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YEMEN COMPUTER TRAINING CENTER

FEASIBILITY STUDY

PRICE WATERHOUSE IN ASSOCIATION WITH

ADIBAN TRADING

JANUARY 1990

YEMEN COMPUTER TRAINING CENTER  
FEASIBILITY STUDY

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YEMEN

JANUARY 1990

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## *Price Waterhouse*



January 31, 1990

Dr. Robert Mitchell  
General Development Officer  
USAID/Yemen  
Sana'a, Yemen

Dear Dr. Mitchell:

### Yemen Computer Training Center Feasibility Study

We are pleased to present this final report. Our findings are based upon extensive interviews with leaders in both the Yemen public and private sectors. This research indicates that a Center of proper quality cannot be self-supporting, given the immaturity of demand for computer training in Yemen today. However, if a donor wished to significantly underwrite tuition for each student, such a Center would be of interest to many in Yemen, particularly in the public sector.

Thank you for the opportunity to serve you on this engagement. If you have any questions or comments regarding this report, please contact John A. Witt in Riyadh or James T. Pearson in our Cairo office.

Very truly yours,

A handwritten signature in cursive script that reads "Price Waterhouse".

Price Waterhouse

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## EXECUTIVE SUMMARY

The purpose of this study is to evaluate the financial feasibility of a non-profit computer training center in Sana'a, Yemen. An evaluation of need and demand for computer training provided a means for assessing the revenue potential of the Center. Research into local costs for trainers, administrative personnel, building space, computers, and other essential elements of such a Center provided an estimate of annual costs. If projected revenue could cover anticipated costs, the Center would be deemed feasible. Because USAID anticipated attracting private sector endowments for the Center, analyses are also provided on the effect of donor or sponsor participation.

### ESTIMATING COSTS

For the purposes of expense estimation, a small, start-up configuration was designed. By starting small, a school could build its place in the market over time with limited initial capital. As the market grew, the school could grow.

The total five year capital and operating costs for the start-up configuration are estimated to be YR 11,771,316, or USD 1,207,314 at the official rate of YR 9.75 = USD 1. At a rate of YR 12.20 = USD 1, the cost is USD 964,862. This includes personnel, building rent, utilities, textbooks and supplies. Capital costs of YR 930,000 are only for computers and software. All other expenses are operating costs in the start-up configuration.

### ESTIMATING REVENUE

Two concepts guided the determination of revenue: (1) determination of need for training; and (2) determination of willingness to pay, or demand. To determine need, the total computer population of Yemen

was estimated through interviews with vendors and users. Estimates of operators per machine, based upon interview results, yielded a total user population in Yemen. To estimate new users needed, and thereby an estimate of the number of potential trainees, estimates of growth in the computer population were used. Estimates of ten percent, thirty percent, and sixty percent computer population growth annually yield new student populations of 670; 4,200; and 14,700 over five years. Interviews indicate that since the economy is in a slow growth pattern, and since computer purchases are not a high priority, the ten percent annual growth model is the most likely, indicating a five-year new student population of 670 as most likely (new student totals represent the total estimated demand for new computer operators based upon an assumed increase in computer use over five years, e.g. demand five years from now minus current trained users). This is an annual average student population, or need for training, of 134 students. If each student takes three courses each year, this is 402 courses sold each year.

Four hundred two courses sold per year at a local market price for training of YR 850 to YR 1,250 per course, yields an annual revenue stream of YR 341,700 to YR 502,500. This is a five-year cumulative revenue stream of YR 1,708,500 to YR 2,512,500. This revenue stream is only total 14 to 21 percent of the operating and capital expenses. A student body of 3,139 students, each taking three courses and paying YR 1,250 per course is required to break even. Conversely, a student body of 670 must pay YR 5,856 per course for the school to break even. This assumes each student takes three courses. Exhibit A summarizes these estimates.

Willingness to pay, or demand, in the private and public sectors indicates that the number of new students may be even lower than the estimate of 670 over the next five years. Interview results indicate:

- Private Sector Management does not understand the use of or return from investing in computerization. As a result plans for computerization are small to none.

YEMEN COMPUTER TRAINING CENTER  
Financial Summary of Proposed Start-Up

A. Minimal Start-Up Configuration

B. Costs Per Year, Assuming Twenty Percent Inflation

<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>Fifth</u>
1,941,364	1,660,300	2,126,754	2,915,863	3,127,035

Total Outlays = YR 11,771,316

C. Number of Students Required at Fixed Tuition of an Average for the Five Years of YR 1,250

- o YR 11,771,316 / 1,250 = 9,417 classes
- o 9,417 classes / 3 (classes/student) = 3,139 students

D. Tuition Required of a Fixed Student Body of 670

- o YR 11,771,316 / 670 students = YR 17,569 / student
- o YR 17,569 / 3 (classes/student) = YR 5,856 / class

INTERVIEW FINDINGS CONCERNING THE MARKET

- o Willingness to Pay is YR 850 to 1,250 per class
- o Few Private or Public Sector Organizations willing to pay without some sort of donor support
- o Our own projections estimate need for trained personnel over the next five years as being 670 persons

Ten Percent Growth in Computer Population = 670 persons  
 (YR 205,635,000 spent on computer hard/software)

Thirty Percent Growth in Computer Population = 4,212 persons  
 (YR 913,675,000 spent on computer hard/software)

Sixty Percent Growth in Computer Population = 14,727 persons  
 (YR 3,196,635,000 spent on computer hard/software)

- There has been insufficient competitive pressure to lower costs, increase efficiency and productivity. To the degree the economy becomes more competitive, the value of computerization should become more apparent.
- Local businesses do not regularly purchase training for any but senior management. These tend to be overseas courses, thus offering a perk as well as instruction to persons important to the firms.
- Public Sector sponsors almost universally state that donors must pay for any training provided to public sector personnel. Ministries do not use their own funds to pay either computers or computer training. Yemen Arab Republic Government (YARG) funds are rarely used for any training, as donor funds are usually set aside for this purpose.
- Donor agencies do not have computerization as a priority in their funding plans. Agriculture and industrialization projects, as well as local health and literacy programs, top their investment lists.
- Computerization is not a "sector" of industry. Instead, although improvement of management capabilities is a high priority concern of donors, "computerization" has not figured highly as a manager tool in today's economy in Yemen and therefore is not funded.

These factors reduce both the prospects for paying for local training and for computer population growth. Both effects reduce the potential for Center revenues and make less feasible the center's financial prospects.

#### DONOR 'S EFFECTIVENESS

Donor participation in the Center could reduce the tuition paid by

students to the point where revenues meet expenses after donor gifts. The tuition reduction potential of various levels of donations are shown in Exhibit B. This Exhibit assumes a student body of 670 persons over five years, each student taking three courses. This is a five year course sales of 2,010 courses. As shown in Exhibit B, this requires donations of every thing but personnel to reach a tuition of approximately YR 1,754, or all but instructors and the administrator's salaries must be covered to reach a market price near the threshold for tuition of YR 1,250. This would create a five year donation need of YR 7,989,495, or USD 819,435.

Based upon this analysis, it appears the project as initially defined will not be able to support operating costs from revenue without significant donor support.

#### LOOKING AHEAD

The computer training center appears infeasible principally due to the lack of commitment to computerization by the Yemen economy, chiefly in the private sector. This situation not only requires basic reforms to introduce competitive market forces but also the education of senior and middle management to the uses of and the economic return of computerization of the work place. A management institute with computers fully integrated into its programs would introduce the value of computer use to managers pursuing other interests, such as marketing, planning, or cash management. In such an environment a computer tends to sell itself. Investment in computers, and demand for computer training, will likely follow.

Many sections of this report may be used to plan other educational or research institutes. Guidance on legal standing, building selection, expenses, and staffing offer basic data needed to assess the feasibility of several other options. USAID just completed a study for a Private Sector business skill Training Center, with support coming from the Chambers of Commerce, the Ministry of Economy and other organizations in Yemen. Planners of such a Center may benefit from a review of this report.

EXHIBIT B

DONOR EFFECTIVENESS ON  
TUITION REQUIREMENTS

<u>Donor Gift</u>	<u>After Donation Five-year Cost</u>	<u>Implied Tuition</u>	<u>Average Tuition Over Five Years</u>
Nothing	(1) YR 11,771,316	(2) YR 5,856	YR 4,067
Hardware/ Software	10,841,316	5,394	3,746
plus Textbooks/ Supplies	8,448,468	4,203	2,919
plus Building/ Utilities	5,413,318	2,693	1,870
plus Office/ Utilities	5,078,445	2,526	1,754
plus Secretary/ Clerks	3,781,821	1,881	1,306
plus Instructors/ Administrator	-0-	-0-	-0-

NOTES

1. Assumes twenty percent inflation.
2. Assumes 670 students over five years taking three courses each, for a total of 2,010 courses sold.

## I. INTRODUCTION

### A. Background

The purpose of this study is to assess the viability of a privately sponsored, non-profit computer training center. The center will offer software use and development training on appropriate hardware. The Center will not train persons to repair hardware, nor to sell hardware or software.

The United States Agency for International Development (USAID) commissioned this study to address the need in Yemen for cost effective computer training. USAID's mission in Yemen includes the promotion of technology and training designed to increase the productivity and efficiency of the Yemen economy. A computer Training Center would support this mission by potentially increasing the efficiency of use of current computers and stimulating further the computerization of current manual record keeping systems.

### B. Methodology

The study results which follow are the findings of the consultant's interviews with numerous leaders in the private, public, quasi-public, and other sectors of the Yemen economy. These interviews were conducted between September 2 and December 1, 1989. They are necessarily not a complete review of the entire Yemen economy, but represent a cross-section of the economy. The interviews were given mainly to the largest participants in each sector, as these are most likely to invest or to have invested in computer technology.

Interviews were also conducted with various legal, administrative and construction experts in Yemen to determine the institution building capabilities of the local economy. The findings of these interviews determined the recommended approach to legal incorporation, administrative structure, and physical space needs of the proposed center. Costs for all inputs represent costs in 1989 Yemeni Rials.

Demand for computer training contains two elements: (1) need for computer users based upon the number of computers used in Yemen; and (2) willingness to pay for training, which creates final demand. In this report, need for training is estimated by projecting three scenarios for growth in the number of computers in Yemen, based upon the current computer population. Final demand is determined by interview results with private and public agency leaders, and consideration of their willingness to invest in computers and pay for training. Project feasibility is indicated by whether estimates of revenue cover estimates of expenses.

## II. NEED AND DEMAND FOR COMPUTER LITERATE STAFF

Computer use is on the rise in Yemen. Several organization in both the public and the private sectors have invested in computer hardware. The majority have invested in micro and minicomputers purchased through local vendors. Exhibit I illustrates computer sales to date by vendor.

Even though computers are used in Yemen, they are still not in the mainstream of the economy. As a result, relatively few opportunities exist for trained computer programmers and system analysts to fully utilize their skills or realize the compensation they desire. The following sections describe the state of computerization in the private, public, and other sectors, based upon the interviews conducted. Demand for training is estimated based upon interviews conducted within each sector, discussions with local experts, and publicly available data.

### A. Private Sector Demand for Computer Literate Staff

The private sector in Yemen is involved in many activities with operations spread around the nation. The principal business centers are Sana'a, the capital; Taiz, the old capital; and Hodeidah, the principal port city. Eighty percent of the urban population of the country resides in these three cities.

EXHIBIT I

Total Computer Sales in Yemen  
By Vendor

(Data Reported by Vendors and Experts,  
Not Audited)

<u>Vendor</u>	<u>Type</u>		<u>Teach</u> <u>Courses</u>	<u>Cost YR</u> <u>Per Hour</u>
	<u>Mini/Main</u>	<u>Micro</u>		
Y.C.C.	59	100	Yes	50
Computer World	-	17	Yes	60-100
NCR	20	6	-	-
IBM	-	70	Yes	50
Digital	80	-	Yes	39
Atari	-	50	-	-
Other	-	50	-	-
Total	<u>159</u>	<u>293</u>		

Operations of the cross-section of companies interviewed includes trading activities, manufacturing, shipping, banking and finance, retailing, hostelry, tourist services, oil exploration and production, and education activities, particularly computer sales and training. Many of the principal companies are involved of these activities. These companies are generally owned and operated by one family. Foreign partners may be involved in specific projects, such as a bank or a hotel.

Companies interviewed tend to employ between 100 and 1,000 persons, mostly male. Approximately five percent of the employees are at a management level, and an additional ten percent are in administrative or clerical functions. In the large trading companies, most of employees have some paperwork to perform in the course of their jobs. In financial companies, this percent is higher, in construction companies, lower. Few employees in private companies have university educations, two to five percent. Another thirty to forty percent has a secondary education. Most private employers hire for reasons of experience or specific knowledge of the business environment in Yemen. Exhibit II summarizes these findings.

The records usually kept by a business in Yemen are the basic records traditionally required to do business. These include a general ledger for accounting, receivables, payables, personnel data, and inventories. Advanced manufacturing, financial management, costing, and other, more sophisticated data sets are maintained by a few companies. Employees are paid in cash, creating a limited paper burden (and a limited paper trail). Few companies keep detailed operating statistics.

Almost all companies interviewed mentioned specific paperwork problems which could be addressed by computerizing a portion or all of their data management. The most frequent complaint was the timeliness of the collection of data. Managers could not get information on such things as parts or labor location, and year-end reports are usually quite late by international standards. The second most frequent complaint concerned the reliability of the data. Accuracy with the manual system was usually correct, but there were little or no checks.

As a result of these two chief complaints general managers tended to keep a close watch on all records further slowing down the collection,

Private Sector Personnel

EXHIBIT II

<u>Private Firms</u>	<u>Employees</u>		<u>Percent Educated</u>		
	<u>Total</u>	<u>Clerk</u>	<u>Univ</u>	<u>Second</u>	<u>Prim</u>
<u>Trading</u>					
A	450	100	0	60	39
B	700	200	-	-	-
C	500	350	5	50	45
D	600	90	0	50	50
E	100	30	-	-	-
F	200	46	-	-	-
<u>Bank</u>					
G	-	-	-	-	-
H	124	-	-	-	-
<u>Insurance</u>					
I	120	120	10	60	30
<u>Petroleum</u>					
J	-	-	-	-	-
<u>Hotel</u>					
K	250	100	3	60	37

reporting, and extent of data collection and management. Other paperwork complaints focussed on the paperwork burden imposed by doing business with the government and the differences between local standards of accounting and recordkeeping and standards of the foreign partners.

#### Computerization in the Private Sector

Of the private companies interviewed, only three had not made an investment in computers. Two of these firms cited the lack of a good proposal and the need to "do a complete job" of computerization when done. The third firm without computers was a fledgling company which intended to explore computerization in the near future. Control of information and security concerns were also expressed. Also managers in these firms do not understand the operation of the computers, thus fear they could not be involved in the system of computerized recordkeeping. Finally, many said that since the current recordkeeping system "works", they had no need to invest in a new system.

Companies with computers in the private sector can be divided into two groups: (1) banks, foreign-managed firms and major private companies (such as Hayl Saeed and the Thabet Bros.); and (2) other locally managed firms. The first group has made a large investment in computerization.

The banks spent millions of Rials on minicomputer systems to manage all types of data bases and on-line-teller activities. The foreign managed company interviewed, Yemen Hunt Oil, has over 130 microcomputers, representing a significant percentage of all microcomputers in the country. Major private firms purchased mini-computers to keep accounting and personnel records. These businesses made an investment significantly greater than any other group of firms in the nation.

The other group, locally managed firms, are all in the experimental stage of computer use. Most have only PCs, all IBM compatible. Most of the firms purchased computers locally, in order to take advantage of local service contracts. A few firms purchased one or two machines overseas. (See Exhibit III).

Private Sector Computer Use & Training

EXHIBIT III

	Computer Type & Amount	Where Bought	Where Trained		How Many Trained?	
			OPS	Other	OPS	Prog
<u>Trading</u>						
A	No	-	-	-	-	-
B	PC-10	Foreign	Yemen	USA	8	1
C	PC-1	Yemen	Yemen	-	1	-
D	No	-	-	-	-	-
E	PC-1	YCC	YCC	-	3	-
F	Mini-1	Yemen	YCC	-	3	-
<u>Bank</u>						
G	Mini-2	YCC	Yemen	Cairo	45	3
H	Main+Mini	Yemen+ Foreign	Paris	Paris	10	-
<u>Insurance</u>						
I	Mini-1	Yemen	Yemen	-	3	-
<u>Petroleum</u>						
J	PC-120	USA	In-House	USA	120	13
<u>Hotel</u>						
K	PC-3 Mini-1	Yemen	Yemen	-	2	-
					<u>195</u>	<u>17</u>

The first group, banks, foreign managed firms and major private companies, use the computers for much of their recordkeeping. These firms have had senior staff trained overseas to manage the central computer operations. Programmers were also trained overseas, whether paid for by the firm or hired after the person had invested in his own education. These firms have a need for a few system managers, system analysts on a part time basis, and programmers on staff to make corrections to software. Several operators and data entry personnel are also required. Major private companies have in-house training and programming plans to save on training costs. This amounts to "on the job training", the trainers being the more experience staff.

The second group, smaller local firms, uses computers for one or two data base purposes, whether an accounting package, a spare parts inventory program, or a manufacturing process program. In one case, each manufacturing plant had a computer for factory inventory and production data, the general manager had a PC on his desk for personal data work and word processing, and a manager educated in the UK had a portable PC for his own use.

In this second group, there are normally a few persons with operator training obtained from the local computer sales representative. This represents the skill level of the majority of the persons operating computers in this portion of the private sector. In some cases a family member may have obtained training overseas and is the manager of the effort to computerized the firm. These people can be regarded as the vanguard of the effort to computerize the private sector in Yemen. To date, none of the persons outside of the families in these firms have been sent for more training than that offered by the computer vendors in Yemen in the package price of the hardware sale.

#### Willingness to Pay for Training in Yemen's Private Sector

Most all of the companies interviewed send people overseas for management and technical training. Management training is primarily given to senior members of the firms and paid for either by the firm or by corporate sponsors. These sponsors are either the foreign partner

(such as the central bank office for Indo-Suez bank) or by a company whose product is sold by the local agent firm.

The costs for these programs are quite high, as they include travel and tuition with European salary scale trainers. These trips serve several purposes, however, and may not be a good indication of willingness to pay. Also, they tend to be reserved for senior management and family members.

Local training is not normally purchased by the firms. Computer training is provided either by the computer dealer and was included in the hardware purchase price, or trained members of the staff would train new members. In-house training is also the practice of the banks, Yemen Hunt Oil, and the major private companies. The firm managers, however, said they might pay for student training in Yemen if they thought it was good training which relieved the need to spend staff time on internal training.

For such programs, management claims a willingness to spend from YR 1,000 to 5,000 for a good course aimed specifically at their needs. This might be an introductory course for firms needing more operators, or LOTUS training for a firm using this as a data management program. In terms of hours of training, management expressed an interest in spending approximately YR 50 per hour for quality training. It is worth noting that the British Council charges YR 46 for one hour of English language training. Exhibit IV summarizes the results of this portion of our interviews.

#### Future Demand for Training

The private sector is not yet ready to invest significantly in training computer operators, programmers or managers. To the extent they need such people, managers seem to prefer to hire persons with advanced skills and to train operators in house. At the very least, the minimal investment in hardware to date suggests that the need for trained operators is small. The interviewees's future plans for private sector purchases of computers are summarized in Exhibit V.

Private Willingness to Pay for  
Private Sector Computer Training

<u>Private Firms</u>	<u>Other Professional Training?</u>	<u>Location</u>	<u>Price</u>	<u>Would You Pay For Yemen Training?</u>
<u>Trading</u>				
A	Yes	Overseas	Free	No
B	Yes	Overseas	5,000+	For Family
C	Yes	Overseas	Free	For Engineers & Management
D	Yes	Overseas	Free	No
E	-	-	-	5,000 YR for Quality
F	No	-	-	1,000 YR
<u>Bank</u>				
G	Yes	Overseas	-	-
H	Yes	Paris	HQ	No
<u>Insurance</u>				
I	Yes	Overseas	Free	1,000 YR/Week
<u>Petroleum</u>				
J	Yes	Overseas	Ranges	5,000 YR for Special items
<u>Hotel</u>				
K	Yes	Boston	-	Yes, No Price

Five Year Computer Plans

EXHIBIT V

<u>Private Firm</u>	<u>None</u>	<u>Small PC Investment</u>	<u>Large PC Investment</u>	<u>Mini or Main Frame</u>
<u>Trading</u>				
A				x
B		x		
C		x		
D	x			
E	x			
F	x			
<u>Banking</u>				
G		x		
H	x			
<u>Insurance</u>				
I			x	
<u>Petroleum</u>				
J	x			
<u>Hotel</u>				
K			x	

A significant factor in all of this is the training provided by Yemen Hunt Oil. They have created a pool of trained personnel that is accessible to the local market, if salaries go up in the private sector enough to attract these staff away from Yemen Hunt. This ability to hire trained people from Yemen Hunt further reduces the need to pay for training staff.

#### B. Demand in the Public and Quasi-Public Sectors

Yemen relies heavily on the public sector for the employment of its educated citizens and management of all sectors of the economy. Its several ministries actively participate in the organization, production and distribution of the goods and services in sectors of the economy under their control. As a result, it is very important that the public sector have access to and wisely use several types of data.

The public sector contains two major types of organizations: public ministries and quasi-public firms. The first can be described as typical of the ministerial forms of administration present under the parliamentary system of government. The second are service (such as Yemena Airlines) or manufacturing (such as National Tobacco and Matches) firms owned by the government but managed for a profit and competing with private firms for market share.

