgeting process and criteria

1. Describe by a flow chart the budgeting process for both the operating or recurrent budget and, if you have one, the development budget.
2. What are the functions and responsibilities of the different units that you relate to in the preparation of your budget submission.
Outline how you consult with them and what data do you secure from them in the development of your budget.
3. What criteria are used by yourself in completing an assessment of your existing allocated budget?
4. What data and criteria are used to evaluate and to budget a need you have for new facilities, equipment or replacement of such.
5. How are priorities established for the operating/re-current budgets within your institution? How are priorities established for capital assets Facilities equipment, etc.).What criteria are used?
6. How are the available funds allocated to each budget area e.g. direct instruction, indirect instruction, materials/ supplies, capital assets, administration, etc.
7. Once the budget and the allocations for the start of the year have been approved by the appropriate officials, how and to whom is the budget announced and what is the level of detail?
Do you have access to this same information for units other than your own?

8. What data and information is required if you wish to revise your budget or is it possible to complete a revision during the fiscal year? If so, what criteria are used in evaluating a budget revision?

C. System for providing financial information for planning/budgeting process

1. Describe the financial reporting system within your institution (attach the most recent financial report)
2. From the financial report, please identify the total expenditure by program, department, instructional unit, instructional-support unit, etc.
3. Does the financial report include coverage for all the resources used in conducting the TEVT programs.
4. Do you make a consolidated financial report including all sources of funds, including income generated as well as expenditures?
5. What data is contained in the financial report that you use in the preparation of your subsequent year's budget?

D. Financial management skills

1. What are your major weaknesses in understanding and preparing your budget and expenditure reporting?
2. What are the weaknesses you perceive within the overall institution in this regard and what are the weaknesses in more senior level organizations with whom you depend?
3. Have you had any training in financial management? If so, what kind?
4. What kind of training is needed?
5. What systems need to be in place in order that an effective financial management system exists within your institution?

E. Management of income generation activities

1. What is the regulation within your institution governing revenues generated directly by students, instructors or services from within your department?
2. If you don't have one, do you think one is needed and what should it entail?

3. What are the main obstacles you face in generating additional income that could be used to assist your program?
4. What are the main obstacles in encouraging transparency concerning revenue generating activities within your institution?
5. Do you have any funding support from the private sector? Could this be expanded and, if so, what activities are needed to enable such an expansion?

F. Policies and regulations

1. Please identify any policies, procedures or regulations that you feel should be reviewed since they restrict your capacity to work toward some degree of financial self-reliance.
 2. Please identify any policies, procedures or regulations that should be introduced to enable such self-reliance initiatives.
-

Questions on Financial Management System

1. Budgeting process and criteria

- 1.1 How do you establish the total annual budget for your department?
What are the areas or functions for which you establish a budget?
What data, information and criteria are used to allocate the budget to each area/function?
- 1.2 How is the budget for equipment maintenance and replacement established and how is it allocated?
How established?
How allocated?
- 1.3 Do the criteria use in the budget allocation process, satisfy the department?
Yes... No... If no, explain why you and the department is not satisfied.
- 1.4 What kinds of expenditure are managed centrally and what are left to the department to spend?
- 1.5 Do you manage one or more sources of budget? Yes... No...
If yes, what are the sources of this other budget?
If yes, what is the annual amount of these other funds?

2. Instructional Budget Allocation

- 2.1 How do you allocate the budget to instructional activities? What inputs (such as staff, assistant, technicians, consumables, etc.) are used either for class work or applied workshop study and how do you count the inputs absorbed by courses, by modes of instruction?
- 2.2 What measure of instructional workloads are used?
Student headcount _____ Maximum class size _____
Staff/student ratio _____
Others _____ please explain
- 2.3 Is the current allocation method sufficient to conduct instructional activities properly? Yes or No? If no, how would you change the allocation method?
- 2.4 What areas or functions are under your own control for the determination of expenditures?
Maintenance of Lab/Workshop facilities _____
Student activities _____
Office consumables _____
Laboratory/Workshop supplies _____
Classroom supplies _____
Others.. please explain _____
- 2.5 Are there areas of your budget that are not under your control, either for determination or for expenditure?
Please explain

2.6 What is the limit that you can authorize expenditures?

2.7

3. Management of income generating activities

3.1 How are revenue generating or sponsored activities managed in your department? e.g. sponsored research, sponsored field trips, individual consultancies, etc.

3.2 Is there an institution or system regulation governing income generating activities?

If so, please describe.

3.3 If there is an internal department regulation, please describe it and indicate if your teaching staff describe.

3.4 What are the main obstacles in pursuing revenue generating activities?

Lack of staff capability	YesNo... Please explain
--------------------------	------------------------------

Limited resources	Yes ... No ... Please explain
-------------------	-------------------------------

No excess capacity	Yes... No ... Please explain
--------------------	------------------------------

Competition from others	Yes ... No
-------------------------	------------

Limited opportunity	Yes ... No
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Internal regulations	Yes ... No
----------------------	------------

External regulations	Yes ... No
----------------------	------------

3.5 Are there units or individuals assigned the responsibility to seek revenue generating opportunities? If yes, how are they chosen?

3.6 Describe some of the revenue generating activities that are underway or have been pursued previously. If there are activities that no longer are pursued, describe and explain why they are not pursued today.

3.7 Describe other activities that could be pursued by your department or the institution to generate more income.

3.8 What are the main obstacles in encouraging transparency concerning revenue-generating activities?

Persons Interviewed

A Ministry of Education

1. Mr. Isa Nassar - General Director of Planning.
2. Mr. Mohammad Bazbaz - General Director of Finance and Supply.
3. Mr. Soud Al - Bakheet - General Director of Administration.
4. Eng. Mustafa Obead - General Director of Projects .
5. Dr. Mohammad Attieh - Assistant General Director of Projects.
6. Eng. Ahmad Shadid - Sub Committee Member
7. Mr. Anwar Khasawneh - Division head of planning .
8. Mr. Mohammad Al - Hiari - Director of Finance .
9. Eng. Hisham Dabbor - Head of Vocational Education Division .
10. Mr. Hasain Hutiebat - Principal of Ibn Nafees Vocational School Engineer.
11. Mr. Ali Hanandeh - Principal of Omer Bn Kattab Comprehensive School.
12. Mr. Hamdi Abdu-Al Wahab - Principal of Zarqa Comprehensive School.
13. Mr. Amin Qoqazeh - Principal of Qabisi Comprehensive School .
14. Mr. Ali Khawaldah - Principal of Ma'an Comprehensive School .
15. Eng. Majid Al - Sheiek - Principal of Nur Al Dean Zanki .
16. Eng. Munther Rshedat - Principal of Wasfi Al - Tall Vocational School.
17. Mr. Ahmad Al Qataameen - Principal of Tafila Vocational School .