Through these two types of organizations the government of Yemen is active in almost every type of service provision of goods production undertaken in Yemen. Services provided include healthcare, trading, importation of commodities, communications services, water and sewer provision, electricity provision, and the usual police, military, education and bureaucratic services associated with the central government.

Government organizations in total employ several tens of thousands of people. Some employ a few hundred (such as National Tobacco and Matches), while others employ several thousand (Ministries of Health and Education). Many public sector employees have a university education (estimates range from twenty to fifty percent, based on the

organization). The majority have a secondary school education. Exhibit VI summarizes our interview findings concerning personnel in government organizations.

The records maintained to manage all of these activities are multiple in nature and magnitude. Internal management records such as personnel, accounts, payroll and inventory are kept in all organizations. Records for some include billings, payables and financial management information. The Central Bank and other specialty institutions have records unique to their operations. Finally, the government keeps general economic and demographic data with the Central Planning Organization to ensure that it has the necessary information to plan and administer policy.

Recordkeeping is primarily done manually. Problems cited included timeliness, accuracy, lack of data analysis and inability to locate data. The result is that while several types of records are kept, the level at which they are kept, the usefulness of the data, and its availability all limit the ability of public sector managers to use the data in a meaningful manner.

#### Computerization in the Public Sector

All managers in the public and quasi-public institutions interviewed had access to some level of computerization. The extent of computerization varies widely. The Ministry of Health, for example, has four IBM-compatible micro-computers. The Ministry of Agriculture and Fisheries, on the other hand, has sixteen micro-computers and two mini-computers. It also has a Macintosh computer for desktop publishing. Only in the Ministry of Communication are computers fully integrated for the majority of paperwork tasks, and the former Minister of Communications still sees much work to be done to fully computerize that Ministry. Exhibit VII illustrates our findings.

Approximately eighty percent of the staff using computers were locally trained operators. The rest are programmers, with a few systems

EXHIBIT VIPublic Sector  
Employee Profile

<u>Public</u> <u>Agency</u>	<u>Employee Profile</u>		<u>Percent</u>		
	<u>Total</u>	<u>Clerical</u>	<u>Univ</u>	<u>Second</u>	<u>Prim</u>
A	1,000-1,500	30%	30%	35%	35%
B	100 (Sana'a)	100%	5%	70%	25%
C	1,300	10%	6%	18%	76%
D	450	30%	7%	45%	48%
E	-	-	-	-	-
F	1,600	-	40%	40%	20%
G	15,000	25%	50%	30%	20%
H	500	10%	30%	40%	30%
I	2,500	Several	-	-	-
J	4,000	-	-	-	-
K	-	-	-	-	-
L	450	70%	70%	30%	-

EXHIBIT VIIComputer Use and Training  
Public Sector

<u>Ministry</u>	<u>Computers</u>		<u>Purchased</u>	<u>Training</u>		<u>Number</u>	
	<u>Mini</u>	<u>Micro</u>		<u>OPS</u>	<u>Prog</u>	<u>OPS</u>	<u>Prog</u>
A	1	3	Yemen	Yemen	Out	16	4
B	1	0	Yemen	House	-	7	-
C	1	1	Yemen	Yemen	-	10	-
D	1	0	Yemen	Yemen	Out	6	1
E	2	0	Yemen	House	Out	110	2
F	1	17	Yemen/US	-	Out	1	1
G	0	4	Overseas	Yemen	-	5	-
H	0	2	Overseas	-	Out	-	6
I	2	0	Yemen	Yemen	Out	9	14
J	1	14	Yemen	House	Out	-	2
K	1	0	Yemen	-	-	-	-
L	<u>2</u>	<u>80</u>	Yemen	Yemen/House	Out	<u>100</u>	<u>1</u>
	<u>13</u>	<u>121</u>				<u>264</u>	<u>31</u>

analysts. All analysts and programmers have been trained overseas, either at their own expense (such as the Deputy Manager of the Central Bank, who graduated with a computer science degree) or trained by donor funds (such as the six members of the computer team in the Ministry of Civil Service). Outside training is preferred to Yemeni training in the Ministries. Few are happy with the current training offered in Yemen, as it is limited to specific applications and operator level performance.

Plans for the expansion of computer use exist in all Ministries. Most plan to increase the use of micro-computers due to the ease of software training, Arabic programming, and connectiveness to on- and off-site locations. Applications include the full range from word processing to accounting to inventory to statistical analysis. A few of the Ministries and quasi-public firms planned to add mini-computers where recordkeeping is done in great volumes (e.g. Yemenia, the Central Bank). Plans of Ministries interviewed are summarized in Exhibit VIII.

#### Willingness to Pay for Training in Yemen's Public Sector

The implementation of the plans for each Ministry and quasi-public firm will create demand for new operators and some demand for new programmers and systems analysts. However, most all of the persons interviewed stated that the Government of Yemen will not and cannot budget for this training. Government priorities and budget constraints are such that computer training will likely not be funded. However, donor agencies may fund some training. This leaves the burden of support of a proposed center to donors and the private sector, if these sectors are willing.

If a donor were to pay, computer experts in the Ministries and quasi-public firms expressed a willingness to pay between 1,000 and 2,000 YR for an introductory class in computing lasting from 20 and 25 hours. This equates to a price range between 40 and 100 YR per class hour. It is important to note that these people interviewed are not committing their own budgets to this purpose. Exhibit IX illustrates this finding.

EXHIBIT VIII

Five Year Computer Plans  
Public Sector

<u>Public</u> <u>Institute</u>	<u>None</u>	<u>Small PC</u> <u>Investment</u>	<u>Large PC</u> <u>Investment</u>	<u>Mini or</u> <u>Main Frame</u>
A			x	
B			x	
C	x			
D				As needed
E				As needed
F		x		
G				x
H				x
I				x
J		x		
K			x	x
L			x	

Public Sector Willingness to Pay

	<u>Other</u> <u>Professional</u> <u>Training?</u>	<u>Location</u>	<u>Price</u>	<u>Pay for</u> <u>Local</u> <u>Computer Training?</u>
A	-	-	-	1,500 YR for 25hrs Donor Pays
B	-	-	-	Donor Pays
C	-	-	-	Donor Pays
D	-	-	-	2,000-2,500 YR for basic Training
E	-	-	-	Yes. Quality will dictate price.
F	-	-	-	Donor Pays
G	-	-	-	Donor Pays
H	-	-	-	Donor Pays
I	-	-	-	Donor Pays
J	-	-	-	Donor Pays YR 2,000 for 15 hr.
K	-	-	-	Donor Pays
L	Yes	Overseas	-	Donor Pays

## Obstacles to Computerization in the Public Sector

The chief obstacle to computerization is the lack of financial and top level support. This is due in part to a lack of understanding of the use of and benefits which may be obtained from computerization. Without a strong commitment to purchasing hardware, software and training on the part of the government, scarce funds from both internal and donor sources will be spent on other areas, not computerization.

The second major obstacle is the lack of prerequisite skills on the part of the labor force. Persons with secondary and even university educations are not familiar with the logic concepts and the basic math needed to succeed with any but the most basic computer applications. The "problem-solving" mentality needed to create a good programmer or system analyst is not a primary goal of the Yemeni educational system. As a result, foreign educated programmers and system analysts dominate that end of the computer profession.

Finally, trained persons, especially those with good foreign language skills, can make much more in other careers than they can in the public and quasi-public sectors. These individuals do not stay long in the public sector, even though some were trained with public sector funds. Salaries for trained personnel range from YR 3,000 (USD 308) per month for operators with secondary school backgrounds, to YR 6,000 (USD 615) for programmers with university backgrounds. This compares to government salaries from YR 1,200 (USD 123) to YR 4,000 (USD 410) per month, as shown in Exhibit X. Programmers or system analysts with five or more year's experience and a university degree can earn approximately YR 10,000 (USD 1,026) per month in the private sector.

### C. Demand for Computer Literate Staff in Other Sectors

Other sectors in the Yemen economy are defined here as the international donor agencies resident in Yemen and the education sector. Donor agencies to date have made small investments in computerization of their local activities, and thus have a small demand for computer literate staff. Education leaders are considering improving the quality of computerization, particularly in the Ministry of Education, but to date little progress has been made.



### Donor Agencies

Yemen has representatives of several international aid agencies located in Sana'a and in other locations. These agencies represent individual nations such as the US, Germany, Saudi Arabia, Kuwait, and the UK, and they represent the major multilateral aid agencies, such as the UN. Based upon interviews with these agencies, all have some form of computerization. Most have micro-computers and a few have mini-computers.

Computers are mainly used for local administration and data collection. The quantity of activity is small and the staffs tend to be small. Due to the sensitivity of some of the information kept, they also tend to allocate computer responsibility to home-nation staff and have few, if any, Yemeni staff assigned to the computers. Training for these Yemeni staff is done in-house by donor nation nationals.

The demand for computer literate staff inside of donor agencies will, therefore, remain small, perhaps in the tens for operators and in the single digits for programmers and system analysts. Commitment to sponsoring Yemeni students for computer education is at best a "wait and see" issue, depending on other priorities for mission spending and the availability of funds for such a purpose.

### Educational Institutions

The educational system in Yemen is a mix of public and a few private institutions. The last two decades have seen education become an important priority for the government, and education's share of the national budget moved from 11.2 percent in 1978/1979 to 20.5 percent in 1989 (UNESCO figures). Most of this increase went to personnel expenses, as Yemen continues to hire ex-patriates as teachers. Two of every three teachers in Yemen is an ex-patriate.

The principal mission of the educational system in Yemen today is to increase literacy and basic knowledge of math, Islamic culture,

history, and foreign languages. Teacher education is a priority at the secondary and university levels. The science and engineering faculties at the University of Sana'a (the only university in Yemen) graduated only 29 people in 1987/88 (see Exhibit XI). There is no computer science department at the University, though Digital Equipment Corporation (DEC) recently sold forty DEC-VAX computers to the engineering department for a very competitive price as an inducement to improve familiarity with computers, and the VAX product, in Yemen.

There are several private institutes in Yemen which currently offer introductory training in computer operations. These are affiliated with local computer sales representatives for such computer makers as Wang, IBM and DEC. These institutes are currently staffed with a mix of trainers from abroad and Yemeni trainers who have studied abroad. Only a few instructors are locally trained. Their course offerings are fitted to their products. A list of these is shown in Exhibit XII.

These institutes would like to expand their course offerings, and to date have enough trainers to meet market demand for their courses. Most of the trainers are part time. As the market expands, the dealers will increase their courses and may expand beyond their own computer line, to create training institutes that are profitable without subsidies from computer sales. To date, courses are sold as "loss leaders" to support or increase computer sales.

The Ministry of Education also has plans for increasing computer education. The current Minister plans to use computers as teachers in the secondary schools. To date, he has not put machines in the classrooms due to a lack of funds to support his plans. He is looking to donor agencies to fund his efforts.

## EXHIBIT XI

Number of Graduates<sup>1/</sup> from Sana'a University,  
by Faculty, 1973/1974 - 1987/1988

Year	Literature	Law and Shariah	Science	Education	Commerce and Economics	Medicine	Engineering	Agriculture	Total
1973/1974	9( 2)	-	-	-	-	-	-	-	9( 2)
1974/1975	36( 4)	20( -)	3( -)	-	-	-	-	-	59( 4)
1975/1976	58(11)	38( -)	4( 1)	-	-	-	-	-	100( 12)
1976/1977	36( 1)	55( -)	-	154(15)	67( 3)	-	-	-	312( 19)
1977/1978	43(18)	32( -)	12( 1)	141(13)	91( 8)	-	-	-	319( 40)
1978/1979	54(21)	55( 2)	12( 1)	120(12)	90( 7)	-	-	-	331( 43)
1979/1980	35(12)	95( 2)	12( 3)	97(15)	119(13)	-	-	-	358( 45)
1980/1981	48(11)	91( 8)	16( 4)	95( 9)	115( 3)	-	-	-	365( 35)
1981/1982	70(22)	76( 3)	14( 3)	90(14)	143(16)	-	-	-	393( 58)
1982/1983	86(27)	157( 4)	41(10)	123(23)	197(12)	-	-	-	604( 76)
1983/1984	104(30)	305( 7)	46(16)	180(25)	179(17)	-	-	-	814( 90)
1984/1985	144(45)	549( 8)	48(21)	122(28)	322(28)	11( 2)	-	-	1 196(132)
1985/1986	97(30)	442(16)	78(16)	200(26)	181(24)	11( 5)	-	-	1 009(117)
1986/1987	165(45)	354( 6)	59(21)	248(55)	258(34)	11( 6)	-	-	1 095(167)
1987/1988	114(27)	440(10)	21( 6)	238(56)	400(52)	13(10)	8(-)	5(1)	1 239(162)

<sup>1/</sup> Numbers of female graduates are shown in parentheses.

Source: Ministry of Education and Sana'a University.

EXHIBIT XII

Computer Vendor Training Activities

<u>Vendor</u>	<u>Courses Taught</u>	<u>Private Clients</u>	<u>Public Clients</u>
Y.C.C.	Wang Operations DOS dBase Lotus Word Processing		
Computer World	DOS Lotus dBase Basic Arab Word		
IBM	DOS Lotus dBase Word Processing (Not Public- only for hardware clients)	10%	70%-Donors 20%-YARG
DEC Sana'a	Basic dBase Lotus DOS	15%	50%-YARG 35%-Military
Hodeidah	DOS Basic Lotus dBase Accounting with DEC Products	-	-
NCR		15%-Banks 55%-Trading 5%-Hotel 15%-Manufacture	10%-YARG

Overall, the demand for professionals computer trainers in Yemen is low at the present time. In time, if the donor agencies make the desired investment, the demand for computer trainers will increase. With this will come increased need for local courses to train the computer faculties.

#### D. Estimation of Need and Demand: Three Views

The data available for estimating need and demand for computer training in Yemen is very poor. The consultant's approach here is to take publicly available data of some reliability, and use interview findings to project the potential population of persons in need of training. The consultant stresses that these estimation of need should be critically analyzed by the reader. The acceptance of certain assumptions by the reader will lead to his or her own conclusions as to the feasibility of the center.

A final note on the projections: the consultant intends the projections to be used as an indication of a range of interest. An estimation of the need for 1,300 operators should be interpreted as a projection of a range around 1,300, not as a precise number. In like manner, a projected need of 13,000 indicates a range on a scale ten times than the range of 1,300, but is not to be taken as a precise estimation.

For the reader's use, the consultant prepared three different estimations of need, each assuming a different level of investment in computerization in the Yemen economy. The first estimate is a Slow Growth Model, in which computer sales to date guide the market and few new sales are made for several years.

The second model, the Industry Plan model, sees an increase in computer sales based upon the fulfillment of several private and public sector five year plans, as discussed in our interviews. This results in an estimated quintupling of the computer population and the creation of differing use assumptions as interest in computer use increases.

The high estimate comes from a Massive Investment model. This model deduces computer training needs based upon the population's economic activities. The chief assumption is of very good economic growth over the next five years leading to nationwide movement to automate clerical and managerial data reporting and handling functions. The projection of need is therefore based upon job type, using data from the 1986 census.

#### Slow Growth: The Conservative Forecast

The slow growth model assumes little growth in computer investment in the next five years. The annual growth rate in the computer population is assumed to be 10% percent. The use of initial sales figures by seller assumes the information given to the consultant is correct. This data comes from computer dealer representatives and experts familiar with computer sales in Yemen.

Other assumptions in the model include:

- Users per Computer (Main/Mini or Micro): Based upon interview data, we have developed a conservative estimate of five users per CPU in the Main/Mini class of computers and one user per CPU for each micro sold.
- Estimated Users: The result of multiplying machines sold by users per machine.
- Net New Users: The new user base created over the next five years. These users will require training.
- Potential New User Training Requirements: Assuming all new users will need training, the following levels of training are estimated: operators 85%, programmers 10%, and analysts 5%, with specialty software needs of 10% spread throughout the population.

The results of the slow growth model are shown in Exhibit XIII.

Slow Growth: Conservative Estimation

Based Upon Current Computer Sales

Average Annual Growth in Computer Population = 10 percent

EXHIBIT 1111

Dealer	Mini/Main Sales to 1989	Mini/Main Sales to 1994	Users Per Mini/Main	Micro Sales to 1989	Micro Sales to 1994	Users Per CPU	Estimated Users 1989	Estimated Users 1994	Net New Users	Potential New User Training Requirements			
										Operators	Programmers	Analysts	Specialty Software
Yasen Computer Corp.	59	75	5	100	161	1	395	626	241	205	24	12	24
Computer World	0	0	5	17	27	1	17	27	10	9	1	1	1
NCR	20	32	5	6	10	1	136	171	65	55	6	3	6
IBM	0	0	5	30	113	1	30	113	43	36	4	2	4
Digital	60	129	5	0	6	1	490	644	244	208	24	12	24
Atari	0	0	5	50	81	1	50	81	31	26	3	2	3
Others	0	0	5	50	81	1	50	81	31	26	3	2	3
<b>Total</b>	<b>159</b>	<b>256</b>	<b>5</b>	<b>293</b>	<b>472</b>	<b>1</b>	<b>1,088</b>	<b>1,752</b>	<b>664</b>	<b>565</b>	<b>65</b>	<b>33</b>	<b>66</b>

2/10/82

Based upon an annually compounded ten percent increase in sales, the need for trained persons rises by approximately 660 persons. These persons include 560 operators, 70 programmers, and 30 analysts. An additional 30 persons will likely be trained in specialty programs.

#### Industry Plan Model

This investment model estimates computer sales to grow by an average of thirty percent per year, resulting in roughly a quintupling of the computer population by 1994. Along with this change in computer growth assumptions, the following new assumptions are made in Users Per CPU. Main/Mini users are estimated to be seven per CPU sold. Micros are assumed to have an average of 1.5 trained users per machine.

The results of this model are shown in Exhibit XIV. An increase in the need for trained persons occurs of approximately 4,200. This is an increase of over 270 percent from the current assumed user base, and of over 500 percent of the conservative estimate of training need. Over 3,600 of these would need operator training, and an additional 420 would be programmers, with 210 analysts. Approximately 420 specialty software analysts would be needed.

#### Massive Investment Model

The consultant used a different method to estimate a high need in order to capture the effect of market driven potential needs for automation. This estimator takes the current employment figures for persons in data handling functions, and estimates the need to train that population for computer literacy. The assumptions needed to change population and employment figures into need for computer training are based upon the consultant's interviews with various members of each economic sector and the consultant's experience in the use of computers for data handling.

The new employment data shown in Exhibits XV and XVI are for the year 1986, the most recent Yemeni census. They were provided to

Industry Plan: Medium Growth Estimation

Based Upon Current Computer Sales

Average Annual Growth in Computer Population = 30 percent

EXHIBIT XIV

Dealer	Mini/Main Sales to 1989	Mini/Main Sales to 1994	Users Per Mini/Main	Micro Sales to 1989	Micro Sales to 1994	Users Per CPU	Estimated Users 1989	Estimated Users 1994	Net New Users	Potential New User Training Requirements			
										Operators	Programmers	Analysts	Specialty Software
Yeaven Computer Corp.	59	219	7	100	371	1.5	563	2,090	1,527	1,298	153	76	153
Computer World	0	0	7	17	63	1.5	26	95	69	59	7	3	7
NCR	20	74	7	6	22	1.5	149	553	404	344	40	20	40
IBM	0	0	7	70	260	1.5	105	390	285	242	28	14	28
Digital	80	297	7	0	0	1.5	560	2,079	1,519	1,291	152	76	152
Atari	0	0	7	50	186	1.5	75	278	203	173	20	10	20
Others	0	0	7	50	186	1.5	75	278	203	173	20	10	20
<b>Total</b>	<b>159</b>	<b>590</b>	<b>7</b>	<b>293</b>	<b>1,088</b>	<b>1.5</b>	<b>1,553</b>	<b>5,764</b>	<b>4,212</b>	<b>3,580</b>	<b>421</b>	<b>211</b>	<b>421</b>

2/16

EXHIBIT XV

High Estimation

Occupation	1986 Employment	Estimated 1994 Employment	Percent Clerical	Potential Users in 1994	Potential Training Requirements		
					Ten Percent	Twenty Percent	Thirty Percent
Professional and Technical	18,954	30,210	50	15,105	1,510	3,021	4,531
Administrative and Managerial	5,128	8,170	60	6,539	654	1,308	1,962
Clerical Workers	20,068	31,985	100	31,985	3,199	6,397	9,596
Sales Workers	65,180	103,637	10	10,389	1,039	2,078	3,117
Service Workers	83,181	132,578	10	13,258	1,326	2,652	3,977
Agricultural Workers	749,917	1,195,247	1	11,952	1,195	2,390	3,586
Production Workers	260,041	318,667	1	3,169	319	638	957
	1,142,465	1,820,948	5.08	92,416	9,242	18,483	27,725

EXHIBIT XVI

High Estimation Economic Sector	1986 Employment	Estimated 1994 Employment	Percent Clerical	Potential Users in 1994	Potential Training Requirements		
					Ten Percent	Twenty Percent	Thirty Percent
Agriculture	743,778	1,185,429	1	11,855	1,185	2,371	3,556
Mining	2,358	2,758	3	113	11	23	34
Manufacturing	39,648	63,192	5	3,160	316	632	948
Electricity, Gas, Water	3,092	4,928	15	739	74	148	222
Construction	65,584	104,531	5	5,227	523	1,045	1,568
Trade	64,956	103,520	25	25,882	2,588	5,176	7,765
Transport and Storage	37,154	59,218	15	8,883	888	1,777	2,665
Finance and Business	1,923	2,065	50	1,522	153	306	460
Social/Personal Services	82,969	132,240	20	26,448	2,645	5,290	7,934
Total	1,041,462	1,659,932	5.05	83,839	8,284	16,768	25,152

UNESCO for a special June 1989 report. In determining training needs for 1994, the estimate of the working population must increase over the 1986 figure. The annual population growth factor selected was six percent, a figure consistent with official estimates of growth in employment from 1975 to 1986, as reported in the government's 1987 Statistical Report.