B Council of Higher Education & Balqa Applied University.

1. Mr. Slama Kharabshah - Director of Studies (CEH).
2. Dr. Abbadi - Head of studies Division .
3. Mr. Nawaf Eqtawi - Director of Finance and Administration (CHE).
4. Mr. Hasan Zaiadah - Director of Examination (BAU)
5. Ms. Buthina Al - Bakhit - Assistant Director of Finance & Administration.
6. Dr. Anees khasawneh - Dean of Amman Community College (BAU).
7. Dr. Falah Bani Hanie - Dean of Zarqa Community College (BAU).
8. Dr. Husien Serhan - Dean of Husn Community College (BAU).
9. Dr. Ghazi Marahlieh - Dean of Al - Tafila Community College (BAU).

C Vocational Training Corporation.

1. Eng. Muzahim Moheisin - Director General.
2. Eng. Hisham Rawashdeh - Assistant Director General.
3. Mr. Marwan Abdullah - Head of Studies Division.
4. Eng. Mohammad Al - Masri - Principal of Ein Al - Basha Center.
5. Eng. Abdul - Kareem Rawashdeh - Principal Al - Hashimieh Center.
6. Eng. Ahamad Sawafeen - Principal of Al - Tafila Center.
7. Eng. Ahamad Taweel - Principal of Hakama Center.

APPENDIX 4

Cost Analysis and Cost Comparison Baseline Backup Data

Annexes

1. Basic Expenditure and Revenue Data - VTC (1a, 1b, 1c, 1d)
2. Basic Expenditure and Revenue Data - Vocational Schools (2a, 2b, 2c, 2d)
3. Basic Expenditure and Revenue Data - Comprehensive Schools
4. Basic Expenditure and Revenue Data - Community Colleges
5. Administration Cost - Vocational Training Corporation
6. Administration Cost - Ministry of Education
7. Administration Cost - Community Colleges
8. Student Enrolment - Vocational Training Centers
9. Student Enrolment - MOE Vocational Schools
10. Student Enrolment - MOE Comprehensive Secondary Schools
11. Student Enrolment - Community Colleges
12. Student Capacity in Sample Centers
13. Cost per FTE with **No Administration Cost** and Actual Enrolment- by Sample VTC Centers
14. Cost per FTE with **No Administration Cost** and Actual Enrolment - by Sample Vocational Schools
15. Cost per FTE with **No Administration Cost** and Actual Enrolment- by Sample Comprehensive Schools
16. Cost per FTE with **No Administration Cost** and Actual Enrolment- by Sample Community Colleges
17. Cost per FTE **with Administration Cost** and Actual Enrolment - by Sample VTC
18. Cost per FTE **with Administration Cost** and Actual Enrolment - by Sample Vocational Schools
19. Cost per FTE **with Administration Cost** and Actual Enrolment - by Sample Comprehensive Schools
20. Cost per FTE **with Administration Cost** and Actual Enrolment - by Sample Community Colleges
21. Cost per FTE with Administration Cost and Actual Enrolment - Aggregated VTC
22. Cost per FTE with Administration Cost and Actual Enrolment - Aggregated Vocational Schools
23. Cost per FTE with Administration Cost and Actual Enrolment - Aggregated Comprehensive Schools
24. Cost per FTE with Administration Cost and Actual Enrolment - Aggregated Community Colleges
25. Aggregated Cost per FTE based on Actual Enrolment at Current and Constant Price - VTC
26. Aggregated Cost per FTE based on Actual Enrolment at Current and Constant Price - Vocational Schools
27. Aggregated Cost per FTE based on Actual Enrolment at Current and Constant Price - Comprehensive Schools
28. Aggregated Cost per FTE based on Actual Enrolment at Current and Constant Price - Community Colleges
29. Aggregated Cost per FTE based on **Full Capacity** at Current and Constant Price - VTC
30. Aggregated Cost per FTE based on **Full Capacity** at Current and Constant Price - Vocational Schools

31. Aggregated Cost per FTE based on **Full Capacity** at Current and Constant Price - Comprehensive Schools
32. Aggregated Cost per FTE based on **Full Capacity** at Current and Constant Price - Community Colleges
33. Aggregated Cost Per Graduate by Center - Vocational Training Centers (VTC)
34. Aggregated Cost Per Graduate by Center - Vocational Schools (MOE)
35. Aggregated Cost Per Graduate by Center - Comprehensive Schools (MOE)
36. Aggregated Cost Per Graduate by Center - Community Colleges

**Sample Vocational Training Centers
Current Expenditure, Depreciated Assets
1995-1998**

Center / Institute: Hashimieh VTC.

Employees Salaries, Wages and Allowances

Job	1995	1996	1997	1998
Administration	51936	52293	52994	53347
Technical	155807	156808	158983	160041
Services Staff	25968	26147	26497	26673
Total	233711	235248	238474	240061

Current Expenditures and Depreciation

Item	1995	1996	1997	1998
Current Expenditures				
a)Transport and Travel Allowances	4405.3	5025	7625	6578
b) Operation and Maintenance	3337.3	1480	2450	3500
c) Raw Materials	11050	11500	12000	12000
d) Prints, Stationary Accessories	600	1220	1000	1000
e) Others	6206.7	--	--	200
Total	25599	19225	23075	23278
Depreciations				
a)Equipment Depreciation (8.5%)	2100	1921	1758	1609
b) Furniture Depreciation (12.5%)	2187	1915	1675	1465
c) Vehicle Depreciation (10%)	4050	3645	3280	2952
d) Building Depreciation (2.5%)	20231	19725	19333	18752
Total	28569	27206	26646	24778
Total Expenditures	54168	96431	4912	48056

Revenues

Item	1995	1996	1997	1998
Training Fees	19428	19725	42982	43303
Occupational Organization Fees	760	1150	1450	960
Training Products	5489	1281	867	987
Other Revenues	2230	3220	589	2643
Total	27907	25375	45889	47893

**Sample Vocational Training Centers
Current Expenditure, Depreciated Assets
1995-1998**

Center / Institute: Hakama Centre VTC

Employees Salaries, Wages and Allowances

Job	1995	1996	1997	1998
Administration	33320	29844	29446	28165
Technical	190280	175748	179915	172095
Services Staff	42285	36476	32710	31290
Total	265885	242068	242071	231550

Current Expenditures and Depreciation

	1995	1996	1997	1998
Current Expenditures				
a) Transport and Travel Allowances	8318	9000	11389	9650
b) Operation and Maintenance	13504	10500	8082	9140
c) Raw Materials	3391	8160	9730	12788
d) Prints, Stationary Accessories	1200	1100	1000	500
e) Others	2813	600	500	--
Total	29226	29360	30701	32078
Deprecations				
a) Equipment Depreciation (8.5%)	1983	18146	16859	15426
b) Furniture Depreciation (12.5%)	2410	2109	1846	1616
c) Vehicle Depreciation (10%)	5400	6450	6050	7250
d) Building Depreciation (2.5%)	20718	20198	19700	19208
Total	48359	46903	49455	43500
Total Expenditures	77585	76263	75156	75578

Revenues

	1995	1996	1997	1998
Training Fees	28666	28900	34165	33120
Occupational Organization Fees	2315	2420	1160	1340
Training Products	19177	19000	19446	16558
Other Revenues	4585	4820	4094	4264
Total	54743	55190	58865	55282

**Sample Vocational Training Centers
Current Expenditure, Depreciated Assets
1995-1998**

Center / Institute: Ein El-Basha . (in JDs.) VTC

Employees Salaries, Wages and Allowances

Job	1995	1996	1997	1998
Administration	31410	31889	32375	32868
Technical	223986	227087	223967	229864
Services Staff	27844	28268	28699	29136
Total	283240	287241	285041	291868

Current Expenditures and Depreciation

Item	1995	1996	1997	1998
Current Expenditures				
a)Transport and Travel Allowances	9100	9871	7270	8425
b) Operation and Maintenance	8564	15975	11597	20253
c) Raw Materials	30350	28825	42565	28209
d) Prints, Stationary Accessories	1305	1225	636	1184
e) Others	200	600	82	3468
Total	49519	54496	62150	61539
Depreciations				
a) Equipment Depreciation (8.5%)	24872	24872	27872	24872
b) Furniture Depreciation (12.5%)	5545	5545	5545	6920
c) Vehicle Depreciation (10%)	5050	5050	5050	5050
d) Building Depreciation (2.5%)	30575	30757	30757	33798
Total	66042	66042	66042	70590
Total Expenditures	115561	120538	128192	132120

Revenues

Item	1995	1996	1997	1998
Training Fees	41636	60297	66165	72045
Occupational Organization Fees	2380	1857	2259	2000
Training Products	40035	49713	34975	46948
Other Revenues	5547	4811	5094	3208
Total	89598	116682	108493	114201

**Sample Vocational Training Centers
Current Expenditure, Depreciated Assets
1995-1998**

Center / Institute: Al.Tafila Vocational School VTC

Employees Salaries, Wages and Allowances

Job	1995	1996	1997	1998
Administration	24000	24300	24500	24700
Technical	21600	21950	22300	22700
Services Staff	8000	8100	8150	8200
Total	53600	54350	54950	55600

Current Expenditures and Depreciation

Item	1995	1996	1997	1998
Current Expenditures				
a) Transport and Travel Allowances	50	50	80	80
b) Operation and Maintenance	350	400	500	550
c) Raw Materials	400	400	600	750
d) Prints, Stationary Accessories	400	500	500	550
e) Others	50	75	100	125
Total	1250	1425	1780	2055
Deprecations				
a) Equipment Depreciation (8.5%)	17500	17500	17500	17500
b) Furniture Depreciation (12.5%)	12500	12500	12500	12500
c) Vehicle Depreciation (2.5%)				
d) Building Depreciation (2.5%)	29400	29400	29400	29400
Total	59400	59400	59400	59400
Total Expenditures	60650	60825	611806	61555

Revenues

Item	1995	1996	1997	1998
Training Fees	1644	1205	1546	1704
Occupational Organization Fees				
Training Products				
Other Revenues	247.25	289.44	34.675	22.625
Total	1891	1494	1586	1727

Note: Revenue data incomplete

Sample Vocational Schools
Current Expenditure, Depreciated Assets and Revenues
1995-1998

Center / Institute: Ibn Al. Nafees

Employees Salaries, Wages and Allowances

Job	1995	1996	1997	1998
Administration	48000	48450	48900	48500
Technical	159000	161000	163000	165000
Services Staff				
Total	207000	209450	212900	213500

Current Expenditures and Depreciation

	1995	1996	1997	1998
Current Expenditures				
a)Transport and Travel Allowances				
b) Operation and Maintenance	200	350	500	550
c) Raw Materials	5200	5500	5400	5000
d) Prints, Stationary Accessories	500	600	600	600
e) Others	886	1000	1200	1500
Total	6786	7450	7700	7650
Depreciations				
a)Equipment Depreciation (8.5%)	42500	38887	35582	32557
b) Furniture Depreciation (12.5%)	5000	4375	3828	3349
c) Vehicle Depreciation (10%)				
d) Building Depreciation (2.5%)	25000	25000	2500	25000
Total	72500	68262	64410	61906
Total Expenditures	79286	75712	72116	69556

Revenues

	1995	1996	1997	1998
Training Fees	3280	3628	3316	3303
Occupational Organization Fees				
Training Products	410.52	380.125	421.825	149.46
Other Revenues				
Total	3690.5	4008	3738	3452

Sample Vocational Schools
Current Expenditure, Depreciated Assets and Revenues
1995-1998

Center / Institute: Nur Al. Dean Zanki

Employees Salaries, Wages and Allowances

Job	1995	1996	1997	1998
Administration	30600	31100	31600	32184
Technical	100050	102150	104250	106380
Services Staff	18000	18350	18650	18948
Total	148650	151600	154500	157512

Current Expenditures and Depreciation

Item	1995	1996	1997	1998
Current Expenditures				
a) Transport and Travel Allowances				
b) Operation and Maintenance	1800	1800	1800	1800
c) Raw Materials	7200	7200	8500	8500
d) Prints, Stationary Accessories	600	600	600	600
e) Others	1700	1700	1700	1700
Total	11300	11300	12606	12606
Depreciations				
a) Equipment Depreciation (8.5%)	25500	25500	25000	25566
b) Furniture Depreciation (12.5%)	6250	6250	6250	6250
c) Vehicle Depreciation (10%)	50	50	50	50
d) Building Depreciation (2.5%)	30000	30000	30000	30000
Total	61800	61800	61800	61800
Total Expenditures	73100	73100	74400	74400

Revenues

	1995	1996	1997	1998
Training Fees	No Data Available			
Occupational Organization Fees				
Training Products				
Other Revenues				
Total				

Sample Vocational Schools
Current Expenditure, Depreciated Assets and Revenues
1995-1998