Other assumptions in Exhibit XV include:

- Percent Clerical: Used here, the term clerical refers to the amount of time a person spends reviewing, adding to, manipulating, and storing data. Managers spend a good deal of their time on this, and clerks spend all day on it. Agricultural, sales, and service workers spend far less time..
- Potential Users: This is an estimate of the total potential target audience for computer training in Yemen. This figure is the result of multiplying total employment in a category for 1994 by the percentage of time such job type spends in clerical work.
- Potential Training Requirements: These categories allow the reader to understand the effects of training ten, twenty, or thirty percent of the potential user population.

Exhibit XVI looks at the raw data in a different way from that used in Exhibit XV. [Note that the total labor figure for 1989 is lower than in Exhibit XV. This is as shown in the UNESCO report and could not be explained by persons interviewed at CPO]. In this model, the employment figure is cut across by industry, not profession. Assumptions as to how many persons in a profession are employed in data management functions yield a similar percentage for the overall population as observed in Exhibit XV. The overall potential user base is a bit smaller, but in the same range - the high tens of thousands. Potential training requirements are shown to be similar to those in Exhibit XV.

Exhibit XVII illustrates the size of growth in computer sales needed to support increasing the need for computer users at the level shown in the high estimate. Sixty percent annual growth in computer sales yields a need of approximately 15,000 new users. A growth rate of eighty percent yields a need of 28,000 new users. Expressed as a function of cost, the 60 percent increase assumes an investment in hardware and software of approximately YR. 3,196,635,000 (estimated cost of hardware and software for a Main/Mini system is YR 2,000,000; for a Micro system YR 65,000). This investment of approximately USD 300,000,000 is equivalent to six percent of the 1987 GNP for Yemen (Statistical Yearbook 1987 table number 21/15), 48 percent of total government expenditures for 1987 (UNESCO, June 1989, Annex 8), or 1,100 percent of the education budget for Yemen in 1987 (UNESCO 1989).

#### Determining Demand

Demand is a function of need. The estimates of need above must be further modified by the willingness of student or some person -- either employers or donors -- to pay for the training.

The interviews held with the private sector indicate a reluctance to pay for training. Most offices like to either hire trained persons or train in-house. Those that expressed a willingness to pay for training expect it to be a special event -- limited to a few persons in particular circumstances. Broad-based skill training, if done, should be part of the package given by the computer dealer (as is the current practice).

Public sector respondents were universal in their interest in training and their unwillingness to pay for it. Donor organizations have traditionally paid for innovative training in most Ministries. As computers are still an innovation in Yemen, they are not a YARG top priority and training is not currently a budget priority.

On the other hand, once the investment in hardware is made, an investment in training must follow. The price of training will

## Massive Investment Model

Based Upon Current Computer Sales

Average Annual Growth in Computer Population = 40 percent

Dealer	Mini/Main Sales to 1989	Mini/Main Sales to 1994	Users Per Mini/Main	Micro Sales to 1989	Micro Sales to 1994	Users Per CPU	Estimated Users 1989	Estimated Users 1994	Net New Users
IBM Computer Corp.	59	519	7	100	1,049	1.5	563	5,903	5,340
Computer World	0	0	7	17	178	1.5	26	267	242
DCS	20	210	7	6	63	1.5	149	1,562	1,413
IBM	0	0	7	70	734	1.5	105	1,101	996
Digitel	90	839	7	0	0	1.5	560	5,072	5,312
Atari	0	0	7	50	524	1.5	75	786	711
Others	0	0	7	50	524	1.5	75	786	711
Total	159	1,567	7	293	3,072	1.5	1,553	16,279	14,727

Massive Investment Model  
 Based Upon Current Computer Sales  
 Average Annual Growth in Computer Population = 80 percent

Dealer	Mini/Main Sales to 1989	Mini/Main Sales to 1994	Users Per Mini/Main	Micro Sales to 1989	Micro Sales to 1994	Users Per CPU	Estimated Users 1989	Estimated Users 1994	Net New Users
Green Computer Corp.	59	1,115	7	100	1,890	1.5	563	10,638	10,075
Computer World	0	0	7	17	321	1.5	26	482	456
NCP	20	378	7	6	113	1.5	149	2,815	2,666
IBM	0	0	7	70	1,323	1.5	105	1,984	1,879
Digital	80	1,512	7	0	0	1.5	560	10,582	10,022
Atari	0	0	7	50	945	1.5	75	1,417	1,342
Others	0	0	7	50	945	1.5	75	1,417	1,342
Total	159	3,004	7	293	5,534	1.5	1,553	29,336	27,783

likely be considered as part of the cost of computer purchase by the purchaser. This will increase the perception of the investment costs, making a conservative training need scenario more likely.

### III. CURRENT AND POTENTIAL SUPPLY OF TRAINED STAFF FOR THE PROPOSED CENTER

#### A. Trainers

Individuals possessing either an appropriate educational or experiential background to be trainers have been identified within the Sana'a area. The local agents for Wang, IBM, Digital and MSX/ARC employ approximately 16 trainers who are considered to be qualified. Of these 16 trainers, only one is employed as a full-time trainer. While some of the part-timers may be part-time trainers and part-time sales staff for one agency, most hold "regular" jobs with a second party employer and teach on a free lance basis.

Discussions with several private sector computer operators and public sector operators, programmers, and systems analysts indicate that this body of people will be willing to teach on a full or part-time basis for an appropriate salary. As near as may be ascertained from brief interviews and the opinions of others, this group of people has a broad range of skill levels, from the very rudimentary to advanced understanding and from no teaching experience to years of training experience.

Good instructors can be found for the entry level courses at the proposed institute, given that salaries are at the top range of the competitive scale. The primary source of teachers will be current institutes and public agencies. Private sector computer operators usually have no teaching experience, are trained only to operate a specific program they use, or are members of the family operating the business and thus place a high priority on their responsibility to their firms.

For the advanced programs at the medium to higher end of a

curriculum, those courses teaching either advanced use of popular software (e.g. Lotus) or programming skills, it may be necessary to import trainers. This may be done in one of two ways: (1) export gifted, committed trainers to other nations for training, as no programming or systems training exists in Yemen; or (2) hire in expatriate staff to teach medium to advanced courses. The latter course will incur higher expense. However, it will allow for the training of some students into the trainer ranks for the future. At some point, all trainers at the proposed Center will then be Yemenis.

#### B. Other Staff

The proposed Center will require administrative and support staff. The Yemen economy has a long history of economic activity and administrative institutions which support the development of managers and support staff. As such, there should be an abundance of such staff available to the Center.

The sponsors must consider, however, that language skills may play a part in managing the Center. The potential involvement of donor groups, instructors, and technicians and software using non-Arabic languages requires that at least some of the management and staff have solid command of at least one foreign language. This need can be met locally. However, higher than average salaries will be required to hire people with this talent.

#### IV. PROPOSED TRAINING CENTER

This section of the report summarizes the consultant's proposal for a Training Center designed to meet the needs of the Yemen economy. The demand analysis in Chapter II shows current demand for a center is small. Therefore, the consultant has taken a two-tier approach to the center: a "near-term" Center and a "full scale" Center. The "near-term" effort is designed to fit a lower demand. The "full-term" Center meets the needs of a mature computer economy, offering many courses not suited for Yemen's economy today.

## A. Legal Standing

The assumption of this report is that the proposed Center will be a privately financed, non-profit organization. In Yemen, there are currently no specific provisions in law for such an organization. The only prior models for such an organization are the groups of professional and trade organizations in the country, and local donor-operated hospitals. These were set up under arrangements with the government similar to those recommended below.

The approach to creation of the proposed Center should be to draw up a set of documents describing the organization, its board, their responsibilities, and the activities of the organization. Such a document, an Article of Incorporation, should be presented to the Ministry of Social Affairs and Labour for approval to operate and have tax-exempt status. If the Center receives such status, it will be allowed to operate according to the rules of its incorporation as described in its Articles.

Alternatively, the President of the Yemen Arab Republic may decree an institution into being. Again, this requires the founders to fully describe the functions and policies of the institute prior to the President's review and approval.

The law covering the creation of corporate entities, Law 18, requires that any organization in the country register with the Ministry of the Economy and "any other competent" authority. A "competent authority" is one which has control over policy in the area in which the concern operates. In the case of the Center, this could be the Ministry of Education. Education may be selected as: (1) this is an educational center; (2) the Ministry of Education is embarking on a program of computerization; and (3) it is a priority of this Administration to increase a trained teaching pool in the Yemen economy. The Center could provide the instructors to meet the Education Minister's goal of bringing computers into university, secondary, and primary classes.

As non-profit status is not a well-defined state in Yemeni law, it is useful to turn to the investment (Law 18) and tax (Law 11) laws to find the rights for the Center usually accruing to a non-profit organization. The important rights include: (1) full corporation rights under the law; (2) tax exemption; (3) exemption from import duties and fees; and (4) tax deduction of all donations to the Center from private citizens or corporations.

Full corporate rights may be gained by a carefully prepared Articles of Incorporation, approved by the President or the Ministry of Social Affairs and Labour. Tax exemption is allowed for certain organizations under the tax law. These exemptions fall on those firms earning less than YR 7,500 in a year, or as stated in Law 11, Chapter 4, Article 12:

"Second: groups that do not aim at making profits, and that shall be within the social, hygienic, scientific, sporting, or educational activity".

While no law clearly addresses the full status of a non-profit organization, this section of Law 11 protects a recognized body with the above characteristics from taxation.

Duties exemptions are allowed for various entities under Law 18. These are typically extended to encourage foreign investment and exemptions last from five to eight years, depending on a vote of the Council of Ministers. These protections may be granted with the approval of well prepared corporate Articles by the Ministry of Social Affairs and Labour.

Finally, the issue of tax deductions depends upon the laws of donating entity's nation. Yemen's tax law allows for the deduction of "Customary and General Expenditures" but appears mute on the specific subject of charitable donations. For Yemen, its sponsors may need to be specifically granted tax relief on donations in the proposed Center's incorporation articles.

The Center may also simply apply to be a "Law 18" corporation operating under the foreign investment law. If it operates without a profit, it will be tax free by definition. It will also receive the import protections allowing it to import goods for use in its activities duty free for a time. As such, however, it may not be able to generate tax benefits for US or other foreign corporation which make donations (hardware, software and other equipment).

## B. Organization

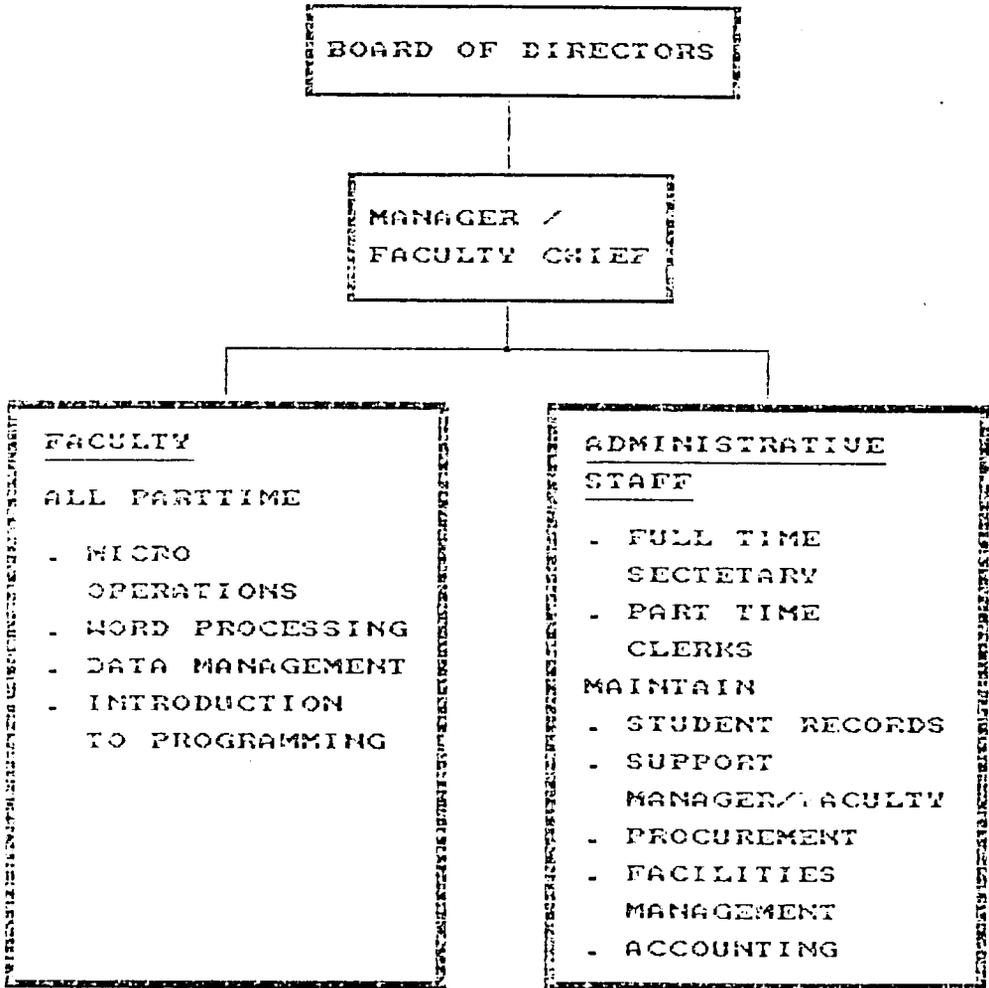
Exhibits XVIII and XIX illustrate the potential organizational structure of the proposed Center. This structure is a several-phased approach to organizing the Center. The approach assumes limited demand in the early years of existence and allows for organizational growth as the market for training grows.

Exhibit XVIII illustrates the proposed organization chart for the start-up phase of the Center. The staff is kept to a minimum to reduce overheads. Only the Board, the Manager, and the secretary are permanent at the start.

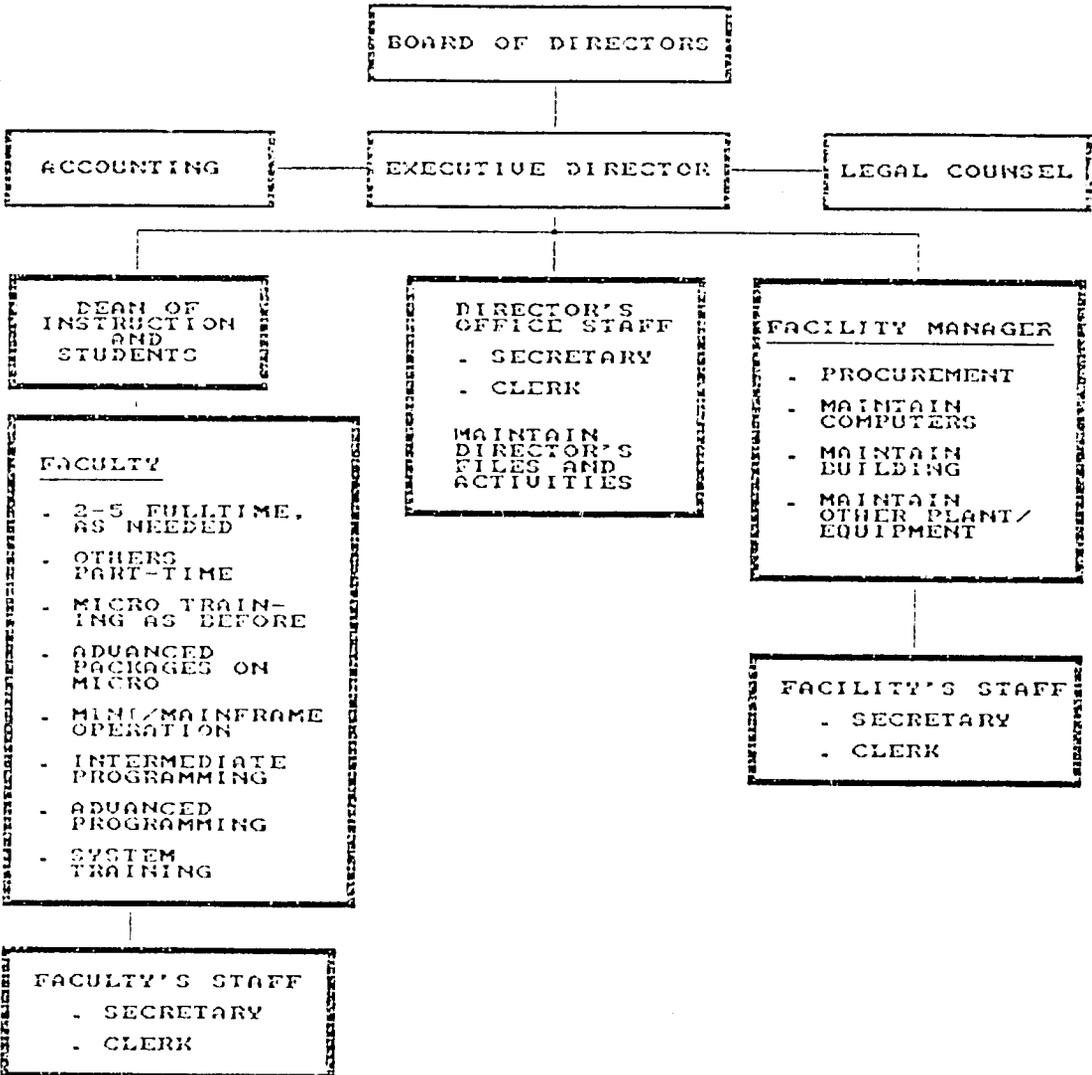
The Board sets policy, determines salaries and hires the Manager. The Board should contain representatives selected by the sponsoring organizations. There is no requirement in Yemen law for government representation on the Board, so that sponsors may select whomever they feel is best fit to serve. The Board Chairman should be selected by common agreement of sponsors on a per share investment basis. While no requirement exists for selection of government or others to the Board, sponsors may wish to sit a representative from the Ministry of the Economy and the Yemen Organization of Chambers of Commerce. This will serve to coordinate activities with very important sources of support and, potentially, students.

The Manager will have executive responsibility for the Center and should be able to teach several of the courses. A Yemeni, this person is selected by the Board and may be fired by the Board. The major tasks of the Manager include:

YEMEN ARAB REPUBLIC  
COMPUTER TRAINING CENTER  
START-UP ORGANIZATION



YEMEN ARAB REPUBLIC  
COMPUTER TRAINING CENTER  
FULLY OPERATIONAL



- Sit on the Board and advise it,
- Hire faculty,
- Detail design of curriculum,
- Advertise courses,
- Manager faculty's delivery of courses,
- Teach,
- Hire administrative support, and
- Manage all administrative matters.

This is a very large job with a variety of skills required to carry it out effectively. A mature, talented person should be chosen for this job, and the manager should be paid a salary near the top of the range for such a position. As the school grows the manager should off-load the teaching duties of his job onto part-time instructors.

The Faculty should all be part-time at the start. This will allow for the selection of appropriate trainers for each course instead of relying on one or two persons to know several courses well. It also reduces costs of compensation and office space.

The Administrative Staff should consist of a full time secretary to assist in the management of the institute and the manager's selection and management of clerks. All basic administrative functions may be handled by experienced part-time clerks (e.g. a procurement specialist clerk, an accounting clerk, a filing clerk) due to the diverse yet still small needs of the Center.

Exhibit XIX illustrates the fully operational organization of the Center. The Board retains the same foundations of hiring the Executive Director and setting policy. The Executive Director will retain the manager's responsibility for all activities in the Center. He will be significantly relieved of day to day duties by the addition of new officers. These new officers include:

- Dean of Instruction: Responsible for faculty, curriculum development, and student matters. Participates in

recommending policy on these matters to the Board. Recommends hiring of faculty, but Executive Director retains final hiring authority.

- Facility Manager: Maintains all plant and equipment. Procures all plant, equipment, and purchased maintenance services. Manages janitorial and maintenance staff or contractors, whichever option is cheaper.
- Accounting Department: Reports to the Executive Director, responsible for designing and implementing accounting system, payroll system, and purchasing system consistent with the laws of Yemen and the practice of accounting, reports financials to the Board at monthly meetings.
- Legal Counsel: Part-time senior lawyer who is available to assist the Board and Executive Director in any question of law or administrative practice.

The Faculty should be upgraded to full-time positions when economically feasible and should use part-time trainers for less popular courses. Faculty should be served jointly by one secretary managing a pool of clerks. The same should be the case in the Facilities management office.

The Director's Office serves the Executive Director, the Board, and the legal Counsel. These personnel provide administrative support to these officers.

By following this phased approach, the Center limits costs in the early years, tests the market with a minimal financial investment for private investors, and allows for either limitation of loss in the event of failure or gradual expansion if demand increases. The key to demand seems to be the willingness of donor agencies to invest in computerization of the public sector, which will likely be followed by computerization by the private sector as the benefits of computerization and the pool of talent necessary to operate microcomputers develops within the economy.

### C. Staffing

For the center to achieve its goal in providing quality teaching, a qualified professional staff is required. These professionals will be responsible for the tasks of teaching and development of courses. These two tasks include several sub-tasks:

- 1- Develop and implement teaching methods,
- 2- Develop new courses,
- 3- Enhance existing courses,
- 4- Deliver lectures, and
- 5- Supervise the computer lab.

The above sub-tasks and the wide range of courses to be offered require employing several different professionals with various backgrounds and levels of experience. To support the proposed curricula, three skill levels of instructors are required:

Level 1: Minimum one year's experience in a related field.

Level 2: A degree (Diploma or Bachelor) and a minimum of one year's experience in related field.

Level 3: Engineering or Computer Science degree and a minimum of two year's experience.

Level 1 Faculty will suffice for courses at the introductory level. These cut across all the areas, from operations to introduction to software packages. Level 2 will be required for those faculty teaching intermediate and advanced package software and inductory programming. These faculty should also be able to train new trainers so that as the school develops, the Level 1 trainers may develop into Level 2 trainers.

Level 3 may be unnecessary in the Center's start-up. However, as demand for intermediate and advanced programming increases, along with the use of specialty engineering and financial software, this

class of trainer should be hired to: (1) train other trainers to handle these concepts; (2) develop courses and teach the new student demand.

#### D. Pedagogy

The teaching style in Yemen is such that teachers often simply tell the students all that they are required to know. Students typically do not do much reading and research on their own - they memorize what they are taught. This teaching approach, in the long run, often results in students that lack a sense of creativity and a discipline for self-learning.

Such a teaching style is not suited for computer training, since computer training requires a considerable amount of self-initiative. Looking at the drawbacks resulting from such teaching styles, a well structured teaching style should be adopted. Such a teaching style must possess the concept of self-learning as its backbone. The proposed teaching style depends on building self motivation and teaching into students. This is achieved by providing the following:

- Hands-on experience through the use of the center computers.
- In-class case studies drawn from real-life cases.
- Laboratory work, both supervised by instructors and self performed.
- Assignments and projects drawn from real-life cases.

The use of case studies and computer "labs" will encourage students to think on their own and develop problem solving skills. Management and instructors must ensure that this style is properly followed in order to achieve the desired result.

The teaching style promoting self-motivation should be phased in, both in terms of the life of the Center and in terms of the progress

of the students through the curriculum. The early days of the Center the trainers should keep intact the "teacher tells all" approach to learning and use many hands-on, in-class computer demonstrations. Courses in the early months of the Center, while introducing the concepts of case analysis and home study, should not assume students can learn from these unfamiliar methods. Later versions of these courses can incorporate more case work and home-study as indicated by the responsiveness of the students of these methods.

The curriculum should also reflect this development. First or introductory courses should give a student a smooth transition from the normal Yemeni memorization method into a more self-taught environment. Management and faculty of the school should make the introduction of self-teaching and interactive methods based upon experience in the early years of the Center.

#### E. Curricula

Courses given by the Center will begin as a simple introduction to computers, their operation, and the most useful software and programming techniques. In later years the Center should offer a wide course selection for students in the private, quasi-public and public sectors. This will allow the Center to fully meet the needs of a more computerized economy. This section presents the two levels of curricula to be developed. The first level focuses on basic computer use, while the second offers more advanced courses.

In the start-up phase, the curricula should focus on: (1) the major need for computer training in Yemen; and (2) the market niche which is at this time not being best filled. The major need is for introductory level training to introduce people to computers and to user-friendly applications for business use and data management. The market niche is micro-training. Current training centers are attached to hardware dealers and their courses tend to support the systems that they sell. While some vendors do offer micro-courses, these tend to suit only their machines. Micros are the best tools for training skills that are "fungible" across many types of hardware and software.

The courses to be taught are divided into four categories:

- Introduction to Microcomputers
- Word Processing
- Data Management
- Introduction to Programming

Introduction to Micro Computing training should be a short series of courses designed to achieve two basic goals: (1) teach the students the basic equipment and operation of a microcomputer; and (2) illustrate the uses of the computer. We envision a three course core to start: (1) Introduction to Microcomputers; (2) Operating Basics of Microcomputers; (3) Using a Microcomputers in your Office. These programs are described in greater detail in Appendix A.

Word Processing training will focus on the use of popular software for microcomputers. The courses will again offer three levels: (1) Rudiments of Word Processing; (2) Introduction to Use of a Specific Package; and (3) Advanced Use of Selected Software. There are many Arabic and English word processing packages on the market, as shown in Appendix B. Based upon experience and interviews, the consultant recommends Word Perfect in English and Arab Word in Arabic. Actual packages selected will depend upon the guidance of the market and the decision of the Center's management. The courses above are summarized in Appendix A.

Data Management courses offer a wide range of options, depending on the student's needs. The Center should offer three tracks. This are: (1) Spreadsheet Training; (2) Database Training; and (3) Accounting Packages. Specific tracks for LOTUS, dBase, and accounting packages are shown in Appendix A. The consultant recommends LOTUS and dBase based upon the standards of industry and the reputation of the firms. Accounting software is harder to select, as each program has strengths and weaknesses. There is a list of packages in Appendix B with which a job can be done. Selection of software taught is left to the Center's management.

Introduction to Programming is a track designed for those students wishing to move from package software into the creation of their own Software products. The demand for programmers in Yemen today is limited. The general knowledge of logic basics and necessary English language skills among potential student programmers is also low. Therefore, in the early years the school should focus only on principals of programming and an introduction to popular programming languages. The consultant recommends COBOL, C, and PASCAL as the most popular and flexible languages. Appendix A offers descriptions of potential courses.

In later years, the Center will add courses in the fields of Mini/Main frame operating systems, medium and advanced programming, more business applications, office automation, and specialized software packages. Additionally, topics in computer trouble-shooting, computer networks, computer aided design (CAD) and other computer applications will be offered by the Center as demand arises. Appendix B lists potential courses in these areas.

#### Pre-Center Training

Prior to admission to the Center, some students may benefit from additional language and math training. Operator training may not need this, as illustrated by the success of many Yemenis with limited English skills in the clerical applications of computing. Those students desiring package based or programming training should consider improving their English and math. It is beyond the scope of this Center to provide these courses. Business-skill courses would also benefit students, but again are beyond the scope of the Center's mandate.

#### E. Hardware/Software

One of the main objectives of the center is to produce "graduates" capable of utilizing their skills in the workplace. This is achieved through the extensive use of hardware equipment and software applications that are the standards in the market.

## Hardware

The proposed hardware is a microcomputer network. Each classroom/lab will have one network. A network set up is convenient for group demonstration, group work and in the same time for individual practice. Furthermore, microcomputer networking is becoming a common practice in many actual user environments.

As the Center grows and adds mini-and main-frame course work, the Center should purchase at least a mini-system. The choice of system cannot be made at this time.

All public Ministries plan some form of microcomputer network or mini-configuration. Over the next few years, then the complexion of the market may change. The keys to the decision of a mini-system purchase should be: (1) popularity, to ensure jobs for graduates; and (2) flexibility, as the machine should allow word processing, data management, and allow for independent programming in popular languages. The machine of choice should also be servicable in Yemen.

## Software

Software used by the Center would be that which is detailed in Appendix B. In addition, a few "Center administration" software packages will be used for record keeping and other administrative purposes. These are to be selected by Center management based upon their preferences.

## G. Campus

The training center should begin its operations in leased facilities and then reexplore constructing an center-owned building after several years successful operations. This approach is recommended for these reasons: (1) it reduces the start-up capital requirement; (2) it reduces the center's and potential donor's financial exposure during the first few critical years of operation; (3) it will enable the center to refine its physical facility requirements based upon several years of successful operation. This will reduce the chance of over- or under-building.

### Leased Facility Requirements for Early Years

Based upon preliminary demand estimates, minimal costs should be incurred for facilities at the Center's inception. A basic two-classroom leased space should fulfill the Center's requirements for the first few years. Two classrooms would provide the Center with physical plant flexibility and expandability while minimizing costs.

The two classroom space will facilitate the following maximum utilization (assuming our proposed curricula):

Classes/year:	130
Student instructional hours:	50,000
Enrolled students/month:	190
Total enrolled students/year:	2,090
Instructor hours:	3,170
Full-time equivalent instructors:	3

The initial leased facility should provide the following:

Offices:	4
Lavatories:	2 (1 male, 1 female)
Receptionist area:	1
Kitchenette:	1
Storage room:	1

The overall space requirement would be between 375 and 400 square meters.

### Leased Facility Availability/Cost

The above facility requirement could be fulfilled by either leasing an existing commercial space or leasing a residential "villa". Existing commercial space would cost about 30,000 - 40,000 YR/mo. A qualifying residential villa would cost between 30,000 - 40,000 YR/mo. From a cost standpoint, there is little difference. The villa

option, however, could provide benefits not found in typical commercial space. The most important benefit is the creation of an academic setting in a residential area which is isolated from urban traffic and its accompanying noises and hazards.

#### Constructed Facility Requirements for Later Years

A preliminary cost estimate has been developed for constructing a new eight classroom training Center and for the land purchase. The proposed facility would require approximately 2,000 sqm. of space. The cost of a three story building providing the necessary space and amenities constructed with a traditional Yemeni appearance using lower cost cement block rather than more expensive cut stone would cost in the range of 10,000,000 - 12,500,000 YR.

A plot of land in Sana'a Hadda area in the vicinity of the Hadda Hotel (not adjacent to Hadda Road) would cost in the range of 1,200 - 2,000 YR/sqm. A plot of land in Sana'a's Taiz Road area would cost approximately the same. A similar plot in the Airport Road vicinity would cost between 500 - 1,000 YR sqm. Due to availability considerations, downtown Sana'a land costs were not considered. A building of the proposed size would require a plot of approximately 3,500 sqm. This plot size would provide ample room for future expansion.

Under today's conditions the cost of land and of constructing the proposed building in the Hadda Road or Taiz road area is between 15,600,000 - 19,500,000 YR. The cost of constructing the same building in the Airport Road area is 11,750,000 - 16,000,000 YR.

#### H. Other Plant and Equipment

Assuming the facility lease scenario, the single largest and most important investment for the new Center is microcomputer equipment. Additionally, the center would need to purchase the furniture and equipment necessary to outfit two classrooms and the Center's offices.

The preliminary cost estimate for furnishing and equipping the proposed center with the necessary microcomputers and peripheral hardware, software, desks, tables, chairs, shelves, cabinets, telephones, and other office equipment is in the range of 600,000 - 620,000 YR. This cost is given by element in Appendix C.

#### I. Obtaining U.S. Accreditation

It is possible to gain U.S. accreditation for the proposed Center. Several U.S. organization give recognition to overseas schools. The organization most forthcoming with information was the New England Association of Schools and Colleges, Inc. They have a commission on vocational, technical, and career institutions. To date they have one foreign member.

The basic requirements for membership and accreditation require that the Center:

1. Have a license of charter from the appropriate governmental agency to operate and award a certificate, diploma, or associates degree.
2. Have a governing board which includes representation reflecting the public interest and which has the authority to carry out the mission of the institution.
3. Have employed a chief administrative officer.
4. Have learning resources appropriate to the stated objectives of the institution and adequate to support programs offered.
5. Have a basic plan for the development of an institution.
6. Have admission and enrollment policies compatible with its stated objectives.
7. Have established an adequate financial base of funding commitments and have available a copy of its current budget and a copy of its current audited financial statement prepared by a Certified Public Accountant who has no other relationship with the institution.
8. Have published policies and procedures, in keeping with generally accepted practices, for refunding fees and charges to students who withdraw from enrollment.

9. Have a catalog and other appropriate official publications available to students and the public, setting forth purposes and objectives; entrance requirements and procedures; rules and regulations for conduct; programs and courses; program completion requirements; costs; and other items relative to attending or withdrawing from the institution.
10. Offer one or more educational programs of at least one academic year in length or the equivalent at the postsecondary level with clearly defined and published educational objectives appropriate to postsecondary education in level, quality and standards, as well as a clear statement of its means for achieving them.
11. Include general education, when appropriate, at the postsecondary level as a prerequisite to or an essential element in its principal educational programs.

A visiting Committee from the accreditation commission verifies these items before awarding membership. While unlikely that the Center could be accredited in the first few years, as it grows it may wish to seek this status. Appendix E has the full list of accreditation requirements for the New England Association of Schools and Colleges, and a list of contacts in the U.S. for other accreditation organizations.

#### V. FINANCIALS OF THE PROPOSED CENTER

This section presents cost estimates and financial performance of the Center over an initial year period. The assumptions and effect of these assumptions on cost flow are shown in the Base Run in Appendix C. The five-year financial proforma presented in this section includes the estimated costs believed to be necessary to establish and operate the proposed center during a five-year period.

Costs for the Center include:

- o Instructor, administrator and support personnel costs and other related payroll costs,
- o Student supply and textbook costs,

- o Utility costs,
- o Telephone and facsimile costs,
- o Insurance costs,
- o Asset costs (furniture, equipment, computers, software as well as repair & maintenance of the same), and
- o Center formation/organizing costs.

For the purpose of the proforma, cost estimates have been developed assuming differing inflation rates, with current prices as the starting point. These are shown in Appendix C.

#### Proforma of Five Years of Operation

The five-year break-even analyses in this section have been developed using a microcomputer-based Lotus 1-2-3 model. The model allows modification of the revenue and cost variables which "drive" the model. This enables users to test different revenue/cost variable combinations to determine break-even, revenue maximizing or cost minimizing combination.

Four variables drive the class revenue calculation:

1. Number of classes per year
2. Number of hours per class
3. Average class size
4. Revenue per hour per student

Variable costs have been defined as those costs which are directly affected by student hours. These costs include certain utility costs and textbook and supplies costs.

Fixed costs have been identified as those costs which are unaffected by student hours (within the relevant range). These are costs which will be incurred regardless of the Center's number of student hours. These costs include asset costs, insurance costs, personnel costs, and others.

The base run five-year proforma in Exhibit XX presents the estimated expenses for the period and the number of students necessary for the center to break even. This results in a requirement of approximately 1,900 students per year, paying YR. 840 per class. Inflation is assumed to be zero in this run. Details of the Base are in Appendix C.

## VI. CONCLUSIONS

The need analysis in Section II of this report illustrated a low end potential need for training 560 persons in basic computer skills and 100 persons in more advanced skills over five years. At the medium level the estimate was 3,600 operators and 830 skilled users. The high end revealed a market potential of 9,000 to 28,000 users if enormous investments in computer are made.

### A. Comparing Student Estimates to Needed Revenues

Exhibit XXI captures the student estimates made and shows that the low estimate, assuming moderate course loads per student, cannot produce nearly enough students to cover the cost of the Center. This student level generates only 16 percent, or approximately one-fifth of the revenues needed to cover the costs of the bare bones, start-up operation.

The medium estimate gives the institute some breathing room. The need outstrips basic breakeven for a start-up facility. The start-up configuration can be increased to handle increased classroom demand (at a maximized 15 students per class) and creates revenues netting a gain of YR 2,716,491 before covering the YR 620,000 investment. There are enough savings to consider building the new campus.

The high estimate clearly allows for enough students over breakeven. With increased expenses for leased space, faculty, staff, and stretching computer resources, the Center saves YR 11,133,119 before paying out the investors. This could pay for most of the cost of construction of the campus, at a cost of YR 16,000,000 in 1989 Rials and of YR 26,573,000 in 1994 Rials, at ten percent inflation.

PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL CASHFLOW/CAPITAL REQUIREMENT STATEMENT

	Year 1	Year 2	Year 3	Year 4	Year 5
Beginning Cash	520000	95777	236000	476667	325667
<b>REVENUES:</b>					
Class type 1	1489286	1631799	1631799	1597792	1543766
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>TOTAL REVENUES</b>	<b>2119286</b>	<b>1727102</b>	<b>1917799</b>	<b>2064449</b>	<b>1869473</b>
<b>EXPENDITURES</b>					
<b>Human Resources</b>					
Instructors	410190	410190	410190	410190	410190
Administrators	99010	99010	99010	99010	99010
Secretaries	59090	59090	59090	59090	59090
Support	59090	59090	59090	59090	59090
<b>Classroom Costs</b>					
Textbooks	214884	227114	227114	224826	220578
Supplies	111376	121219	121219	117850	114680
<b>Asset Costs</b>					
Furn - Bldg	0	0	0	0	0
Furn - CIB	50000	0	0	21000	0
Furn - Equipment	120000	0	0	0	0
Repairs & Maint.	5000	5000	5000	5000	5000
<b>Other Costs</b>					
Telephone	19000	19000	19000	19000	19000
Tele-facsimile	19000	19000	19000	19000	19000
Insurance	7000	7000	7000	7000	7000
Building Lease	700000	700000	700000	700000	700000
Electronics - Fix.	1974	1974	1974	1974	1974
Elec. - Variable	9424	10257	10257	9950	9704
Water	4887	4887	4887	4887	4887
Gas & Other	12700	12700	12700	12700	12700
Waste	4887	4887	4887	4887	4887
<b>TOTAL EXPENDITURES</b>	<b>2021950</b>	<b>1441070</b>	<b>1441070</b>	<b>1728790</b>	<b>1416477</b>
<b>EXCESS/DEFICIT</b>	<b>99736</b>	<b>286032</b>	<b>476667</b>	<b>105667</b>	<b>453000</b>
Cash Investment	0	0	0	0	0
<b>Ending Cash</b>	<b>99736</b>	<b>286032</b>	<b>476667</b>	<b>105667</b>	<b>453000</b>
<b>Invested Capital</b>					
Beginning	520000	520000	520000	520000	520000
Period Invest.	0	0	0	0	0
Period Disb.	0	0	0	0	0
<b>Ending Capital (INC)</b>	<b>520000</b>	<b>520000</b>	<b>520000</b>	<b>520000</b>	<b>520000</b>

SLA

EXHIBIT XXI

Students Needed Compared to  
Center Breakeven Needs Over Five Years

<u>Estimate of Need</u>	<u>Students</u>	<u>Courses per Student</u>	<u>Total Courses</u>	<u>Meets Breakeven</u>
Conservative Model				(of 9,400)
Operator	560	2	1,120	
Skilled	<u>100</u>	4	<u>400</u>	
Total	660		1,520	No
Medium Model				
Operator	3,600	3	10,800	
Skilled	<u>630</u>	5	<u>3,150</u>	
Total	4,230		13,950	Yes
High Model				
1. Operator	7,130	3	21,390	
1. Skilled	<u>1,260</u>	7	<u>8,820</u>	
Total	8,390		30,210	Yes
2. Operator	23,560	3	70,680	
2. Skilled	<u>4,160</u>	7	<u>29,120</u>	
Total	27,720		99,330	Yes

### Translating Need to Demand

The relationship between need and demand is not clear from the data and expert opinion available in Yemen. The interviews give an indication that the private sector leadership still has a "wait and see" attitude towards computerization. The public sector wants to proceed, but wants donor funds to underwrite the investment in hardware, software, and training. Donors do not have such financing as a priority.

Translating the theoretical needs into students also requires consideration of the following:

- Competition from other training institutes,
- Uncertain economic future of Yemen, and
- Student career preferences.

While the effect of any of these concerns may not be quantified, they all can effect the draw of an institute. Overall, the first set of demand estimates, the conservative scenario, appears the most likely over the next five years. This indicated that the Center will not be self-supporting.

It is the opinion of the consultant that the fact set, as far as may be determined, indicates this investment is infeasible without significant financial support from sponsors. The Center cannot support itself on the demand created in the current Yemen environment of "wait and see" investment, lack of understanding of computers, and significant competing economic priorities for both private and public finances. The fact set, however, is open to interpretation. The reader, using different assumptions, can forecast different conclusions.

## B. Effectiveness of Donor Participation on Tuition Reduction

Donor agencies or sponsors may choose to underwrite a portion all of the Center's costs, particularly capital expenses. Hardware and software vendors have active donation programs in the United States, as inquiries to vendors confirms. Development agencies may choose to give over some of their funding for the Center as well.

Assuming a student population of 670,000 as indicated in the conservative estimate of computer growth, donor participation can reduce the level of tuition to a level consistent with the price of other courses taught in Yemen. This range is normally YR 850 to YR 1,250 for a course. Exhibit XXII shows that a donation of approximately USD 819,435 over the five years of the school's start-up could drive down the price of tuition, assuming three courses per student. This investment is significantly more than simply capital costs, and may need to continue beyond the first five years.

## C. Looking Ahead

Computer use in the private sector may improve productivity, and training in computer use can improve the penetration of computers into Yemen's offices, as well as the efficient use of computers. However, the proposed Center, even in a minimal cost start-up configuration, does not appear to be financial self-supporting given the current nature of demand for computer users and training in Yemen.

Significant donor support of the proposed center will help Yemen achieve both a greater awareness of the power of computers in business and public management, and better utilization of its computers. Other alternatives include supporting the integration of computers into other management training programs. These may include preexisting programs or the development of a management center which augments current or planned management programs. Sponsorship of such plans may be more or less than that for the proposed center, depending on its configuration.

The data on costs in this report, on legal requirements for setting up non-profit institutes, and on accreditation may be of use in designing alternative configurations.

DONOR EFFECTIVENESS ON  
TUITION REQUIREMENTS

<u>Donor Gift</u>	<u>After Donation</u> <u>Five-year Cost</u>	<u>Implied</u> <u>Donation</u>	<u>Implied</u> <u>Tuition</u>	<u>Average Tuition</u> <u>Over Five Years</u>
Nothing (1)	YR 11,771,316	YR -0-	(2) YR 5,856	YR 4,067
Hardware/ Software plus	10,841,316	930,000	5,394	3,746
Textbooks/ Supplies plus	8,448,468	3,322,848	4,203	2,919
Building/ Utilities plus	5,413,318	6,357,998	2,693	1,870
Office/ Utilities plus	5,078,445	6,692,871	2,526	1,754
Secretary/ Clerks plus	3,781,821	7,989,495	1,881	1,306
Instructors/ Administrator	-0-	-0-	-0-	-0-

NOTES

1. Assumes twenty percent inflation.
2. Assumes 670 students over five years taking three courses each, for a total of 2,010 courses sold.

## APPENDIX A

This appendix contains suggested courses for the Start-Up configuration of the proposed Computer Training Center.