Center / Institute: Wasfi El. Tall

Employees Salaries, Wages and Allowances

Job	1995	1996	1997	1998
Administration	38900	40666	42456	44256
Technical	190000	196004	202104	208704
Services Staff	31650	32000	32300	32700
Total	260550	268670	276860	285660

Current Expenditures and Depreciation

	1995	1996	1997	1998
Current Expenditures				
a) Transport and Travel Allowances	Not applicable			
b) Operation and Maintenance	700	700	700	700
c) Raw Materials	1200	1400	1400	1400
d) Prints, Stationary Accessories	500	500	500	500
e) Others	1000	1000	1000	1000
Total	3400	3600	3600	3600
Depreciations				
a) Equipment Depreciation (8.5%)	29750	29750	29750	29750
b) Furniture Depreciation (125%)	5750	5750	5750	5750
c) Vehicle Depreciation (10%)	700	700	700	700
d) Building Depreciation (2.5%)	25107	25107	25107	25107
Total	61307	61307	61307	61307
Total Expenditures	64707	64907	64907	64907

Revenues

	1995	1996	1997	1998
Training Fees	4830	4876	4131	425
Occupational Organization Fees				
Training Products	3641	1602	1378	1838
Other Revenues				
Total	8471	6478	5509	6088

Note: Revenue data incomplete

Sample Vocational Schools
Current Expenditure, Depreciated Assets and Revenues
1995-1998

Center / Institute: Al Tafila Vocational School

1- Employees Salaries, Wages and Allowances				
Job	1995	1996	1997	1998
Administration	24000	24300	24500	24700
Technical	21600	21950	22300	22700
Services Staff	8000	8100	8150	8200
Total	53600	54350	54950	55600
2- Current Expenditures and Depreciation				
	1995	1996	1997	1998
2-1 Current Expenditures				
a) Transport and Travel Allowances	50	50	80	80
b) Operation and Maintenance	350	400	500	550
c) Raw Materials	400	400	600	750
d) Prints, Stationary Accessories	400	500	500	550
e) Others	50	75	100	125
Total	1250	1425	1780	2055
2-2 Deprecations				
a) Equipment Depreciation (8.5%)	17500	17500	17500	17500
b) Furniture Depreciation (12.5%)	12500	12500	12500	12500
c) Vehicle Depreciation (2.5%)				
d) Building Depreciation (2.5%)	29400	29400	29400	29400
Total	59400	59400	59400	59400
Total Expenditures	60650	60825	611806	61555
3- Revenues				
	1995	1996	1997	1998
Training Fees	1644	1205	1546	1704
Occupational Organization Fees				
Training Products				
Other Revenues	247.25	289.44	34.675	22.625
Total				

Sample Community Schools
Current Expenditures, Depreciated Assets and Revenues - 1995 to 1998

Center / Institute: Al-Qabisi Com School

1- Employees Salaries, Wages and Allowances				
Job	1995	1996	1997	1998
Administration	33360	28332	32760	37824
Technical	87816	80976	85596	91140
Services Staff	9648	12060	11628	12384
Total	130834	121368	129984	141348
2- Current Expenditures and Depreciation				
	1995	1996	1997	1998
2-1 Current Expenditures				
a) Transport and Travel Allowances	--	--	--	--
b) Operation and Maintenance	450	475	560	568
c) Raw Materials	617	1100	1120	1900
d) Prints, Stationary Accessories	350	400	600	440
e) Others				
Total	1417	1975	1272	2848
2-2 Depreciations				
a) Equipment Depreciation (8.5%)	14309	14309	14309	14309
b) Furniture Depreciation (12.5%)	13342	13342	13342	13342
c) Vehicle Depreciation (10%)	--	--	--	--
d) Building Depreciation (2.5%)	33355	33355	33355	33355
Total	61006	61006	61006	61006
Total Expenditures	62423	62981	62278	63854
3- Revenues				
	1995	1996	1997	1998
Training Fees	2435	2032	2337	2363
Occupational Organization Fees				
Training Products	620	840	670	792
Other Revenues				
Total	3055	2872	3007	3155

Sample Community Schools
Current Expenditures, Depreciated Assets and Revenues - 1995 to 1998

Center / Institute: Omer Bn Al-Kattab Com School

1- Employees Salaries, Wages and Allowances				
Job	1995	1996	1997	1998
Administration	25932	29465	30972	36348
Technical	134184	135612	135804	142824
Services Staff	12060	13125	14227	15840
Total	172186	178202	181003	195012
2- Current Expenditures and Depreciation				
	1995	1996	1997	1998
2-1 Current Expenditures				
a)Transport and Travel Allowances	180	200	240	250
b) Operation and Maintenance	2000	2500	1900	2900
c) Raw Materials	2500	2800	2800	3000
d) Prints, Stationary Accessories	800	780	700	700
e) Others	2700	3000	1900	2100
Total	8180	9280	7540	8950
2-2 Depreciations				
a) Equipment Depreciation (8.5%)	4400	4400	4400	4400
b) Furniture Depreciation (12.5%)	3062	3062	3062	3062
c) Vehicle Depreciation (10%)				
d) Building Depreciation (2.5%)	12500	12500	12500	12500
Total	19962	19962	19962	19962
Total Expenditures	28142	29242	27502	28912
3- Revenues				
	1995	1996	1997	1998
Training Fees	11461	13132	5793	9111
Occupational Organization Fees	--	--	--	--
Training Products				
Other Revenues				
Total	11461	13132	5793	9111

Sample Community Schools
Current Expenditures, Depreciated Assets and Revenues - 1995 to 1998

Center / Institute: Al - Zarqa Com School

1- Employees Salaries, Wages and Allowances				
Job	1995	1996	1997	1998
Administration	32964	32724	32940	34320
Technical	145980	151860	145296	139704
Services Staff	8616	8832	9048	6144
Total	187560	193416	187284	180168
2- Current Expenditures and Depreciation				
	1995	1996	1997	1998
2-1 Current Expenditures				
a) Transport and Travel Allowances	--	--	--	--
b) Operation and Maintenance	50	100	150	200
c) Raw Materials	100	300	250	500
d) Prints, Stationary Accessories	98	87	160	200
e) Others				
Total	248	487	600	900
2-2 Deprecations				
a) Equipment Depreciation (8.5%)	8500	8500	8500	8500
b) Furniture Depreciation (12.5%)	12500	12500	12500	12500
c) Vehicle Depreciation (10%)				
d) Building Depreciation (2.5%)	15875	15875	15875	15875
Total	36875	36875	36875	36875
Total Expenditures	37123	37362	37475	37775
3- Revenues				
	1995	1996	1997	1998
Training Fees	9591	6011	6795	5642
Occupational Organization Fees				
Training Products	17	146	117	553
Other Revenues				
Total	9608	6157	6912	6195