## APPENDIX A: RECOMMENDED CURRICULUM

### START-UP CONFIGURATION

#### I. Introduction to Microcomputing Course Series

Course Name: Introduction to Microcomputers

Prerequisites: No prior computer experience is required

Duration: 24 Hours Lecture

08 Hours Lab

Objectives: This course is designed to introduce participants to computer concepts. Participants will gain a basic knowledge of computer logic, simple theory, and microcomputer operating basics. The course will also provide participants with a basic knowledge of microcomputer hardware components and software applications.

Course Name: Introduction to MS-DOS Operating System

Prerequisites: None

Duration: 24 Hours Lectures

08 Hours Lab

Objectives: This course provides participants with in-depth information on the MS-DOS operating system. Participants will gain an understanding of DOS internal and external commands for file management and operating programs. The course will provide hands-on experience on handling floppy and hard-disks through the use of several utility programs. The concepts of directories and batch files will be covered.

Course Name: Using a MicroComputer in Your Office

Prerequisites: Introduction to Microcomputers

Duration: 24 Hours Lecture

08 Hours Lab

Objectives: This course provides participants with an introduction to the major business applications of microcomputer technology. Concepts of word processing, spreadsheet, database, project management, accounting, and networking applications will be presented briefly. Students will work with the basics of each to familiarize themselves with the utility of each in their daily business lives.

Course Name: Package Business Applications for Microcomputers

Prerequisites: No prior computer knowledge is required

Duration: 12 Hours Lectures

12 Hours Lab

Objective: This course is designed to provide participants with an overview of some of the existing business software available in the market. Participants will be exposed to few accounting and inventory packages through implementation of case-studies.

## II. Word Processing Course Series

Course Name: Introduction to Word Processing

Prerequisites: No prior computer knowledge is required

Duration: 12 Hours Lectures

12 Hours Lab

Objective: This course is designed to give a hands-on experience on the use of word processors. Participants will learn how to create, edit, merge and print documents. Documents organization and presentation techniques will be demonstrated. Word Perfect and ArabWord will be used to teach the introduction course.

Course Name: Word Perfect Course Series: Levels I to III

Prerequisites: Introduction to Word Processing

Duration: 24 Hours Lecture per Level

12 Hours Lab per Level

Objective: The series is designed for a complete professional understanding of Word Perfect. It should be designed for the English language typist and allow for the development of rudimentary skills in the first level, and of advancing skills as the levels proceed. Cases and examples from real business correspondence and documents such as this report should be used for the student's work.

Course Name: ArabWord Course Series: Levels I to III

Prerequisites: Introduction to Word Processing

Duration: 24 Hours Lecture per Level  
12 Hours Lab per Level

Objective: The series is designed for a complete professional understanding of ArabWord. It should be designed for the Arabic language typist and allow for the development of rudimentary skills in the first level, and of advancing skills as the levels proceed. Cases and examples from real business correspondence and documents such as this report should be used for the student's work.

Course Name: Introduction to Desktop Publishing

Prerequisites: Introduction to Word Processing

Duration: 24 Hours Lecture per Level  
12 Hours Lab per Level

Objective: This course should introduce the major activities and benefits of desktop publishing. VENTURA software, an IBM micro software designed for business document publication, should be used to show the student how to go from simple text documents to integration of text, tables, and graphics in a single, final document.

### III. Data Management Course Series

This series should show the student the many options for managing the various data types and the appropriate solution for each management problem.

Course Name: Introduction to Data Management

Prerequisites: Introduction to MS-DOS Operating System

Duration: 16 Hours Lectures  
08 Hours Lab

Objective: This course will introduce students to the variety of data management solutions available to wise user of microcomputers. Spreadsheets, data base packages, and accounting packages will be introduced in a generic sense to give the students the feel of how a type of program will address a data management problem.

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Course: Using Lotus 1-2-3 Levels I to III

Prerequisites: Introduction to MS-DOS Operating System

Duration: 20 Hours Lecture per Levels  
08 Hours Lab

Objective: This course will introduce the participants to electronic spreadsheets software through the use of Lotus 1-2-3. Participants will learn how to build and maintain worksheets using Lotus 1-2-3 commands. Through specially designed examples, participants students will have a working experience of Lotus menu functions for constructing, maintaining and printing spreadsheets. The course will include work with popular Arabization programs (i.e. NAFITHA, ARABIC MS-DOS) together with Lotus 1-2-3. This series should take the student through the demonstration of the power of Lotus 1-2-3 through the use of macros, menus and other advanced functions. Participants will be exposed to several case-studies covering financial and statistical applications. Simple and interactive macros will be prepared and methods of constructing them presented. The class will rely heavily on case-studies.

Course Name : Lotus 1-2-3 Project

Prerequisites: Advanced Lotus 1-2-3

Duration: 06 Weeks  
12 Hours Instructor (Consulting)

Objective: Through this course, Lotus 1-2-3 users will have the opportunity to use their knowledge in designing a custom-made package. Participants in this course will have several projects to choose from. The projects will cover several areas of business applications.

Course Name: dBase III+ Levels I to III

Prerequisites: Introduction to MS-DOS Operating System

Duration: 24 Hours Lecture per Level  
12 Hours Lab per Level

Objective: This course is intended to introduce participants to the dBase III+ package. The course will provide students with hands-on

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practice in creating and maintaining records in a database. Participants will also learn how to extract, query and print data based on specific user defined conditions. The course will include instructions on the use of Arabization programs (i.e. NAFITHA, ARABIC MS-DOS) together with Lotus 1-2-3. Programming in the later levels will provide participants with the necessary skills to write structured programs using dBase III+. Participants by the end of the third level will be capable of developing their own custom-made applications. Arabization techniques will be used in order to give the participants the knowledge of developing Arabic software. Through-out the courses the concept of structure programming will be stressed.

Course Name: dBase III+ Project

Prerequisites: Programming in dBase III+ (Level III)

Duration: 06 Weeks  
12 Hours Instructor (Consulting)

Objective: Through this course, dBase III+ users will have the opportunity to use their knowledge in designing a custom-made package. Participants in this course will have several projects to choose from. The projects will cover several areas of business applications.

#### IV. Introduction to Programming Course Series

This series of courses will teach students interested in programming the rudiments of programming in a micro environment. The most important task in this curriculum is to teach the students skills that can be used in several environments so they may best serve the various computer users of Yemen.

Course Name: Introduction to Personal System/2 (PS/2) and OS/2

Prerequisites: A working knowledge of microcomputers is required.

Duration: 24 Hours Lecture  
08 Hours Lab

Objective: This course is designed to help participants understand what PS/2 and OS/2 are and how they will effect the computing world. Participants will gain an understanding of OS/2 from both the end-user and the programmers point of view. The course will introduce several internal and external commands.

Course Name: Introduction to Micro Programming

Prerequisites: A working knowledge of microcomputers is required, along with solid English skills.

Duration: 36 Hours Lecture  
16 Hours Lab

Objective: This course is designed to help participants understand the rudiments of programming in BASIC. BASIC is an easy to learn language that will be the vehicle for teaching the logic, structure, and creativity needed to address programming issues.

Course Name: Introduction to COBOL Programming

Prerequisites: Introduction to MS-DOS Operating System

Duration: 36 Hours Lecture  
12 Hours Lab

Objective: This class will teach the student the most popular of the business programming languages, and the one most used in the micro and mini environments of the Middle East. The courses will prepare students to move from introductory level COBOL to advanced concepts in planning, writing, and implementing unique complex software solutions to business problems.

## APPENDIX B

This appendix contains suggested future courses for the Fully Operational proposed Computer Training Center.

## APPENDIX B

### RECOMMENDED COURSE LIST FOR THE FULLY OPERATIONAL COMPUTER TRAINING CENTER

#### Regular Courses

Introduction to Microcomputers

Introduction to MS-DOS Operating Systems

Introduction to Personal System/2 (PS/2) and OS/2

#### DATA MANAGEMENT

These courses are designed to give students a true understanding of spreadsheets and databases packages through the use of some of the most popular data management packages. Courses will cover the use of such packages in real-life cases.

Introduction to Data Management

Spreadsheets Using Lotus 1-2-3

Intermediate Lotus 1-2-3

Advanced Lotus 1-2-3

Lotus 1-2-3 Project

Introduction to dBase

Programming in dBase (Level I)

Programming in dBase (Level II)

Programming in dBase (Level II)

dBase Project

Introduction to ORACLE

Intermediate ORACLE

Advanced ORACLE

## OFFICE AUTOMATION

These courses are aimed at businesspersons seeking the "know-how" of automating the administrative functions of their businesses. Courses will cover the basics of computer and computer applications in relation to office automation.

Introduction to Microcomputers and MS-DOS Operating System

Using a Microcomputer in Your Office

Introduction to Word Processing.

English Language Word Processing with Word Perfect

Word Perfect Levels II to III

Arabic Word Processing with ArabWord

ArabWord Levels II to III

Introduction to Project Management on Micros

Harvard Project, Levels I to III

Accounting on Your Microcomputer

Solomon III Accounting Levels I to III

Desktop Publishing in English and Arabic

Office Networks: MailNets and Beyond

[Refer to Data Management Series, Intro/Lotus/dBase as Desired]

## OPERATING SYSTEMS AND PROGRAMMING LANGUAGES

These courses are aimed at students seeking a career in computer programming. The courses cover several popular microcomputer operating systems and commonly used programming languages.

Introduction to COBOL Programming

Intermediate COBOL Programming

Advanced COBOL Programming

COBOL Project

Advanced OS/2

Introduction to UNIX Operating Systems

Intermediate UNIX Operating Systems

Introduction to PASCAL Programming

Intermediate PASCAL Programming

Advanced PASCAL Programming

Introduction to C Programming

Intermediate C Programming

Advanced C Programming

On-demand Courses

Introduction to Computer Aided Design Using AUTOCAD

Advanced Computer Aided Design

Microcomputers Trouble Shooting

## SOFTWARE PACKAGES

These packages are available throughout the Middle East. Faculty should have the option, as informed professionals, to consider any of these as appropriate substitutes for the above-mentioned software in any of the courses described. Other specialty courses may be created for specific packages as needed. This list is not exhaustive, and faculty may have other packages better suited to Yemen's needs.

Word Processing: Al Bayan (Arabic)

Word Processing: AlKaatiib International (Arabic)

Word Processing: Arabic Displaywrite

Word Processing: Arabword

Desktop Publishing: Al-Arabi Publisher

Desktop Publishing: Arabscript Professional Publisher

Desktop Publishing: Ventura Publisher (English)

Desktop Publishing: PageMaker (English)

Integrated Software: ENABLE

Integrated Software: SMART

Integrated Software: SYMPHONY

Project Management: Microsoft Project

Project Management: Artemis

Project Management: ABT Project

Accounting Software: Arabic Peachtree

Accounting Software: Almohaseb

Accounting Software: Arabic Manufacturing and Accounting Systems

Accounting Software: SBT (On dBase or Foxbase)

Business Software: Stock and Warehousing.

Foxbase Database

## AFFENDIX C

This appendix contains assumptions and cash flow results from the following test runs of the feasibility model:

Base Run and Breakeven Calculation for Theoretical Start-up Center

Run One: Mild Inflation and Gradual Student Enrollment

Run Two: Higher Inflation and Gradual Student Enrollment

Run Three: Mild Inflation and Steady High Student Enrollment

Run Four: Very High Inflation and Steady High Student Enrollment

## APPENDIX C

The data presented in this appendix comes from a cash flow and breakeven model prepared by Price Waterhouse to assess the coverage of Center operating costs by student revenues under varying assumptions. The first set of data presented represents a base run, with assumptions presented in the main section of the text. The following four runs are tests of the model. They are as follows:

Run One: Ten percent inflation and gradual student enrollment increases. Inflation in this run is set at ten percent over the first five years. Student enrollment is gradually stepped up from an average annual class size of 9 to 11 to 14 to 15 in the last years. The effect of these conditions is to create a need for an additional investment of YR 515,954, adding to the investment losses noted in the Base Run.

Run Two: Twenty percent inflation with gradual student enrollment. Inflation creates mixed results for the center as increasing costs are spread over an increasing revenue base. Losses are lower in later years, but overall the first five years require additional investment of YR 520,128. Student enrollment is stepped as in Run One.

Run Three: Ten percent inflation and fifteen students per class. Assuming ten percent inflation on a student base of slightly larger than the breakeven in the base run gives a positive cash flow of YR +37,375 for the first five years. This covers the original YR 620,000 investment in nominal terms, but leaves the institute underfunded in real terms. Student enrollment required averages 1,800 per year, or 9,900 courses sold over five years.

Run Four: Thirty percent inflation and fifteen students per class. To test the effects of high inflation, this run assumes thirty percent per annum. With the same student base as Run Three, we see the cash position of the institute rise to YR 1,093,287 in nominal terms. In real terms, the Center only nets YR 294,454.

USAID  
 PROPOSED MICROCOMPUTER TRAINING CENTER  
 INITIAL EQUIPMENT NEEDS

DESCRIPTION	QUANTITY	UNIT PRICE	COST
Micro-Computer Config	2	224,500	449,000
Software	1	69,000	69,000
Office Desks	4	2,300	9,200
Office Desk Chairs	4	300	1,200
Window Curtains	8	2,000	16,000
Filing Cabinets	5	2,500	12,500
Shelve Units	2	500	1,000
English/Arabic Typewriter	1	18,000	18,000
Wastebaskets	8	40	320
Telephones	4	350	1,400
Whiteboard	4	800	3,200
Small Refrigerator	1	8,500	8,500
School Table	18	1,200	21,600
Chairs	42	200	8,400
Coffee Pot etc.	1	1,000	1,000
TOTAL		YR	520,320

Base Run of Recommended Configuration

ASSUMPTIONS/ INPUTS

year 1 year 2 year 3 year 4 year 5

CLASS REVENUE:

Type 1:

#/ Year (t#y)	132.00	132.00	132.00	132.00	132.00
#hrs/ class (t#h)	24.00	24.00	24.00	24.00	24.00
Av Cl Size (t#c)	13.52170	14.71590	14.71680	14.31993	13.92285
Rev/ Hr/ St (t#r)	35.00	35.00	35.00	35.00	35.00
Type 1 Rev. (t#t)	1499286	1631799	1631799	1587782	1543766

Type 2:

#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 2 Rev. (t#t)	0	0	0	0	0

Type 3:

#/ Year (t#y)				0	0
#hrs/ class (t#h)				0	0
Av Cl Size (t#c)				0	0
Rev/ Hr/ St (t#r)				0	0
Type 3 Rev. (t#t)	0	0	0	0	0

Type 4:

#/ Year (t#y)	0				
#hrs/ class (t#h)	0				
Av Cl Size (t#c)	0				
Rev/ Hr/ St (t#r)	0				
Type 4 Rev. (t#t)	0	0	0	0	0

Type 5:

#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 5 Rev. (t#t)	0	0	0	0	0

Tot Instr Hr (inh)	3168	3168	3168	3168	3168
Av Rev. Instr. Hr	473	515	515	501	487
Av. dCst. Instr Hr	129	129	129	129	129

Tot Studt Hr (sth)	42937	46623	46623	45365	44108
Avg. Rev. St. Hr.	35	35	35	35	35
Avg. dCst. St. Hr.	10	9	9	9	9
Total Students	1785	1943	1943	1890	1839
Total Classes	132	132	132	132	132
Avg. Class Size	13.5	14.7	14.7	14.3	13.9

Initial cash investment (csh) 620000 XXX

EXPENSES:

COST/ INSTR.

Instructor 1	196020	196020	196020	196020	196020
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Base Run of Recommended Configuration

Instructor 2	98010	98010	98010	98010	98010
Instructor 3	116160	116160	116160	116160	116160
Instructor 4					
Instructor 5					
Instructor 6					
Total (instr)	410190	410190	410190	410190	410190
COST/ STU. HR.					
Electricity - rate	0.22	0.22	0.22	0.22	0.22
- basis	42337	46623	46623	45365	44108
- cost (elc)	9424	10257	10257	9980	9704
Supplies - rate	2.60	2.60	2.60	2.60	2.60
- basis	42337	46623	46623	45365	44108
- cost (suppl)	111376	121219	121219	117950	114680
Textbooks - rate	5.00	5.00	5.00	5.00	5.00
- basis	42337	46623	46623	45365	44108
- cost (txtc)	214184	233114	233114	226824	220538
Water - rate	1.00	1.00	1.00	1.00	1.00
- basis	42337	46623	46623	45365	44108
- cost (wtc)	42337	46623	46623	45365	44108
Sewage - rate	1.00	1.00	1.00	1.00	1.00
- basis	42337	46623	46623	45365	44108
- cost (swc)	42337	46623	46623	45365	44108
<b>FIXED COSTS/ year</b>					
Admin. Salaries					
Ad.1	98010	98010	98010	98010	98010
Ad.2					
Ad.3					
Ad.4					
Ad.5					
Admin total (Ada)	98010	98010	98010	98010	98010
Sy.1	58080	58080	58080	58080	58080
Sy.2					
Sy.3					
Secy total (Secy)	58080	58080	58080	58080	58080
Sp.1	58080	58080	58080	58080	58080
Sp.2					
Supprt tot. (spt)	58080	58080	58080	58080	58080
Phone (phn)	18000	18000	18000	18000	18000
Fax (fax)	18000	18000	18000	18000	18000
Insurance (ins)	3000	3000	3000	3000	3000
Reprs & Mnt. (R&M)	6000	6000	6000	6000	6000
Bldg Lease (lse)	300000	300000	300000	300000	300000
Other (oth)	12000	12000	12000	12000	12000

Base Run of Recommended Configuration

Ele. - Fix. (fal)      1936      1936      1936      1936      1936

Fixed Assets -Equ

Beginning (eqb)	0	120000	120000	120000	120000
Additions (eqa)	120000	0	0	0	0
Deletions	0	0	0	0	0
Ending	120000	120000	120000	120000	120000

Fixed Assets -C&S

Beginning (csb)	0				
Add.Yr#1 (csa)	500000	500000	500000	500000	500000
Add.Yr#2		0	0	0	0
Add.Yr#3			0	0	0
Add.Yr#4				310000	310000
Add.Yr#5					0
Deletions	0	0	0	0	0
Ending	500000	500000	500000	810000	810000

Fixed Assets -Bldg

Beginning (bgb)	0	0	0	0	0
Additions (bga)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

Depreciation - Eq

Beginning	0	12000	36000	60000	84000
Additions (dpra)	12000	24000	24000	24000	24000
Deletions	0	0	0	0	0
Ending	12000	36000	60000	84000	108000

Depreciation -C&S

Beginning	0	83333	250000	416667	551667
Add.#1	83333	166667	166667	93333	0
Add.#2		0	0	0	0
Add.#3			0	0	0
Add.#4				51667	103333
Add.#5					0
Total Dpr (dpra)	83333	166667	166667	135000	103333
Deletions	0	0	0	0	0
Ending	83333	250000	416667	551667	655000

Depreciation - Bldg

Beginning	0	0	0	0	0
Additions (dprb)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

## Base Run of Recommended Configuration

Asset Costs	101333	196667	196667	185000	133333
Phone	18000	18000	18000	18000	18000
Fax	18000	18000	18000	18000	18000
Electricity - Fix	1936	1936	1936	1936	1936
Marketing	12000	12000	12000	12000	12000
Insurance	3000	3000	3000	3000	3000
Lease	300000	300000	300000	300000	300000
Total Fixed Cost	1078629	1173963	1173963	1142296	1110629

## Variable Costs:

Classroom Costs	325559	354333	354333	344776	335219
Electricity - Var.	9424	10257	10257	9980	9704
Water	42837	46623	46623	45365	44108
Sewage	42837	46623	46623	45365	44108
Total Var. Cost	420657	457836	457836	445486	433137
Total Cost	1499286	1631799	1631799	1587782	1543766

Student Hr.	42837	46623	46623	45365	44108
Var. Cost	9.82	9.82	9.82	9.82	9.82
Fixed Cost	25.18	25.18	25.18	25.18	25.18
Total	35.00	35.00	35.00	35.00	35.00

Instructor Hr.	3168	3168	3168	3168	3168
Var. Cost	132.78	144.52	144.52	140.62	136.72
Fixed Cost	340.48	370.57	370.57	360.57	350.58
Total	473.26	515.09	515.09	501.19	487.30

Tot Instr Hr (inh)	3168	3168	3168	3168	3168
Av Rev. Instr. Hr	473	515	515	501	487
Av. dCst. Instr Hr	129	129	129	129	129

Tot Stud Hr (stn)	42837	46623	46623	45365	44108
Avg. Rev. St. Hr.	35	35	35	35	35
Avg. dCst. St. Hr.	10	9	9	9	9

Total Students	1785	1943	1943	1890	1838
Avg. Students/Mo.	162	177	177	172	167
Total Classes (B)	132	132	132	132	132
Avg. Class Size (D)	13.5	14.7	14.7	14.3	13.9
Avg. Class Hrs. (C)	24	24	24	24	24

## HOURLY ANALYSIS:

Instructor Hour	3168	3168	3168	3168	3168
Avg. Class Size	13.522	14.717	14.717	14.320	13.923
Avg. Rev.	473.26	515.09	515.09	501.19	487.30
Avg. Var. Cost	132.78	144.52	144.52	140.62	136.72
Avg. Fixed Cost	340.48	370.57	370.57	360.57	350.58
Avg. Total Cost	473.26	515.09	515.09	501.19	487.30
Avg. Profit Loss	0.00	0.00	0.00	0.00	0.00

## Base Run of Recommended Configuration

PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL PROFIT AND LOSS STATEMENT

	year 1	year 2	year 3	year 4	year 5
<b>Revenue:</b>					
Class type 1	1499286	1631799	1631799	1587782	1543766
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>Total Revenue</b>	<b>1499286</b>	<b>1631799</b>	<b>1631799</b>	<b>1587782</b>	<b>1543766</b>

<b>Expenses:</b>					
<b>Human Resources</b>					
Instructors	410190	410190	410190	410190	410190
Administrators	98010	98010	98010	98010	98010
Secretaries	58080	58080	58080	58080	58080
Support	58080	58080	58080	58080	58080

<b>Classroom Costs</b>					
Textbooks	214184	233114	233114	226826	220538
Supplies	111376	121219	121219	117950	114680

<b>Asset Costs</b>					
Depr. - Bldg	0	0	0	0	0
Depr. - O & S	83333	166667	166667	135000	103333
Depr. - Equipment	12000	24000	24000	24000	24000
Repairs & Main.	6000	6000	6000	6000	6000

<b>Other Costs</b>					
Telephone	18000	18000	18000	18000	18000
Tele-facsimile	18000	18000	18000	18000	18000
Insurance	3000	3000	3000	3000	3000
Building Lease	300000	300000	300000	300000	300000
Electricity - Fix	1936	1936	1936	1936	1936
Electricity - Var.	9424	10257	10257	9990	9704
Water	42837	46623	46623	45365	44108
Mktg. & Other	12000	12000	12000	12000	12000
Sewage	42837	46623	46623	45365	44108

<b>Total Expenses</b>	<b>1499286</b>	<b>1631799</b>	<b>1631799</b>	<b>1587782</b>	<b>1543766</b>
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<b>Net Income(Loss)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
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<b>Equity</b>					
Invested Capital	620000	620000	620000	620000	620000
Retained P(L)	0	0	0	0	0
<b>Ending Equity</b>	<b>620000</b>	<b>620000</b>	<b>620000</b>	<b>620000</b>	<b>620000</b>

## COST ANALYSIS

<b>Fixed Costs:</b>					
Human Resources	624360	624360	624360	624360	624360

Base Run of Recommended Configuration

Student Hour	42837	46623	46623	45365	44108
Avg. Class Size	13.52	14.72	14.72	14.32	13.92
Avg. Rev. (A)	35.00	35.00	35.00	35.00	35.00
Avg. Var. Cost (E)	9.82	9.82	9.82	9.82	9.82
Avg. Fixed Cost	25.18	25.18	25.18	25.18	25.18
Avg. Total Cost	35.00	35.00	35.00	35.00	35.00
Avg. Profit Loss	0.00	0.00	0.00	0.00	0.00

BREAK-EVEN ANALYSIS:

	scen. 1	scen. 2	scen. 3	scen. 4	scen. 5
Breakeven Variables					
Avg. Rev/Hr	35.00	35.00	35.00	35.00	35.00
# Classes/Yr	132.00	132.00	132.00	132.00	132.00
# Hours/Class	24.00	24.00	24.00	24.00	24.00
Avg. Students/Class	13.52170	14.71680	14.71680	14.31983	13.92285

Run 1: 10 Percent Inflation, Gradual Students 9-11-14-15-15

PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL CASHFLOW/ CAPITAL REQUIREMENT STATEMENT

	year 1	year 2	year 3	year 4	year 5
Beginning Cash	520000	0	0	91243	0
<b>RESOURCES:</b>					
Class type 1	997920	1341648	1878307	2213719	2435091
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>TOTAL RESOURCES</b>	<b>1617920</b>	<b>1341648</b>	<b>1878307</b>	<b>2304962</b>	<b>2435091</b>
<b>EXPENDITURES</b>					
<b>Human Resources</b>					
Instructors	410190	451209	496330	545963	600559
Administrators	98010	107811	118592	130451	143496
Secretaries	58080	63288	70277	77304	85035
Support	116160	127776	140554	154609	170070
<b>Classroom Costs</b>					
Textbooks	142550	191664	268330	316246	347870
Supplies	74131	99665	139531	164448	180892
<b>Asset Costs</b>					
Purch - Bldg	0	0	0	0	0
Purch - C&S	500000	0	0	310000	0
Purch - Equipment	120000	0	0	0	0
Repairs & Main.	6000	6600	7260	7966	8785
<b>Other Costs</b>					
Telephone	18000	19800	21720	23958	26354
Tele-facsimile	18000	19800	21720	23958	26354
Insurance	3000	3300	3630	3993	4392
Building Lease	300000	330000	363000	399300	439230
Electricity - Fix	1936	2130	2343	2577	2834
Elec. - Variable	6273	8433	11807	13915	15306
Water	28512	38333	53666	63249	69574
Mkt. & Other	12000	13200	14520	15972	17569
Sewage	28512	38333	53666	63249	69574
<b>TOTAL EXPENDITURES</b>	<b>1941364</b>	<b>1521942</b>	<b>1787064</b>	<b>2317178</b>	<b>2207896</b>
<b>SURPLUS (SHORTFALL)</b>	<b>-323444</b>	<b>-180294</b>	<b>91243</b>	<b>-12216</b>	<b>227196</b>
Cash Investment	323444	180294	0	12216	0
<b>Ending Cash</b>	<b>0</b>	<b>0</b>	<b>91243</b>	<b>0</b>	<b>227196</b>

Run 1: 10 Percent Inflation and Gradual Students

ASSUMPTIONS/ INPUTS

	year 1	year 2	year 3	year 4	year 5
CLASS REVENUE:					
Type 1:					
#/ Year (t#y)	132.00	132.00	132.00	132.00	132.00
#hrs/ class (t#h)	24.00	24.00	24.00	24.00	24.00
Av Cl Size (t#c)	9.00000	11.00000	14.00000	15.00000	15.00000
Rev/ Hr/ St (t#r)	35.00	38.50	42.35	46.59	51.24
Type 1 Rev. (t1t)	997920	1341548	1878307	2213719	2435091
Type 2:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 2 Rev. (t2t)	0	0	0	0	0
Type 3:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 3 Rev. (t3t)	0	0	0	0	0
Type 4:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 4 Rev. (t4t)	0	0	0	0	0
Type 5:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 5 Rev. (t5t)	0	0	0	0	0
Tot Instr Hr (inh)	3168	3168	3168	3168	3168
Av Rev. Instr-Hr	315	424	593	699	759
Av. dOst. Instr Hr	129	142	157	172	190
Tot Studt Hr (sth)	28512	34848	44352	47520	47520
Avg. Rev. St. Hr.	35	39	42	47	51
Avg. dOst. St.Hr.	14	13	11	11	13
Total Students	1199	1452	1848	1980	1980
Total Classes	132	132	132	132	132
Avg. Class Size	9.0	11.0	14.0	15.0	15.0

Initial cash investment (cash) 620000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

EXPENSES:

COST/ INSTR.

Instructor 1	196020	215622	237184	250903	296993
Instructor 2	98010	107811	118592	130451	143496
Instructor 3	116150	127776	140554	154609	170070

## Run 1: 10 Percent Inflation and Gradual Students

Instructor 4  
Instructor 5  
Instructor 6

Total (instr)	410190	451209	496330	545963	600559
COST/ STU. HR.					
Electricity - rate	0.22	0.24	0.27	0.29	0.32
- basis	28512	34848	44352	47520	47520
- cost (elc)	6273	8437	11807	13915	15306
Supplies - rate	2.60	2.86	3.15	3.46	3.81
- basis	28512	34848	44352	47520	47520
- cost (suppc)	74131	99665	139531	164448	180892
Textbooks - rate	5.00	5.50	6.05	6.66	7.32
- basis	28512	34848	44352	47520	47520
- cost (tntc)	142560	191664	268330	316246	347870
Water - rate	1.00	1.10	1.21	1.33	1.46
- basis	28512	34848	44352	47520	47520
- cost (wtc)	28512	38333	53666	63249	69574
Sewage - rate	1.00	1.10	1.21	1.33	1.46
- basis	28512	34848	44352	47520	47520
- cost (swc)	28512	38333	53666	63249	69574
FIXED COSTS/ year					
Admin. Salaries					
Ad.1	98010	107811	118592	130451	143496
Ad.2					
Ad.3					
Ad.4					
Ad.5					
Admin total (Ada)	98010	107811	118592	130451	143496
Sp.1	58080	63888	70277	77304	85035
Sp.2					
Sp.3					
Sp. total (Sacy)	58080	63888	70277	77304	85035
Sp.1	58080	63888	70277	77304	85035
Sp.2	58080	63888	70277	77304	85035
Supprt tot. (spt)	116160	127776	140554	154609	170070
Phone (phn)	18000	19800	21780	23958	26354
Fax (fax)	18000	19800	21780	23958	26354
Insurance (Ins)	3000	3300	3630	3993	4392
Reprs & Mnt.(RMK)	6000	6600	7260	7986	8785
Blgd Lease (lse)	300000	330000	36000	399300	439230
Other (oth)	12000	13200	14520	15972	17569
Elec. - Fix.(fel)	1936	2130	2343	2577	2834
Fixed Assets -Equ					
Beginning (eqb)	0	120000	120000	120000	120000

## Run 1: 10 Percent Inflation and Graual Students

Additions (eqa)	120000	0	0	0	0
Deletions	0	0	0	0	0
Ending	120000	120000	120000	120000	120000

## Fixed Assets -C&amp;S

Beginning (csb)	0				
Add.Yr#1 (csa)	500000	500000	500000	500000	500000
Add.Yr#2		0	0	0	0
Add.Yr#3			0	0	0
Add.Yr#4				310000	310000
Add.Yr#5					0
Deletions	0	0	0	0	0
Ending	500000	500000	500000	810000	810000

## Fixed Assets -Bldg

Beginning (bgb)	0	0	0	0	0
Additions (bga)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

## Depreciation - Eq

Beginning	0	12000	36000	60000	84000
Additions (dprel)	12000	24000	24000	24000	24000
Deletions	0	0	0	0	0
Ending	12000	36000	60000	84000	108000

## Depreciation -C&amp;S

Beginning	0	83333	250000	416667	551667
Add.#1	83333	166667	166667	83333	0
Add.#2		0	0	0	0
Add.#3			0	0	0
Add.#4				51667	103333
Add.#5					0
Total Dpr (dprc)	83333	166667	166667	135000	103333
Deletions	0	0	0	0	0
Ending	83333	250000	416667	551667	655000

## Depreciation - Bldg

Beginning	0	0	0	0	0
Additions (dprb)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

Inflation (infi)	10				
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## Run 2: 20 Percent Inflation, Gradual Students 9-11-14-15-15

PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL CASHFLOW/ CAPITAL REQUIREMENT STATEMENT

	year 1	year 2	year 3	year 4	year 5
Beginning Cash	620000	0	0	108587	66733
<b>RESOURCES:</b>					
Class type 1	997920	1463616	2235341	2874010	3446812
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>TOTAL RESOURCES</b>	<b>1617920</b>	<b>1463616</b>	<b>2235341</b>	<b>2982596</b>	<b>3515545</b>
<b>EXPENDITURES</b>					
<b>Human Resources</b>					
Instructors	410190	492228	590674	708808	850570
Administrators	98010	117612	141134	169361	203234
Secretaries	39080	49696	60635	73662	88435
Support	115160	139392	167270	200724	240869
<b>Classroom Costs</b>					
Textbooks	142360	209088	319334	410573	492687
Supplies	74131	108726	166054	213498	256197
<b>Asset Costs</b>					
Purch - Bldg	0	0	0	0	0
Purch - C&S	500000	0	0	310000	0
Purch - Equipment	120000	0	0	0	0
Repairs & Main.	6000	7200	8640	10368	12442
<b>Other Costs</b>					
Telephone	18000	21600	25920	31104	37325
Tele-facsimile	18000	21600	25920	31104	37325
Insurance	3000	3600	4320	5184	6221
Building Lease	300000	360000	432000	518400	622080
Electricity - Fix	1936	2323	2788	3345	4014
Elec. - Variable	6273	7200	8405	9965	11678
Water	28512	41818	63867	82115	98537
Mkt. & Other	12000	14400	17280	20736	24882
Sewage	28512	41818	63867	82115	98537
<b>TOTAL EXPENDITURES</b>	<b>1941364</b>	<b>1660300</b>	<b>2126754</b>	<b>2915863</b>	<b>3127035</b>
<b>SURPLUS (SHORTFALL)</b>	<b>-323444</b>	<b>-196684</b>	<b>108587</b>	<b>66733</b>	<b>388510</b>
Cash Investment	323444	196684	0	0	0
<b>Ending Cash</b>	<b>0</b>	<b>0</b>	<b>108587</b>	<b>66733</b>	<b>388510</b>

Run 2: 20 Percent Inflation and Gradual Students

ASSUMPTIONS/ INPUTS

	year 1	year 2	year 3	year 4	year 5
CLASS REVENUE:					
Type 1:					
#/ Year (t#y)	132.00	132.00	132.00	132.00	132.00
#hrs/ class (t#h)	24.00	24.00	24.00	24.00	24.00
Av Cl Size (t#c)	9.00000	11.00000	14.00000	15.00000	15.00000
Rev/ Hr/ St (t#r)	35.00	42.00	50.40	60.48	72.58
Type 1 Rev. (t1t)	997920	1463616	2235341	2874010	3448812
Type 2:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 2 Rev. (t2t)	0	0	0	0	0
Type 3:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 3 Rev. (t3t)	0	0	0	0	0
Type 4:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 4 Rev. (t4t)	0	0	0	0	0
Type 5:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 5 Rev. (t5t)	0	0	0	0	0
Tot Instr Hr (inh)	3168	3168	3168	3168	3168
Av Rev. Instr. Hr	315	462	706	907	1089
Av. dCst. Instr Hr	109	155	186	224	248
Tot Stud Hr (stH)	28512	34848	44752	47520	47520
Avg. Rev. St. Hr.	35	42	50	50	73
Avg. dCst. St. Hr.	14	14	13	15	18
Total Students	1188	1452	1848	1980	1980
Total Classes	132	132	132	132	132
Avg. Class Size	9.0	11.0	14.0	15.0	15.0

Initial cash

investment (can) 620000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

EXPENSES:

COST/ INSTR.

Instructor 1	195020	235224	282269	338723	406467
Instructor 2	98010	117612	141134	169361	203234
Instructor 3	116160	139392	167270	200724	240869

## Run 2: 20 Percent Inflation and Gradual Students

Instructor 4  
Instructor 5  
Instructor 6

Total (instr)	410190	492228	590674	708808	850570
COST/ STU. HR.					
Electricity - rate	0.22	0.26	0.32	0.38	0.46
- basis	28512	34848	44352	47520	47520
- cost (elc)	6273	9200	14051	18065	21678
Supplies - rate	2.50	3.12	3.74	4.49	5.39
- basis	28512	34848	44352	47520	47520
- cost (suppc)	74131	108726	166054	213498	256197
Textbooks - rate	5.00	6.00	7.20	8.64	10.37
- basis	28512	34848	44352	47520	47520
- cost (txtc)	142560	209088	319334	410573	492687
Water - rate	1.00	1.20	1.44	1.73	2.07
- basis	28512	34848	44352	47520	47520
- cost (wtr)	28512	41818	63867	82115	98537
Sewage - rate	1.00	1.20	1.44	1.73	2.07
- basis	28512	34848	44352	47520	47520
- cost (swc)	28512	41818	63867	82115	98537
FIXED COSTS/ year					
Admin. Salaries					
Ad.1	98010	117612	141134	169361	203234
Ad.2					
Ad.3					
Ad.4					
Ad.5					
Admin total (Adm)	98010	117612	141134	169361	203234
Sp.1	58080	69696	83635	100362	120435
Sp.2					
Sp.3					
Sp. total (Sp.1)	58080	69696	83635	100362	120435
Sp.1	58080	69696	83635	100362	120435
Sp.2	58080	69696	83635	100362	120435
Supprt tot. (spt)	116160	139392	167270	200724	240869
Phone (phn)	18000	21600	25920	31104	37325
Fax (fax)	18000	21600	25920	31104	37325
Insurance (Ins)	3000	3600	4320	5184	6221
Reprs & Mt. (R&M)	6000	7200	8640	10368	12442
Bldg Lease (lse)	300000	360000	432000	519400	622050
Other (oth)	12000	14400	17280	20736	24883
Elec. - Fix. (fel)	1936	2323	2788	3345	4014
Fixed Assets -Equ					
Beginning (eqb)	0	120000	120000	120000	120000

## Run 2: 20 Percent Inflation and Gradual Students

Additions (eqa)	120000	0	0	0	0
Deletions	0	0	0	0	0
Ending	120000	120000	120000	120000	120000

## Fixed Assets - C&amp;S

Beginning (csb)	0				
Add.Yr#1 (csa)	500000	500000	500000	500000	500000
Add.Yr#2		0	0	0	0
Add.Yr#3			0	0	0
Add.Yr#4				310000	310000
Add.Yr#5					0
Deletions	0	0	0	0	0
Ending	500000	500000	500000	810000	810000

## Fixed Assets - Bldg

Beginning (bgb)	0	0	0	0	0
Additions (bga)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

## Depreciation - Eq

Beginning	0	12000	36000	60000	84000
Additions (dpra)	12000	24000	24000	24000	24000
Deletions	0	0	0	0	0
Ending	12000	36000	60000	84000	108000

## Depreciation - C&amp;S

Beginning	0	83333	250000	416667	551667
Add.#1	83333	166667	166667	83333	0
Add.#2		0	0	0	0
Add.#3			0	0	0
Add.#4				51667	103333
Add.#5					0
Total Dep (dpra)	83333	166667	166667	135000	103333

Deletions	0	0	0	0	0
Ending	83333	250000	416667	551667	655000

## Depreciation - Bldg

Beginning	0	0	0	0	0
Additions (dpra)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

Inflation (infl)	20				
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PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL CASHFLOW/ CAPITAL REQUIREMENT STATEMENT

	year 1	year 2	year 3	year 4	year 5
Beginning Cash	620000	155178	325873	513638	410179
<b>RESOURCES:</b>					
Class type 1	1663200	1829520	2012472	2213719	2437091
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>TOTAL RESOURCES</b>	<b>2283200</b>	<b>1984698</b>	<b>2336345</b>	<b>2727357</b>	<b>2845270</b>
<b>EXPENDITURES</b>					
<b>Human Resources</b>					
Instructors	410190	451209	496330	545963	600559
Administrators	78010	107911	118592	130451	143496
Secretaries	58080	63888	70277	77304	85035
Support	136150	127776	140554	154609	170070
<b>Classroom Costs</b>					
Textbooks	237500	261360	287496	316246	347870
Supplies	123552	135907	149498	164448	180392
<b>Asset Costs</b>					
Purch - Bldg	0	0	0	0	0
Purch - OAS	500000	0	0	310000	0
Purch - Equipment	120000	0	0	0	0
Repairs & Maint.	6000	6600	7260	7986	8785
<b>Other Costs</b>					
Telephone	18000	19800	21780	23958	26354
Tele-facsimile	18000	19800	21780	23958	26354
Insurance	3000	3300	3630	3993	4392
Building Lease	300000	330000	363000	399300	439200
Electricity - Fix	1936	2130	2343	2577	2834
Elec. - Variable	10454	11500	12650	13915	15306
Water	47520	52272	57499	63249	69574
Mvt. & Other	12000	13200	14520	15972	17569
Sewage	47520	52272	57499	63249	69574
<b>TOTAL EXPENDITURES</b>	<b>2128022</b>	<b>1958825</b>	<b>1824707</b>	<b>2317178</b>	<b>2207896</b>
<b>SURPLUS (SHORTFALL)</b>	<b>155178</b>	<b>325873</b>	<b>513638</b>	<b>410179</b>	<b>637375</b>
Cash Investment	0	0	0	0	0
<b>Ending Cash</b>	<b>155178</b>	<b>325873</b>	<b>513638</b>	<b>410179</b>	<b>637375</b>

## Run 3: 10 Percent Inflation and Fifteen Students

## ASSUMPTIONS/ INPUTS

	year 1	year 2	year 3	year 4	year 5
CLASS REVENUE:					
Type 1:					
#/ Year (t#y)	172.00	132.00	132.00	132.00	132.00
#hrs/ class (t#h)	24.00	24.00	24.00	24.00	24.00
Av Cl Size (t#c)	15.00000	15.00000	15.00000	15.00000	15.00000
Rev/ Hr/ St (t#r)	35.00	38.50	42.35	46.59	51.24
Type 1 Rev. (t1t)	1663200	1829520	2012472	2213719	2435091

Type 2:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 2 Rev. (t2t)	0	0	0	0	0

Type 3:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 3 Rev. (t3t)	0	0	0	0	0

Type 4:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 4 Rev. (t4t)	0	0	0	0	0

Type 5:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 5 Rev. (t5t)	0	0	0	0	0

Tot Instr Hr (inh)	3168	3168	3168	3168	3168
Av Rev. Instr. Hr	528	578	638	699	769
Av. dCst. Instr Hr	129	142	157	172	190

Tot Studt Hr (st#h)	47520	47520	47520	47520	47520
Avg. Rev. St. Hr.	38	39	42	47	51
Avg. dCst. St. Hr.	9	9	10	11	13
Total Students	1980	1980	1980	1980	1980
Total Classes	132	132	132	132	132
Avg. Class Size	15.0	15.0	15.0	15.0	15.0

Initial cash					
Investment (csh)	620000	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			

## EXPENSES:

COST/ INSTR.					
Instructor 1	196020	215622	237194	260903	286993
Instructor 2	98010	107811	118592	130451	143496
Instructor 3	116160	127776	140554	154609	170070

## Run 3: 10 Percent Inflation and Fifteen Students

Instructor 4

Instructor 5

Instructor 6

Total (instr)	410190	451209	496330	545963	600559
---------------	--------	--------	--------	--------	--------

COST/ STU. HR.