Sample Community Schools
Current Expenditures, Depreciated Assets and Revenues - 1995 to 1998

Center / Institute: Ma'an Com School

1- Employees Salaries, Wages and Allowances				
Job	1995	1996	1997	1998
Administration	24180	27912	24840	25200
Technical	68400	70800	93600	77940
Services Staff	16320	16920	17520	18000
Total	108900	115632	135960	121140
2- Current Expenditures and Depreciation				
	1995	1996	1997	1998
2-1 Current Expenditures				
a) Transport and Travel Allowances	--	--	--	--
b) Operation and Maintenance	900	900	900	900
c) Raw Materials	900	900	1900	1900
d) Prints, Stationary Accessories	160	160	160	160
e) Others				
Total	1960	1960	2960	2960
2-2 Depreciations				
a) Equipment Depreciation (8.5%)	17000	17000	17000	17000
b) Furniture Depreciation (12.5%)	11750	11750	11750	11750
c) Vehicle Depreciation (10%)	--	--	--	--
d) Building Depreciation (2.5%)	24750	24750	24750	24750
Total	53500	53500	53500	53500
Total Expenditures	55460	55460	56460	56460
3- Revenues				
	1995	1996	1997	1998
Training Fees	3561	1829	1556	3230
Occupational Organization Fees				
Training Products				
Other Revenues				
Total				

Sample Community Colleges
Current Expenditures, Depreciated Assets and Revenues - 1995 to 1998

Center / Institute: Amman Community College.

1- Employees Salaries, Wages and Allowances				
Job	1995	1996	1997	1998
Administration	91200	96000	84000	93000
Technical	45000	48500	55000	73000
Services Staff	33600	33600	36000	35000
Total	169800	178100	175000	201000
2- Current Expenditures and Depreciation				
	1995	1996	1997	1998
2-1 Current Expenditures				
a)Transport and Travel Allowances				
b) Operation and Maintenance	2000	3000	4000	5000
c) Raw Materials	2000	2500	3500	4000
d) Prints, Stationary Accessories	1500	2000	2500	3500
e) Others	2500	3000	4000	5000
Total	8000	10500	14000	17500
2-2 Depreciations				
a)Equipment Depreciation (8.5%)	2550	2550	4250	4250
b) Furniture Depreciation (12.5%)	12500	12500	12500	12500
c) Vehicle Depreciation (10%)	100	100	900	3000
d) Building Depreciation (2.5%)	25000	25000	25000	25000
Total	40150	40150	42650	44750
Total Expenditures	48150	50650	56650	62250
3- Revenues				
	1995	1996	1997	1998
Training Fees	6560	7160	13860	17560
Occupational Organization Fees				
Training Products				
Other Revenues	71480	80612	151198	196148
Total	78040	877721	65058	213708

Sample Community Colleges
Current Expenditures, Depreciated Assets and Revenues - 1995 to 1998

Center / Institute: Al. Zarqa Community College.

1- Employees Salaries, Wages and Allowances				
Job	1995	1996	1997	1998
Administration	100066	100613	100783	117886
Technical	178107	178526	195020	209213
Services Staff				
Total	278173	288139	295803	327099
2- Current Expenditures and Depreciation				
	1995	1996	1997	1998
2-1 Current Expenditures				
a)Transport and Travel Allowances	480	480	480	579.35
b) Operation and Maintenance	14683	11889	14679	12222
c) Raw Materials	1744	1500	1100	10227
d) Prints, Stationary Accessories	3927	2041	3881	2776
e) Others	875	592	667	714
Total	21709	16502	20807	26519
2-2 Deprecations				
a)Equipment Depreciation (8.5%)	76500	69998	64048	58604
b) Furniture Depreciation (12.5%)	12500	10938	9570	8374
c) Vehicle Depreciation (10%)	1500	1350	1215	1999
d) Building Depreciation (2.5%)	31250	30459	29707	28946
Total	121750	112754	104540	97936
Total Expenditures	143459	129256	125347	124434
3- Revenues				
	1995	1996	1997	1998
Training Fees	26620	25520	19720	15880
Occupational Organization Fees				
Training Products				
Other Revenues	111544	89698	86445	125045
Total	138164	115218	106165	

Sample Community Colleges
Current Expenditures, Depreciated Assets and Revenues - 1995 to 1998

Center / Institute: Al. Husn Community College.

1- Employees Salaries, Wages and Allowances				
Job	1995	1996	1997	1998
Administration				
Technical				
Services Staff				
Total	425760	510650	693228	501213
2- Current Expenditures and Depreciation				
	1995	1996	1997	1998
2-1 Current Expenditures				
a)Transport and Travel Allowances				
b) Operation and Maintenance				
c) Raw Materials				
d) Prints, Stationary Accessories				
e) Others				
Total	63137	43222	37282	69086
2-2 Deprecations				
a)Equipment Depreciation (8.5%)	765000	765000	765000	765000
b) Furniture Depreciation (12.5%)	62500	62500	68750	68750
c) Vehicle Depreciation (10%)	8000	8000	8000	8000
d) Building Depreciation (2.5%)	300,000	300,000	300,000	300,000
Total	1129500	11295000	1135750	1135750
Total Expenditures	1196637	1178722	1179032	1205436
3- Revenues				
	1995	1996	1997	1998
Training Fees	21950	19460	18100	23500
Occupational Organization Fees				
Training Products				
Other Revenues	149040	141141	115370	214465
Total	170990	160601	133470	237965

Annex 4 d

Sample Community Colleges
Current Expenditures, Depreciated Assets and Revenues - 1995 to 1998

Center / Institute: Al. Tafila Community College.

1- Employees Salaries, Wages and Allowances				
Job	1995	1996	1997	1998
Administration	65000	95000	120000	150000
Technical	70000	120000	145000	160000
Services Staff	55000	85000	110000	80806
Total	190000	300000	375000	390866
2- Current Expenditures and Depreciation				
	1995	1996	1997	1998
2-1 Current Expenditures				
a)Transport and Travel Allowances	420	420	600	600
b) Operation and Maintenance	1800	3000	3200	4400
c) Raw Materials	15000	12000	16000	14000
d) Prints, Stationary Accessories	4000	4200	5600	4800
e) Others				
Total	21220	19420	25400	23800
2-2 Deprecations				
a)Equipment Depreciation (8.5%)	127500	1166625	106746	97672
b) Furniture Depreciation (12.5%)	8750	7656	6699	5862
c) Vehicle Depreciation (10%)	1000	2375	2316	2200
d) Building Depreciation (2.5%)	42500	41438	41401	39301
Total	179750	168094	156162	145035
Total Expenditures	200975	187514	181562	168835
3- Revenues				
	1995	1996	1997	1998
Training Fees	6340	8343	6337	8568
Occupational Organization Fees				
Training Products				
Other Revenues	11276	10809	12824	85864
Total	17616	9152	19161	94432

Administrative Costs in VTC, MOE and Community Colleges

Annex 5

VTC Administrative Costs Based on Actual Enrolment - 1995 to 1998

Year	Employee Salaries/Benefits	Current Expenditures	Enrolment in FTEs	TOTAL	Cost per FTE
1995	508260	62485	5438	570745	105
1996	662371	65886	5727	72357	127
1997	693587	82717	7140	72304	109
1998	737170	77642	7711	80812	106

Annex 6

MOE Administrative Costs Based on Actual Enrolment - 1995 to 1998

Year	Employee Salaries/Benefits	Current Expenditures	Enrolment in FTEs	TOTAL	Cost per FTE
1995	14162316	6972766	903305	31135082	23.4
1996	15041594	7678807	930790	22720401	24.4
1997	15116046	6892788	945279	22008834	23.3
1998	15746354	10177646	967887	25824000	26.7

Annex 7

Community College Administrative Costs Based on Actual Enrolment:

1995 to 1998

Year	Overall Recurrent Expenditure	Share Allocated for Colleges	FTEs	Cost per FTE
1995	2020821	484997	9524	50.9
1996	2050992	492238	10412	47.3
1997	2247000	539286	11049	53.9
1998	715083	429050	10496	40.9

Sample VTC Training Center Enrolment 1995 1998

Year Center	Programs		Al-Hashmieh	Ein-Al Basha	Hakama	Al Tafeleh
1995	Long Term	First	510	605	377	57
		Secondary	299	473	284	33
		Third	291	351	179	22
	Med Term	Grad	215	225	127	20
		First	222	327	192	11
		Grade	99	275	125	6
1996	Long Term	First	511	820	404	54
		Secondary	339	449	217	36
		Third	247	434	211	30
	Med Term	Grad	192	300	120	12
		First	235	402	202	19
		Grade	150	191	126	8
1997	Long Term	First	520	823	425	140
		Secondary	381	633	272	40
		Third	314	368	201	30
	Med Term	Grad	211	309	155	27
		First	174	232	242	0
		Grade	98	233	110	15
1998	Long Term	First	481	734	419	96
		Secondary	356	599	301	72
		Third	311	509	206	34
	Med Term	Grad	205	294	153	28
		First	173	257	228	21
		Grade	123	151	178	0

Sample of MOE Vocational School Enrolment 1995 - 1998

School	Year	1994-1995	1995-1996	1996-1997	1997-1998
Ibn Al-Nafees	1 st	272	300	275	268
	2 nd	304	244	258	237
	Pass	128	58	98	100
Nur Al-Dean Zanki	1 st	167	175	186	183
	2 nd	145	137	155	170
	Pass	45	74	41	63
Wasfi Al - Tall	1 st	388	367	360	386
	2 nd	290	309	302	279
	Pass	142	166	87	103
Tafila	1 st	117	118	129	144
	2 nd	107	98	102	125
	Pass	48	60	32	22

Sample MOE Comprehensive Schools Enrolment - 1995 to 1998

School	Year	1994-1995	1995-1996	1996-1997	1997-1998
Omer Bn Al Kattab Com School	1 st	516	459	441	410
	2 nd	472	493	397	430
	Pass	291	267	183	287
Zarqa Com School for Boys	1 st	446	444	357	444
	2 nd	469	450	463	420
	Pass	250	266	225	263
Al-Qabisi Com School	1 st	100 + 148	184 + 152	170 + 139	182 + 175
	2 nd	130	116	112	133
	Pass	43	68	58	48
Maan Com School	1 st	91	104	89	104
	2 nd	96	106	135	98
	Pass	31	23	32	27

**** Students in the tenth grade**

**Student Enrollment for Study Sample in Community Colleges
Enrollment 1995-1998**

School	Year	1995-1996	1996-1997	1997-1998	1998-1999
Amman College	1 st	228	183	510	485
	2 nd	104	172	170	445
	Graduate	84	140	104	298
Zarqa College	1 st	644	617	339	423
	2 nd	650	618	558	318
	Graduate	576	481	358	217
Al-Husn College	1 st	570	466	499	728
	2 nd	566	513	336	360
	Graduate	412	332	196	245
Al-Tafila College	1 st	153	244	222	219
	2 nd	96	83	126	171
	Graduate	73	40	96	64

Student Capacity in Sample Institutes, Schools and Colleges

Student Capacity in VTC Sample Centers

Year	Hashimieh	Ein Al. Basha	Hakama	Al-Tafila	Totals
1995	1,450	1,700	1,000	200	4,350
1996	1,450	2,000	1,000	200	4,650
1997	1,450	2,000	1,000	316	4,760
1998	1,490	2,000	1,000	316	4,806

Student Capacity in Sample Vocational Schools

Year	Ibn Al. Nafees	Nur Al-Dean Zanki	Wasfi El Tell	Al-Tafila	Totals
1995	600	400	680	340	2,020
1996	600	400	680	340	2,020
1997	600	400	680	340	2,020
1998	600	400	680	340	2,020

Student Capacity in Sample Community Schools

Year	Omer Bin Kattab	Zarka	Al-Qabisi	Ma'an	Totals
1995	1100	810	500	300	2710
1996	1100	810	500	300	2710
1997	1100	810	500	300	2710
1998	1100	810	500	300	2710

Student Capacity in Sample Community Colleges

Year	Amman	Zarka	Husn	Al-Tafila	Totals
1995	465	1,170	1,200	600	3,435
1996	540	1,110	1,200	600	3,450
1997	720	870	1,200	600	3,390
1998	1,030	660	1,200	600	3,490

Cost Per FTE in the VTC Sample Centers
Based on Actual Enrolment with No Administration Cost (at current prices)

Year	Center	Hashimieh	Ein. Al. Basha	Hakama	Al. Tafla
1995	EXP	287,879	398801	343470	57794
	No. of FTES	689	1099	588	61
	Cost/FTE	418	363	584	947
1996	EXP	281,679	417779	319331	132133
	No. of FTES	681	1074	554	74
	Cost/FTE	414	389	576	1786
1997	EXP	287595	413233	317227	141860
	No. of FTES	793	1234	583	85
	Cost/FTE	363	335	544	1669
1998	EXP	28117	423988	307228	138064
	No. of FTES	790	1259	685	106
	Cost/FTE	365	337	449	1302