Electricity - rate	0.22	0.24	0.27	0.29	0.32
--------------------	------	------	------	------	------

- basis	47520	47520	47520	47520	47520
---------	-------	-------	-------	-------	-------

- cost (elc)	10454	11500	12550	13915	15306
--------------	-------	-------	-------	-------	-------

Supplies - rate	2.60	2.85	3.15	3.46	3.81
-----------------	------	------	------	------	------

- basis	47520	47520	47520	47520	47520
---------	-------	-------	-------	-------	-------

- cost (suppl)	123852	135907	149499	164448	180892
----------------	--------	--------	--------	--------	--------

Textbooks - rate	5.00	5.50	6.05	6.66	7.32
------------------	------	------	------	------	------

- basis	47520	47520	47520	47520	47520
---------	-------	-------	-------	-------	-------

- cost (twtc)	237600	261360	287496	316246	347870
---------------	--------	--------	--------	--------	--------

Water - rate	1.00	1.10	1.21	1.33	1.46
--------------	------	------	------	------	------

- basis	47520	47520	47520	47520	47520
---------	-------	-------	-------	-------	-------

- cost (wtc)	47520	52272	57499	63249	69574
--------------	-------	-------	-------	-------	-------

Sewage - rate	1.00	1.10	1.21	1.33	1.46
---------------	------	------	------	------	------

- basis	47520	47520	47520	47520	47520
---------	-------	-------	-------	-------	-------

- cost (swc)	47520	52272	57499	63249	69574
--------------	-------	-------	-------	-------	-------

FIVEO COSTS/ year

Admin. Salaries

Ad.1	98010	107811	118592	130451	143496
------	-------	--------	--------	--------	--------

Ad.2

Ad.3

Ad.4

Ad.5

Admin total (Ada)	98010	107811	118592	130451	143496
-------------------	-------	--------	--------	--------	--------

Scy.1	58080	63888	70277	77304	85035
-------	-------	-------	-------	-------	-------

Scy.2

Scy.3

Scy total (Scy)	58080	63888	70277	77304	85035
-----------------	-------	-------	-------	-------	-------

So.1	58080	63888	70277	77304	85035
------	-------	-------	-------	-------	-------

So.2	58080	63888	70277	77304	85035
------	-------	-------	-------	-------	-------

Supprt tot. (spt)	116160	127776	140584	154609	170070
-------------------	--------	--------	--------	--------	--------

Phone (phn)	18000	19800	21780	23958	26354
-------------	-------	-------	-------	-------	-------

Fax (fax)	18000	19800	21780	23958	26354
-----------	-------	-------	-------	-------	-------

Insurance (Ins)	3000	3300	3630	3993	4392
-----------------	------	------	------	------	------

Reprs & Mnt. (R&M)	6970	6600	7280	7988	6785
--------------------	------	------	------	------	------

Sldg Lease (lse)	300000	330000	360000	399300	439230
------------------	--------	--------	--------	--------	--------

Other (oth)	12000	13200	14520	15972	17569
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Elec. - Fix. (fel)	1936	2130	2343	2577	2834
--------------------	------	------	------	------	------

Fixed Assets -Equ

Beginning (eqp)	0	120000	120000	120000	120000
-----------------	---	--------	--------	--------	--------

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## Run 3: 10 Percent Inflation and Fifteen Students

Additions (aga)	120000	0	0	0	0
Deletions	0	0	0	0	0
Ending	120000	120000	120000	120000	120000

## Fixed Assets -C&amp;S

Beginning (csb)	0				
Add.Yr#1 (csa)	500000	500000	500000	500000	500000
Add.Yr#2		0	0	0	0
Add.Yr#3			0	0	0
Add.Yr#4				310000	310000
Add.Yr#5					0
Deletions	0	0	0	0	0
Ending	500000	500000	500000	810000	810000

## Fixed Assets -Bldg

Beginning (bgb)	0	0	0	0	0
Additions (bga)	0	0	0	0	0
Deletions	0	0	0	-0	0
Ending	0	0	0	0	0

## Depreciation - Eq

Beginning	0	12000	36000	60000	84000
Additions (dora)	12000	24000	24000	24000	24000
Deletions	0	0	0	0	0
Ending	12000	36000	60000	84000	108000

## Depreciation -C&amp;S

Beginning	0	83333	250000	416667	551667
Add.#1	83333	166667	166667	83333	0
Add.#2		0	0	0	0
Add.#3			0	0	0
Add.#4				51667	103333
Add.#5					0
Total Dcr (dora)	83333	166667	166667	135000	103333
Deletions	0	0	0	0	0
Ending	83333	250000	416667	551667	655000

## Depreciation - Bldg

Beginning	0	0	0	0	0
Additions (dorb)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

Inflation (infl)	10
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PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL CASHFLOW/ CAPITAL REQUIREMENT STATEMENT

	year 1	year 2	year 3	year 4	year 5
Beginning Cash	620000	155178	356908	619159	650084
<b>RESOURCES:</b>					
Class type 1	1663200	2162160	2810808	3654050	4750266
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>TOTAL RESOURCES</b>	<b>2283200</b>	<b>2317338</b>	<b>3167716</b>	<b>4273209</b>	<b>5400349</b>
<b>EXPENDITURES</b>					
<b>Human Resources</b>					
Instructors	410190	533247	693221	901187	1171544
Administrators	98010	127413	165637	215328	279926
Secretaries	58060	75504	98155	127602	165682
Support	116150	151008	195310	256204	331765
<b>Classroom Costs</b>					
Textbooks	237600	308220	401544	522007	678609
Supplies	127552	160618	208903	271444	352877
<b>Asset Costs</b>					
Purch - Bldg	0	0	0	0	0
Purch - C&B	500000	0	0	310000	0
Purch - Equipment	120000	0	0	0	0
Repairs & Main.	6000	7800	10140	13182	17137
<b>Other Costs</b>					
Telephone	18000	23400	30420	39546	51410
Tele-facsimile	18000	23400	30420	39546	51410
Insurance	3000	3900	5070	6591	8568
Building Lease	300000	390000	507000	659100	855830
Electricity - Fix	1936	2517	3272	4253	5529
Elec. - Variable	10454	13591	17658	22968	29859
Water	47520	61776	80309	104401	135722
Mkt. & Other	12000	15600	20280	26364	34272
Sewage	47520	61776	80309	104401	135722
<b>TOTAL EXPENDITURES</b>	<b>2123022</b>	<b>1960429</b>	<b>2548558</b>	<b>3623125</b>	<b>4307063</b>
<b>SURPLUS (SHORTFALL)</b>					
Cash Investment	0	0	0	0	0
<b>Ending Cash</b>	<b>155178</b>	<b>356908</b>	<b>619159</b>	<b>650084</b>	<b>1093287</b>

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Run 4: 30 Percent Inflation and Fifteen Students

ASSUMPTIONS/ INPUTS

	year 1	year 2	year 3	year 4	year 5
CLASS REVENUE:					
Type 1:					
#/ Year (t#y)	132.00	132.00	132.00	132.00	132.00
#hrs/ class (t#h)	24.00	24.00	24.00	24.00	24.00
Av Cl Size (t#c)	15.00000	15.00000	15.00000	15.00000	15.00000
Rev/ Hr/ St (t#r)	35.00	45.50	59.15	76.90	99.96
Type 1 Rev. (t1t)	1663200	2162160	2810808	3654050	4750266

Type 2:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 2 Rev. (t2t)	0	0	0	0	0

Type 3:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 3 Rev. (t3t)	0	0	0	0	0

Type 4:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 4 Rev. (t4t)	0	0	0	0	0

Type 5:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 5 Rev. (t5t)	0	0	0	0	0

Tot Instr Hr (inn)	3168	3168	3168	3168	3168
Av Rev. Instr. Hr	525	683	887	1153	1499
Av. dOst. Instr Hr	129	168	219	284	370

Tot Studt Hr (sth)	47520	47520	47520	47520	47520
Avg. Rev. St. Hr.	35	46	59	77	100
Avg. dOst. St. Hr.	9	11	15	19	25
Total Students	1980	1980	1980	1980	1980
Total Classes	132	132	132	132	132
Avg. Class Size	15.0	15.0	15.0	15.0	15.0

Initial cash					
investment (csh)	620000	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			

EXPENSES:

COST/ INSTR.					
Instructor 1	196020	254826	331274	430656	559853
Instructor 2	96010	127413	165637	215328	279926
Instructor 3	116150	151008	196310	255204	331765

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Instructor 4  
 Instructor 5  
 Instructor 6

Total (instr) 410190 533247 693221 901187 1171544

COBT/ STU. HR.

Electricity - rate 0.22 0.29 0.37 0.48 0.63  
 - basis 47520 47520 47520 47520 47520

- cost (elc) 10454 13591 17668 22968 29859

Supplies - rate 2.60 3.38 4.39 5.71 7.43

- basis 47520 47520 47520 47520 47520

- cost (suppc) 123552 160618 208803 271444 352877

Textbooks - rate 5.00 6.50 8.45 10.99 14.28

- basis 47520 47520 47520 47520 47520

- cost (txtc) 237600 308880 401544 522007 678609

Water - rate 1.00 1.30 1.69 2.20 2.86

- basis 47520 47520 47520 47520 47520

- cost (wtc) 47520 61776 80309 104401 135722

Sewage - rate 1.00 1.30 1.69 2.20 2.86

- basis 47520 47520 47520 47520 47520

- cost (swc) 47520 61776 80309 104401 135722

FIXED COSTS/ year

Admin. Salaries

Ad.1 98010 127413 165637 215328 279926

Ad.2

Ad.3

Ad.4

Ad.5

Admin total (Adm) 98010 127413 165637 215328 279926

Sy.1 58080 75504 98155 127602 165882

Sy.2

Sy.3

Secy total (Secy) 58080 75504 98155 127602 165882

So.1 58080 75504 98155 127602 165882

So.2 58080 75504 98155 127602 165882

Support tot (spt) 116150 151008 195310 255204 331765

Phone (phn) 18000 23400 30420 39546 51410

Fax (fax) 18000 23400 30420 39546 51410

Insurance (Ins) 3000 3900 5070 6591 8563

Reprs & Mnt. (RMM) 6000 7800 10140 13182 17137

Bldg Lease (lse) 300000 390000 507000 659100 856830

Other (oth) 12000 15600 20280 26364 34273

Elec. - Fix. (fel) 1936 2517 3272 4253 5529

Fixed Assets -Equ

Beginning (eqb) 0 120000 120000 120000 120000

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## Run 4: 30 Percent Inflation and Fifteen Students

Additions (eqa)	120000	0	0	0	0
Deletions	0	0	0	0	0
Ending	120000	120000	120000	120000	120000

## Fixed Assets - CSC

Beginning (csb)	0				
Add.Yr#1 (csa)	500000	500000	500000	500000	500000
Add.Yr#2		0	0	0	0
Add.Yr#3			0	0	0
Add.Yr#4				310000	310000
Add.Yr#5					0
Deletions	0	0	0	0	0
Ending	500000	500000	500000	810000	810000

## Fixed Assets - Bldg

Beginning (bgb)	0	0	0	0	0
Additions (bga)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

## Depreciation - Ea

Beginning	0	12000	36000	60000	84000
Additions (dpra)	12000	24000	24000	24000	24000
Deletions	0	0	0	0	0
Ending	12000	36000	60000	84000	108000

## Depreciation - CAG

Beginning	0	83333	250000	416667	551667
Add.#1	83333	166667	166667	83333	0
Add.#2		0	0	0	0
Add.#3			0	0	0
Add.#4				51667	103333
Add.#5					0
Total Dep (dpra)	83333	166667	166667	135000	103333
Deletions	0	0	0	0	0
Ending	83333	250000	416667	551667	655000

## Depreciation - Bldg

Beginning	0	0	0	0	0
Additions (dprb)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

Inflation (infl)	30
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## APPENDIX D

This appendix contains assumptions and cash flow results from the runs verifying the effects of need estimates on the viability of the Center. These include:

Conservative Estimate of Student Enrollment at Ten Percent Inflation

Medium Estimate of Student Enrollment at Ten Percent Inflation

High Estimate of Student Enrollment at Ten Percent Inflation

Effect of Significant Donor Assistance in Provision of Capital Goods at Ten Percent Inflation

Effect of Stripping Center Down to Accommodate Low Demand

TEST RUNS OF THE PROJECTS STUDENT BODY ESTIMATES  
CONSERVATIVE, PLAN, AND MASSIVE INVESTMENTS

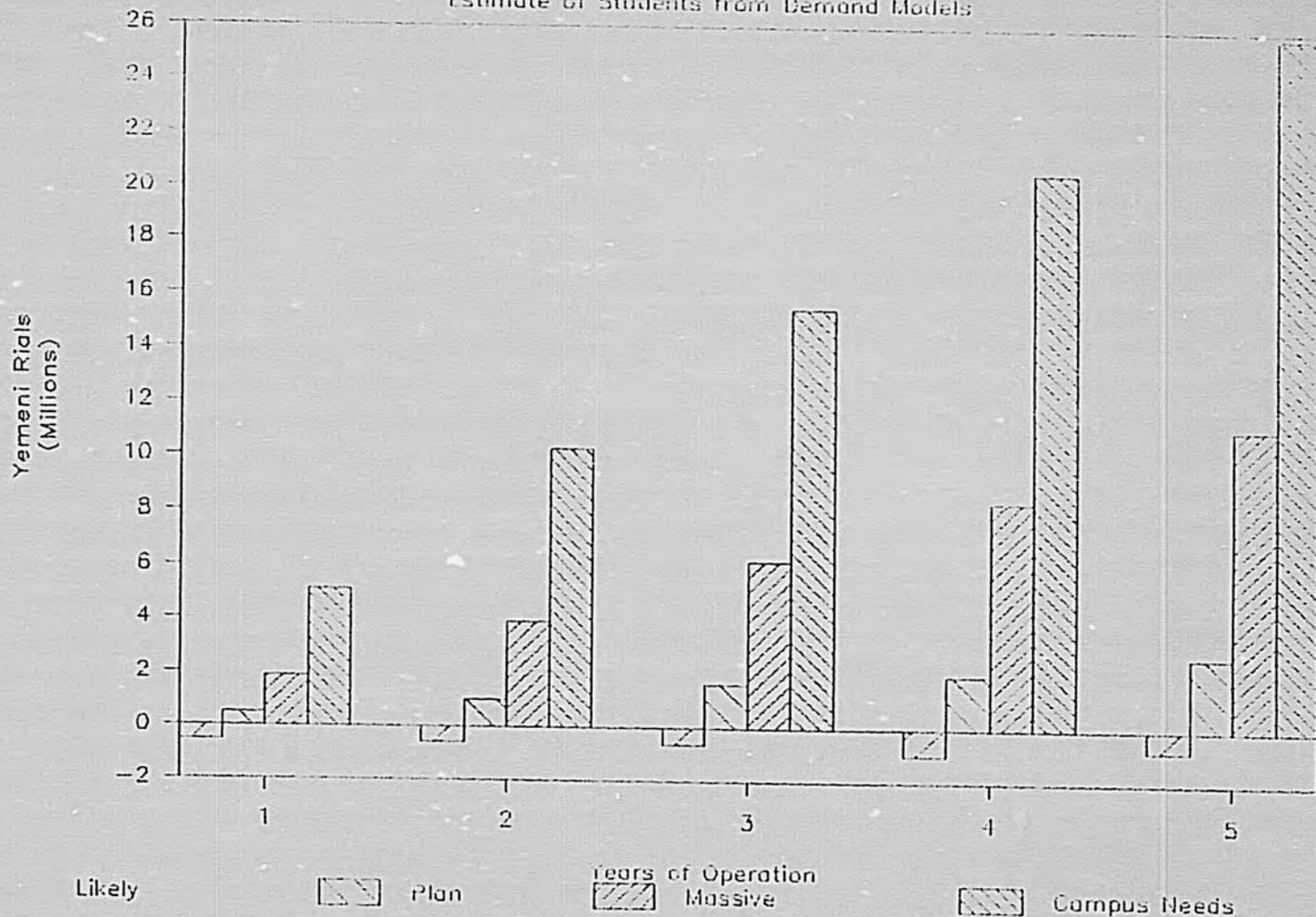
This section of the Appendix presents test runs of the software used to provide our cashflow assumptions for the Center. In each of these runs, the student body assumptions generated from the demand estimates are placed into the model, and the costs of the Center either increased or decreased according to the size needed to accommodate the students.

In all cases the original concept of the start-up center remains: the campus consists of leased rooms with minimal overhead. The financial goal of the Center after five years is to meet all of its own operating costs and have enough left over to construct a campus, at a cost of YR 16,000,000 in 1989 Rials (approximately 1.6 million dollars).

As shown on the graph preceding the runs, the cashflow savings of each run do not come near the needed savings to meet the cost of a new campus (YR 26,000,000 after five years of ten percent inflation). The conservative run is marked "Likely" on the graph, as it appears from the interviews that this is the most likely scenario for student demand for the Center in the next five years, based upon our interviews.

# Cash Flow of Insitute

Estimate of Students from Demand Models



Likely



Plan

Years of Operation  
Massive



Massive



Campus Needs

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Conservative Student Estimate at Ten Percent Inflation

PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL CASHFLOW/ CAPITAL REQUIREMENT STATEMENT

	year 1	year 2	year 3	year 4	year 5
Beginning Cash	620000	0	0	0	0
<b>RESOURCES:</b>					
Class type 1	252000	277200	304920	335412	368953
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>TOTAL RESOURCES</b>	<b>872000</b>	<b>277200</b>	<b>304920</b>	<b>335412</b>	<b>368953</b>
<b>EXPENDITURES</b>					
<b>Human Resources</b>					
Instructors	196020	215622	237184	260903	286993
Administrators	98010	107811	118592	130451	143496
Secretaries	58080	63888	70277	77304	85035
Support	0	0	0	0	0
<b>Classroom Costs</b>					
Textbooks	36000	39600	43560	47916	52708
Supplies	18720	20592	22651	24916	27408
<b>Asset Costs</b>					
Purch - Bldg	0	0	0	0	0
Purch - O&B	500000	0	0	310000	0
Purch - Equipment	120000	0	0	0	0
Repairs & Maint.	4000	6600	7260	7986	8785
<b>Other Costs</b>					
Telephone	13000	14300	15780	17358	19054
Tele-facsimile	18000	19800	21780	23958	26354
Insurance	3000	3300	3630	3993	4392
Building Lease	300000	330000	363000	399300	439200
Electricity - Fix.	1936	2130	2340	2577	2834
Elec. - Variable	1584	1742	1917	2108	2319
Water	7200	7920	8712	9583	10542
Mnt. & Other	12000	13200	14520	15972	17569
Sewage	7200	7920	8712	9583	10542
<b>TOTAL EXPENDITURES</b>	<b>1401750</b>	<b>859925</b>	<b>945919</b>	<b>1050309</b>	<b>1144560</b>
<b>SURPLUS (SHORTFALL)</b>	<b>-529750</b>	<b>-582725</b>	<b>-640998</b>	<b>-1015097</b>	<b>-775607</b>
Cash Investment	529750	582725	640998	1015097	775607
<b>Ending Cash</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

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# Conservative Student Estimate at Ten Percent Inflation

## ASSUMPTIONS/ INPUTS

	year 1	year 2	year 3	year 4	year 5
<b>CLASS REVENUE:</b>					
Type 1:					
#/ Year (t#y)	20.00	20.00	20.00	20.00	20.00
#hrs/ class (t#h)	24.00	24.00	24.00	24.00	24.00
Av Cl Size (t#c)	15.00000	15.00000	15.00000	15.00000	15.00000
Rev/ Hr/ St (t#r)	35.00	38.50	42.35	46.59	51.24
Type 1 Rev. (t1t)	252000	277200	304920	335412	369953
Type 2:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 2 Rev. (t2t)	0	0	0	0	0
Type 3:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 3 Rev. (t3t)	0	0	0	0	0
Type 4:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 4 Rev. (t4t)	0	0	0	0	0
Type 5:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 5 Rev. (t5t)	0	0	0	0	0
Tot Instr Hr (tinh)	480	480	480	480	480
Av Rev. Instr. Hr	525	578	638	699	769
Av. dCst. Instr Hr	408	449	494	544	598
Tot Studt Hr (tsth)	7200	7200	7200	7200	7200
Avg. Rev. St. Hr.	35	39	42	47	51
Avg. dCst. St.Hr.	27	30	33	36	40
Total Students	300	300	300	300	300
Total Classes	20	20	20	20	20
Avg. Class Size	15.0	15.0	15.0	15.0	15.0

## Initial cash

investment (csh) 620000 XX

## EXPENSES:

### COST/ INSTR.

Instructor 1	196020	215622	237184	260903	286993
Instructor 2					
Instructor 3					

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Conservative Student Estimate at Ten Percent Inflation

Instructor 4  
 Instructor 5  
 Instructor 6

Total (instr) 196020 215622 237184 260903 286993

COST/ STU. HR.