**Cost Per FTE in the Vocational School at MOE Sample
Based on Actual Enrolment and No Administration Cost (at current prices)**

Institution		1995	1996	1997	1998
Ibn Al - Nafees	Exp.	286286	285162	285016	283056
	FTE	576	544	533	505
Nur Al- Dean Zanki	Cost	497	524.2	534.7	560.5
	Exp.	221750	224700	228900	231912
	FTE	312	312	341	353
Wasfi Al Tell	Cost	710.7	720.2	671.3	657
	Exp.	325257	333577	341767	350567
	FTE	678	676	662	665
Al Tafila	Cost	479.7	493.5	516.3	527.2
	Exp.	114250	115175	116130	117155
	FTE	224	216	231	269
	Cost	510	533.2	502.7	435.5

Cost Per FTE in the Comprehensive Schools
Based on Actual Enrolment with No Administrative Costs (at Current Prices)

Institution		1995	1996	1997	1998
Omer Bn Al Kattab Compre-hensive School	Exp.	200328	207444	208505	223924
	FTE	988	952	838	840
	Cost	202.8	217.9	248.8	266.6
Zarqa Comprehensive School	Exp.	224683	230778	224759	217943
	FTE	915	894	820	864
	Cost	245.6	258.1	274.1	252.2
Qabisi Comprehensive School	Exp.	193247	184349	192262	205202
	FTE	378	452	421	490
	Cost	511.2	407.9	456.7	418.8
Ma'an Comprehensive School	Exp.	164360	171092	192420	177600
	FTE	187	210	224	202
	Cost	878.9	814.7	859	879.2
Aggregate	Exp.	782618	793613	817946	824669
	FTE	2468	2508	2303	2396
	Cost	317.1	316.4	353.2	344.2

Cost Per FTE in the Sample of the Community Colleges
Based on Actual Enrolment and No Administration Cost (at current prices)

Year	Center	Amman	Al. Zarqa	Al. Husn	Al. Tafila
1995	EXP	217950	422632	1622397	390970
	No. of FTES	147	1369	1000	249
	Cost/FTE	1483	309	1622	1570
1996	EXP	228750	417389	1689372	487514
	No. of FTES	332	1269	1109	249
	Cost/FTE	689	329	1532	1958
1997	EXP	231650	431150	16872260	556562
	No. of FTES	355	1232	979	331
	Cost/FTE	653	350	1725.6	1681
1998	EXP	263250	451553	1706649	559641
	No. of FTES	680	897	877	348
	Cost/FTE	387	503	1949	1608

**Cost per FTE in Sample Vocational Training Centers Including
Institutional and Administration Cost and Based on Actual Enrollment-1995 to 1998
(at current prices)**

Year	Center	Hashimiheh	Ein Al-Basha	Hakama	Al-Tafla	Aggregate
1995	Institutional	418	363	584	947	463.5
	Share of Adm.	105	105	105	105	105
	Total	523	468	689	1052	568.5
1996	Institutional	414	389	576	1786	481
	Share of Adm.	124	127	127	127	127
	Total	541	516	709	1913	608
1997	Institutional	363	335	544	1669	480
	Share of Adm.	109	109	109	109	109
	Total	472	444	653	1778	539
1998	Institutional	365	337	449	1302	408
	Share of Adm.	106	106	106	106	106
	Total	471	443	555	1408	514

**Cost per FTE in Sample MOE Vocational Schools
Including Institutional and Administration Cost and Based on Actual Enrollment-1995 to 1998
(at current prices)**

Year		Ibn Al-Nafees	Nur - Al- Dean Zanki	Wasfi Al-Tall	Al - Tafila	Total
1995	Cost Per FTE	497	710.7	479.7	510	539.2
	Adminshare	23.4	23.4	23.4	23.4	23.4
	Total	520.4	734.1	503.1	533.4	563.2
1996	Cost Per FTE	524.2	720.2	493.5	533.2	548.4
	Adminshare	24.4	24.4	24.4	24.4	24.4
	Total	548.6	744.6	522.9	557.6	572.8
1997	Cost Per FTE	534.7	671.3	516.3	502.7	550
	Adminshare	23.3	23.3	23.3	23.3	23.3
	Total	558.0	694.6	539.6	526.0	573.3
1998	Cost Per FTE	560.5	657	527.2	435.5	548.4
	Adminshare	26.7	26.7	26.7	26.7	26.7
	Total	587.2	683.7	553.9	462.2	575.1

**Cost per FTE in Sample MOE Comprehensive Schools
Including Institutional and Administration Cost and Based on Actual Enrollment-1995 to 1998
(at current prices)**

Year		Omer Bn Al-Kattab	Zarqa	Qabisi	Maan	Aggregate
1995	Cost /FTE	202.8	245.6	511.2	878.4	317.1
	Share of Admin.	23.4	23.4	23.4	23.4	23.4
	Total	226.2	269.0	534.6	901.8	340.5
1996	Cost /FTE	217.9	258.1	407.9	814.7	316.4
	Share of Admin.	24.4	24.4	24.4	24.4	24.4
	Total	242.3	282.5	432.3	839.1	340.8
1997	Cost /FTE	248.8	274.1	456.7	859	355.2
	Share of Admin.	23.3	23.3	23.3	23.3	23.3
	Total	272.1	297.4	480.0	882.3	378.5
1998	Cost /FTE	266.6	252.2	418.8	879.2	344.2
	Share of Admin.	26.7	26.7	26.7	26.7	26.7
	Total	293.3	278.9	445.5	905.9	376.9

Cost per FTE in Sample Community Colleges
Including Institutional and Administration Cost and Based on Actual
Enrollment 1995 to 1998
(at current prices)

Year Center		Amman	Zarka	Husn	Al. Tafilá	Aggregate
1995	Cost Per FTE	1483	306	1622	1570	959.8
	Share of Adm.	50.9	50.9	50.9	50.9	50.9
	Total	1533.9	356.9	1672.9	1620.9	1010.7
1996	Cost Per FTE	689	329	1532	1958	954
	Share of Adm.	47.3	47.3	<u>47.3</u>	47.3	47.3
	Total	736.3	3763	1579.3	2005.3	1001.3
1997	Cost Per FTE	653	350	1912.4	1681	1067.2
	Share of Adm.	53.9	53.9	53.9	<u>53.9</u>	53.9
	Total	706.9	403.9	1965	1734.9	1121
1998	Cost Per FTE	387	503	1949	1608	1063.9
	Share of Adm.	40.9	40.9	40.9	40.9	40.9
	Total	427.9	543.9	1989.9	1648.9	1104.8

Annex 21

**Aggregate Cost Per of FTE for Sample Vocational Training Centers
Based on Actual Enrollment Including Headquarters Share of Administration Costs
(at current price)**

Year	Institutional Expenditure	No. of FTE	Cost Per FTE	Share of Headquarters Per FTE	Total
1995	1087944	2347	463.5	105	568.5
1996	1150922	2393	481	127	608
1997	1160015	2695	430	109	539
1998	115797	2840	408	106	514

** See Also Annex 25 for Constant Price Calculation Based on Actual Enrollment at Current Price.*

Annex 22

**Aggregated Cost Per of FTE for Sample Vocational Schools
Based on Actual Enrollment Including MOE Administration Costs
(at current price)**

Year	Institutional Expenditure	No. of FTE	Cost Per FTE	Share of MOE Per FTE	Total
1995	998161	1750	571.3	23.4	594.7
1996	1009214	1748	577.4	24.4	601.8
1997	1022413	1767	578.6	23.3	601.9
1998	1033190	1792	576.6	26.7	603.3

** See Also Annex 26 for constant Price Calculation.*

Annex 23

**Aggregated Cost Per of FTE for Sample Comprehensive Schools
Based on Actual Enrollment Including MOE Share Administration Costs
(at current price)**

Year	Institutional Expenditure	No. of FTE	Cost Per FTE	Share of MOE Per FTE	Total
1995	782618	2468	317.1	23.4	340.5
1996	793613	2508	316.4	24.4	340.8
1997	817946	2303	355.2	23.3	378.5
1998	824669	2396	344.2	26.7	370.9

** See Also Annex 27 for constant Price Calculation.*

Annex 24

**Aggregated Cost Per FTE for Sample Community Colleges Based on Actual
Enrolment and Including Administration Share
(at current price)**

Year	Total Expenditure *	No. Of FTEs	Cost per FTEs	Share at MOHE	Total
1995	2653949	2765	959.8	50.9	1010.7
1996	2823025	2959	954	47.3	1001.3
1997	3091622	2897	1067.2	53.9	1121.1
1998	429050	2802	1063.9	40.9	1104.8

** Administration costs include MOHE (1995-1997) and BAU(1998)*

** Also Annex 28 for constant prices calculation.*

**Aggregated Cost per FTC in Sample Centers based on Full Capacity
including Institutional and Administrative Costs - at Current and
Constant Price**

**Cost of Living Index - 1995 at 100; 1996 at 106.6; 1997
at 109.8; 1998 at 113.2**

Sample Vocational Training Centers

Year	Current Price	Constant Price
1995	568.5	568.5
1996	608	570
1997	539	487.2
1998	514	454.1

Sample Vocational Schools

Year	Current Price	Constant Price
1995	563.2	563.2
1996	572.8	537.3
1997	573.3	522.1
1998	575.1	508

Sample Comprehensive Secondary Schools

Year	Current Price	Constant Price
1995	340.5	340.5
1996	340.8	318.7
1997	378.5	344.7
1998	376.9	333

Sample Community Colleges

Year	Current Price	Constant Price
1995	1,010.7	1,010.7
1996	1,001.3	939.3
1997	1,121.1	1,021.0
1998	1,104.6	976

**Aggregated Cost per FTC in Sample Centers based on Full Capacity
including Institutional and Administrative Costs - at Current and
Constant Price**

**Cost of Living Index - 1995 at 100; 1996 at 106.6; 1997
at 109.8; 1998 at 113.2**

Sample Vocational Training Centers

Year	Current Price	Constant Price
1995	306.7	306.7
1996	312.9	292.
1997	304.8	277.6
1998	303.7	268.3

Sample Vocational Schools

Year	Current Price	Constant Price
1995	478.7	478.7
1996	495.7	465
1997	501.5	456.7
1998	486.5	429.8

Sample Comprehensive Secondary Schools

Year	Current Price	Constant Price
1995	310	310
1996	315.4	300
1997	321.7	313.9
1998	333.2	294.2

Sample Community Colleges

Year	Current Price	Constant Price
1995	913	913
1996	943.5	791.3
1997	879	800.5
1998	162.2	673.4

Annex 29-32

**Aggregated Cost per Graduate by Center including Institutional and
Administrative Costs- at Current (Cur) and Constant (Con Price)**

Sample Vocational Training Centers

Year	Hashimieh		Ein Al. Basha		Hakama		Al-Tafila		Aggregate	
	Cur	Con	Cur	Con	Cur	Con	Cur	Con	Cur	Con
95-97	1.377		1.441		2.219		3.411		1.780	
		1,335		1,396		2.160		3.280		1,630
96-98	1.618		1.344		1.741		4.365		1.765	
		1,435		1,246		1.717		4.042		1,527

Sample Vocational Schools

Year	Ibn AL.Nafees		Nur Al-Dean Zanki		Wasfi El Tell		Al-Tafila		Aggregate	
	Cur	Con	Cur	Con	Cur	Con	Cur	Con	Cur	Con
94-96	4748.4		3035.2		2149.3		1950.9		2745.9	
		4605.4		2949.9		2089		1893.7		2667.7
95-97	3148.4		5804.1		4078.9		3732.8		3946.8	
		2913.2		5372.9		3774.9		3454.2		3652.6
96-98	2926.2		3895.6		3386.4		5710.4		3510.6	
		2626.9		3497.5		3042.9		5129.2		3152.7

Sample Comprehensive Schools

Year	Omar Bin Kattab		Zarqa		Al-Qabisi		Ma'an		Aggregate	
	Cur	Con	Cur	Con	Cur	Con	Cur	Con	Cur	Con
94-96	884.5		954.2		1901		7435.1		1291.6	
		856.8		899.3		1795.6		7195.5		1252.2
95-97	1198		1169.4		2059.8		6449.3		1634.5	
		1107.7		1080.4		1906.9		5947		1510.3
95-98	857.5		849.1		2624.4		6196.4		1273.2	
		769		761.2		2356.7		5552.7		1141.8

Sample Community Colleges

Year	Amman		Zarqa		Husn		Al-Tafila		Aggregate	
	Cur	Con	Cur	Con	Cur	Con	Cur	Con	Cur	Con
97	3627.5		959.3		4467.8		11720.2		2864.1	
		3577.3		928.6		4333.5		11406.5		2779.8
95-97	2067.6		1006.2		8041.4		11270.2		3476.8	
		1925.6		929.7		7367.2		10473.7		3214
96-98	2127.4		1597.4		8083.1		6573.7		4102.9	
		1916.6		1431		7268.4		5927.6		3687.8

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