Electricity - rate 0.22 0.24 0.27 0.29 0.32  
 - basis 7200 7200 7200 7200 7200

- cost (elc) 1584 1742 1917 2108 2319

Supplies - rate 2.60 2.86 3.15 3.46 3.81  
 - basis 7200 7200 7200 7200 7200

- cost (suppl) 18720 20592 22651 24916 27408

Textbooks - rate 5.00 5.50 6.05 6.66 7.32  
 - basis 7200 7200 7200 7200 7200

- cost (txtc) 36000 39600 43560 47916 52708

Water - rate 1.00 1.10 1.21 1.33 1.46  
 - basis 7200 7200 7200 7200 7200

- cost (wtr) 7200 7920 8712 9583 10542

Sewage - rate 1.00 1.10 1.21 1.33 1.46  
 - basis 7200 7200 7200 7200 7200

- cost (swc) 7200 7920 8712 9583 10542

FIXED COSTS/ year

Admin. Salaries

Ad.1 98010 107811 118592 130451 143496

Ad.2

Ad.3

Ad.4

Ad.5

Admin total (Adm) 98010 107811 118592 130451 143496

Sy.1 58080 63888 70277 77304 85035

Sy.2

Sy.3

Secy total (Secy) 58080 63888 70277 77304 85035

Sp.1

Sp.2

Supprt tot. (est) 0 0 0 0 0

Phone (phn) 18000 19800 21750 23958 26354

Fax (fax) 18000 19800 21750 23958 26354

Insurance (Ins) 300 3300 3630 3993 4392

Reprs & Mnt. (R&M) 6000 6600 7260 7986 8755

Bldg Lease (lse) 300000 330000 363000 399300 439230

Other (oth) 12000 13200 14520 15972 17569

Elec. - Fix. (fel) 1935 2130 2343 2577 2834

Fixed Assets -Equ

Beginning (eq) 0 120000 120000 120000 120000

100

Conservative Student Estimate at Ten Percent Inflation

Additions (eqa)	120000	0	0	0	0
Deletions	0	0	0	0	0
Ending	120000	120000	120000	120000	120000

Fixed Assets -O&S

Beginning (ceb)	0				
Add.Yr#1 (caa)	500000	500000	500000	500000	500000
Add.Yr#2		0	0	0	0
Add.Yr#3			0	0	0
Add.Yr#4				310000	310000
Add.Yr#5					0
Deletions	0	0	0	0	0
Ending	500000	500000	500000	810000	810000

Fixed Assets -Bldg

Beginning (bgb)	0	0	0	0	0
Additions (bga)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

Depreciation - Eq

Beginning	0	12000	36000	60000	84000
Additions (dpra)	12000	24000	24000	24000	24000
Deletions	0	0	0	0	0
Ending	12000	36000	60000	84000	108000

Depreciation -O&S

Beginning	0	83333	250000	416667	551667
Add.#1	83333	166667	166667	83333	0
Add.#2		0	0	0	0
Add.#3			0	0	0
Add.#4				51667	103333
Add.#5					0
Total Dep (dprs)	83333	166667	166667	135000	103333
Deletions	0	0	0	0	0
Ending	83333	250000	416667	551667	655000

Depreciation - Bldg

Beginning	0	0	0	0	0
Additions (dprb)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

Inflation (infl) 10

Medium Estimate at Ten Percent Inflation

PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL CASHFLOW/ CAPITAL REQUIREMENT STATEMENT

	year 1	year 2	year 3	year 4	year 5
Beginning Cash	620000	495732	1041036	1640872	1990690
<b>RESOURCES:</b>					
Class type 1	2756200	2591920	2851002	3136102	3449712
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>TOTAL RESOURCES</b>	<b>2976200</b>	<b>3087552</b>	<b>3892038</b>	<b>4776974</b>	<b>5440403</b>
<b>EXPENDITURES</b>					
<b>Human Resources</b>					
Instructors	508200	559020	614922	676414	744056
Administrators	98010	107811	118592	130451	143496
Secretaries	58080	63888	70277	77304	85035
Support	116160	127776	140554	154609	170070
<b>Classroom Costs</b>					
Textbooks	336600	370260	407286	448016	492816
Supplies	175032	192535	211789	232968	256264
<b>Asset Costs</b>					
Purch - Bldg	0	0	0	0	0
Purch - O&M	500000	0	0	310000	0
Purch - Equipment	120000	0	0	0	0
Repairs & Maint.	6000	5600	7260	7566	8766
<b>Other Costs</b>					
Telephone	18000	19800	21780	23958	26354
Tele-facsimile	18000	19800	21750	23958	26354
Insurance	7000	7300	7630	7993	8392
Building Lease	360000	396000	435600	479160	527076
Electricity - Ft.	1936	2130	2340	2577	2874
Elec. - Variable	14810	16291	17921	19713	21684
Water	67320	74052	81457	89603	98563
Misc. & Other	12000	13200	14520	15972	17569
Garage	67320	74052	81457	89603	98563
<b>TOTAL EXPENDITURES</b>	<b>2480468</b>	<b>2046615</b>	<b>2251167</b>	<b>2786287</b>	<b>2723912</b>
<b>SURPLUS (SHORTFALL)</b>	<b>495732</b>	<b>1041036</b>	<b>1640872</b>	<b>1990690</b>	<b>2716491</b>
Cash Investment	0	0	0	0	0
<b>Ending Cash</b>	<b>495732</b>	<b>1041036</b>	<b>1640872</b>	<b>1990690</b>	<b>2716491</b>
*****	*****	*****	*****	*****	*****

# Medium Estimate at Ten Percent Inflation

## ASSUMPTIONS/ INPUTS

	year 1	year 2	year 3	year 4	year 5
<b>CLASS REVENUE:</b>					
Type 1:					
#/ Year (t#y)	187.00	187.00	187.00	187.00	187.00
#hrs/ class (t#h)	24.00	24.00	24.00	24.00	24.00
Av Cl Size (t#c)	15.00000	15.00000	15.00000	15.00000	15.00000
Rev/ Hr/ St (t#r)	35.00	38.50	42.35	46.59	51.24
Type 1 Rev. (t1t)	2356200	2591820	2851002	3136102	3449712
Type 2:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 2 Rev. (t2t)	0	0	0	0	0
Type 3:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 3 Rev. (t3t)	0	0	0	0	0
Type 4:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 4 Rev. (t4t)	0	0	0	0	0
Type 5:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 5 Rev. (t5t)	0	0	0	0	0
Tot Instr Hr. (tinh)	4488	4488	4488	4488	4488
Av Rev. Instr. Hr	525	578	635	699	759
Av. dCst. Instr Hr	113	125	137	151	166
Tot Studt Hr (tsth)	67320	67320	67320	67320	67320
Avg. Rev. St. Hr.	35	39	42	47	51
Avg. dCst. St. Hr.	8	9	9	10	11
Total Students	2805	2805	2805	2805	2805
Total Classes	187	187	187	187	187
Avg. Class Size	15.0	15.0	15.0	15.0	15.0

Initial cash investment (csh) 620000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

## EXPENSES:

<b>COST/ INSTR.</b>					
Instructor 1	195020	215622	237184	260903	286993
Instructor 2	98010	107811	118592	130451	143496
Instructor 3	116160	127776	140554	154609	170070

Media Estimate at Ten Percent Inflation

Instructor 4	99010	107811	119592	130451	143496
Instructor 5					
Instructor 6					
Total (instr)	508200	559020	614922	676414	744056
COST/ STU. HR.					
Electricity - rate	0.22	0.24	0.27	0.29	0.32
- basis	67320	67320	67320	67320	67320
- cost (elc)	14810	16291	17921	19713	21684
Supplies - rate	2.40	2.86	3.15	3.46	3.81
- basis	67320	67320	67320	67320	67320
- cost (suppl)	175032	192535	211789	232968	254264
Textbooks - rate	5.00	5.50	6.05	6.66	7.32
- basis	67320	67320	67320	67320	67320
- cost (txtc)	336600	370260	407286	448015	492816
Water - rate	1.00	1.10	1.21	1.33	1.46
- basis	67320	67320	67320	67320	67320
- cost (wtr)	67320	74052	81457	89603	98563
Sewage - rate	1.00	1.10	1.21	1.33	1.46
- basis	67320	67320	67320	67320	67320
- cost (shc)	67320	74052	81457	89603	98563
FIXED COSTS/ year					
Admin. Salaries					
Ad.1	99010	107811	118592	130451	143496
Ad.2					
Ad.3					
Ad.4					
Ad.5					
Admin total (Adn)	99010	107811	118592	130451	143496
Sp.1	59080	63888	70277	77304	85035
Sp.2					
Sp.3					
Sp. total (Sp.1)	59080	63888	70277	77304	85035
Sp.1	59080	63888	70277	77304	85035
Sp.2	59080	63888	70277	77304	85035
Support tot. (sp)	118160	127776	140554	154608	170070
Phone (phn)	18000	19800	21780	23958	26354
Fax (fax)	18000	19800	21780	23958	26354
Insurance (Ins)	3000	3300	3630	3993	4392
Reprs & Mnt.(R&M)	6000	6600	7260	7926	8755
Bldg Lease (lsc)	360000	396000	435600	479160	527076
Other (oth)	12000	13200	14520	15972	17569
Elec. - Fix.(fel)	1936	2130	2343	2577	2834
Fixed Assets -Equ					
Beginning (eq)	0	120000	120000	120000	120000

Medium Estimate at Ten Percent Inflation

Additions (zqa)	120000	0	0	0	0
Deletions	0	0	0	0	0
Ending	120000	120000	120000	120000	120000
Fixed Assets -OIS					
Beginning (csb)	0				
Add.Yr#1 (csa)	500000	500000	500000	500000	500000
Add.Yr#2		0	0	0	0
Add.Yr#3			0	0	0
Add.Yr#4				310000	310000
Add.Yr#5					0
Deletions	0	0	0	0	0
Ending	500000	500000	500000	810000	910000
Fixed Assets -Bldg					
Beginning (bgb)	0	0	0	0	0
Additions (bga)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0
Depreciation - Eq					
Beginning	0	12000	36000	60000	84000
Additions (dora)	12000	24000	24000	24000	24000
Deletions	0	0	0	0	0
Ending	12000	36000	60000	84000	108000
Depreciation -OIS					
Beginning	0	83333	250000	416667	551667
Add.#1	83333	166667	166667	83333	0
Add.#2		0	0	0	0
Add.#3			0	0	0
Add.#4				51667	103333
Add.#5					0
Total Opr (dora)	83333	166667	166667	135000	103333
Deletions	0	0	0	0	0
Ending	83333	250000	416667	551667	655000
Depreciation - Bldg					
Beginning	0	0	0	0	0
Additions (dora)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0
Inflation (infl)	10				

High Estimate (30,000 Students) at Ten Percent Inflation

PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL CASHFLOW/ CAPITAL REQUIREMENT STATEMENT

	year 1	year 2	year 3	year 4	year 5
Beginning Cash	620000	1874354	3936143	6204112	8388877
<b>RESOURCES:</b>					
Class type 1	5040000	5544000	6098400	6708240	7379064
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>TOTAL RESOURCES</b>	<b>5660000</b>	<b>7418354</b>	<b>10034843</b>	<b>12912352</b>	<b>15767941</b>
<b>EXPENDITURES</b>					
<b>Human Resources</b>					
Instructors	704220	774642	852106	937317	1031049
Administrators	98010	107911	118592	130451	143496
Secretaries	174240	191664	210930	231913	255105
Support	116160	127775	140554	154609	170070
<b>Classroom Costs</b>					
Textbooks	720000	792000	871200	958320	1054152
Supplies	374400	411840	453024	498326	548159
<b>Asset Costs</b>					
Purch - Bldg	0	0	0	0	0
Purch - CIG	500000	0	0	310000	0
Purch - Equipment	120000	0	0	0	0
Repairs & Main.	6000	6600	7260	7986	8755
<b>Other Costs</b>					
Telephone	16000	19800	24780	30958	38354
Tele-facsimile	18000	19500	21780	23958	26354
Insurance	3700	3700	3650	3993	4392
Building Lease	600100	660000	726000	798600	878440
Electricity - Fix	1976	2170	2343	2577	2834
Elec. - Variable	31680	34948	38333	42166	46383
Water	144000	158400	174240	191664	210870
Mkt. & Other	12000	13200	14520	15972	17569
Sewage	144000	158400	174240	191664	210870
<b>TOTAL EXPENDITURES</b>	<b>3785646</b>	<b>3482211</b>	<b>3830432</b>	<b>4523476</b>	<b>4634832</b>
<b>SURPLUS(SHORTFALL)</b>	<b>1874354</b>	<b>3936143</b>	<b>6204112</b>	<b>8388877</b>	<b>11133119</b>
Cash Investment	0	0	0	0	0
<b>Ending Cash</b>	<b>1874354</b>	<b>3936143</b>	<b>6204112</b>	<b>8388877</b>	<b>11133119</b>

# High Estimate (30,000 Students) at Ten Percent Inflation

## ASSUMPTIONS/ INPUTS

	year 1	year 2	year 3	year 4	year 5
<b>CLASS REVENUE:</b>					
Type 1:					
#/ Year (t#y)	400.00	400.00	400.00	400.00	400.00
#hrs/ class (t#h)	24.00	24.00	24.00	24.00	24.00
Av Cl Size (t#c)	15.00000	15.00000	15.00000	15.00000	15.00000
Rev/ Hr/ St (t#r)	35.00	38.50	42.35	46.59	51.24
Type 1 Rev. (t1t)	5040000	5544000	6098400	6708240	7379064

### Type 2:

#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 2 Rev. (t2t)	0	0	0	0	0

### Type 3:

#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 3 Rev. (t3t)	0	0	0	0	0

### Type 4:

#/ year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 4 Rev. (t4t)	0	0	0	0	0

### Type 5:

#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 5 Rev. (t5t)	0	0	0	0	0

Tot Instr Hr (inh)	9600	9600	9600	9600	9600
Av Rev. Instr. Hr	525	578	635	699	769
Av. dCst. Instr Hr	73	81	89	98	107

Tot Studt Hr (sth)	144000	144000	144000	144000	144000
Avg. Rev. St. Hr.	35	39	42	47	51
Avg. dCst. St. Hr.	5	5	6	7	7
Total Students	6000	6000	6000	6000	6000
Total Classes	400	400	400	400	400
Avg. Class Size	15.0	15.0	15.0	15.0	15.0

### Initial cash

investment (csh)	620000	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			
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## EXPENSES:

### COST/ INSTR.

Instructor 1	196020	215622	237184	260903	286993
Instructor 2	98010	107811	118592	130451	143496
Instructor 3	116150	127776	140554	154609	170070

### High Estimate (30,000 Students) at Ten Percent Inflation

Instructor 4	98010	107811	118592	130451	143496
Instructor 5	98010	107811	118592	130451	143496
Instructor 6	98010	107811	118592	130451	143496
Total (instr)	704220	774642	852106	937317	1031049
COST/ STU. HR.					
Electricity - rate	0.22	0.24	0.27	0.29	0.32
- basis	144000	144000	144000	144000	144000
- cost (elc)	31680	34848	38333	42166	46383
Supplies - rate	2.60	2.86	3.15	3.46	3.81
- basis	144000	144000	144000	144000	144000
- cost (suppc)	374400	411840	453024	496326	546159
Textbooks - rate	5.00	5.50	6.05	6.66	7.32
- basis	144000	144000	144000	144000	144000
- cost (txtc)	720000	792000	871200	958320	1054152
Water - rate	1.00	1.10	1.21	1.33	1.46
- basis	144000	144000	144000	144000	144000
- cost (wrtc)	144000	158400	174240	191664	210830
Sewage - rate	1.00	1.10	1.21	1.33	1.46
- basis	144000	144000	144000	144000	144000
- cost (swc)	144000	158400	174240	191664	210830
FIXED COSTS/ year					
Admin. Salaries					
Ad.1	98010	107811	118592	130451	143496
Ad.2					
Ad.3					
Ad.4					
Ad.5					
Admin total (Adn)	98010	107811	118592	130451	143496
Secy.1	58080	63888	70277	77304	85035
Secy.2	58080	63888	70277	77304	85035
Secy.3	58080	63888	70277	77304	85035
Secy total (Secy)	174240	191664	210830	231913	255105
So.1	58080	63888	70277	77304	85035
So.2	58080	63888	70277	77304	85035
Support tot. (spt)	116160	127776	140554	154609	170070
Phone (phn)	18000	19800	21780	23958	26354
Fax (fax)	18000	19800	21780	23958	26354
Insurance (Ins)	3000	3300	3630	3993	4392
Repr & Mt. (RM)	6000	6600	7260	7986	8785
Bldg Lease (lse)	600000	660000	726000	798600	878460
Other (oth)	12000	13200	14520	15972	17569
Elec. - Fix. (fel)	1936	2130	2343	2577	2834
Fixed Assets -Equ					
Beginning (eqb)	0	120000	120000	120000	120000

# High Estimate (30,000 Students) at Ten Percent Inflation

Additions (aqa)	120000	0	0	0	0
Deletions	0	0	0	0	0
Ending	120000	120000	120000	120000	120000

## Fixed Assets -C&S

Beginning (csb)	0				
Add.Yr#1 (csa)	500000	500000	500000	500000	500000
Add.Yr#2		0	0	0	0
Add.Yr#3			0	0	0
Add.Yr#4				310000	310000
Add.Yr#5					0
Deletions	0	0	0	0	0
Ending	500000	500000	500000	810000	810000

## Fixed Assets -Bldg

Beginning (bqb)	0	0	0	0	0
Additions (bpa)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

## Depreciation - Eq

Beginning	0	12000	36000	60000	84000
Additions (dpra)	12000	24000	24000	24000	24000
Deletions	0	0	0	0	0
Ending	12000	36000	60000	84000	108000

## Depreciation -C&S

Beginning	0	83333	250000	416667	551667
Add.#1	83333	166667	166667	83333	0
Add.#2		0	0	0	0
Add.#3			0	0	0
Add.#4				51667	103333
Add.#5					0
Total Dpr (dpra)	83333	166667	166667	135000	103333
Deletions	0	0	0	0	0
Ending	83333	250000	416667	551667	655000

## Depreciation - Bldg

Beginning	0	0	0	0	0
Additions (dpra)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

Inflation (infl)	10
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PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL CASHFLOW/ CAPITAL REQUIREMENT STATEMENT

	year 1	year 2	year 3	year 4	year 5
Beginning Cash	0	0	149706	603949	1209791
<b>RESOURCES:</b>					
Class type 1	997920	1341648	1878307	2213719	2435091
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>TOTAL RESOURCES</b>	<b>997920</b>	<b>1341648</b>	<b>2028014</b>	<b>2817668</b>	<b>3644682</b>
<b>EXPENDITURES</b>					
<b>Human Resources</b>					
Instructors	410190	451209	496330	545963	600559
Administrators	98010	107811	118592	130451	143496
Secretaries	58080	63888	70277	77304	85035
Support	116160	127776	140554	154609	170070
<b>Classroom Costs</b>					
Textbooks	142560	191664	268330	316246	347870
Supplies	74131	99665	139531	164448	180892
<b>Asset Costs</b>					
Purch - Bldg	0	0	0	0	0
Purch - C&S	0	0	0	0	0
Purch - Equipment	0	0	0	0	0
Repairs & Maint.	6000	6600	7260	7986	8785
<b>Other Costs</b>					
Telephone	18000	19800	21780	23958	26354
Tele-facsimile	13000	19800	21780	23958	26354
Insurance	3000	3300	3630	3993	4392
Building Lease	0	0	0	0	0
Electricity - Fix	1936	2130	2343	2577	2834
Elec. - Variable	6273	8433	11807	17915	15306
Water	28512	38333	53666	63249	69574
Mkt. & Other	12000	13200	14520	15972	17669
Sewage	28512	38333	53666	63249	69574
<b>TOTAL EXPENDITURES</b>	<b>1021734</b>	<b>1191942</b>	<b>1424064</b>	<b>1607878</b>	<b>1768666</b>
<b>SURPLUS (SHORTFALL)</b>	<b>-23444</b>	<b>149706</b>	<b>603949</b>	<b>1209791</b>	<b>1876216</b>
Cash Investment	23444	0	0	0	0
<b>Ending Cash</b>	<b>0</b>	<b>149706</b>	<b>603949</b>	<b>1209791</b>	<b>1876216</b>
	=====	=====	=====	=====	=====

Building and Computers/Software Donated, 9/11/14/15 Students/10 % Inflation

ASSUMPTIONS/ INPUTS

	year 1	year 2	year 3	year 4	year 5
CLASS REVENUE:					
Type 1:					
#/ Year (t#y)	132.00	132.00	132.00	132.00	132.00
#hrs/ class (t#h)	24.00	24.00	24.00	24.00	24.00
Av Cl Size (t#c)	9.00000	11.00000	14.00000	15.00000	15.00000
Rev/ Hr/ St (t#r)	35.00	38.50	42.35	46.59	51.24
Type 1 Rev. (t#t)	997920	1341648	1678307	2213719	2435091

Type 2:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 2 Rev. (t#t)	0	0	0	0	0

Type 3:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 3 Rev. (t#t)	0	0	0	0	0

Type 4:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 4 Rev. (t#t)	0	0	0	0	0

Type 5:					
#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 5 Rev. (t#t)	0	0	0	0	0

Tot Instr Hr (inh)	3168	3168	3168	3168	3168
Av Rev. Instr. Hr	315	424	593	599	759
Av. dSt. Instr Hr	129	142	157	172	190

Tot Studt Hr (stn)	26512	34848	44352	47520	47520
Avg. Rev. St. Hr.	35	39	42	47	51
Avg. dSt. St.Hr.	14	13	11	11	13
Total Students	1188	1452	1848	1980	1980
Total Classes	132	132	132	132	132
Avg. Class Size	9.0	11.0	14.0	15.0	15.0

Initial cash  
 investment (csh) 0 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

EXPENSES:

COST/ INSTR.					
Instructor 1	196020	215622	237184	260903	286593
Instructor 2	99010	107811	118592	130451	143496
Instructor 3	116160	127776	140554	154609	170070

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Building and Computers/Software Donated, 9/11/14/15 Students/10 % Inflation

Instructor 4  
 Instructor 5  
 Instructor 6

Total (instr) 410190 451209 496330 545963 600559

COST/ STU. HR.

Electricity - rate 0.22 0.24 0.27 0.29 0.32  
 - basis 28512 34848 44352 47520 47520

- cost (elc) 6273 8433 11807 13915 15306

Supplies - rate 2.60 2.86 3.15 3.46 3.81  
 - basis 28512 34848 44352 47520 47520

- cost (suppl) 74131 99665 139531 164448 180952

Textbooks - rate 5.00 5.50 6.05 6.66 7.32

- basis 28512 34848 44352 47520 47520

- cost (twtc) 142560 191664 268330 316246 347670

Water - rate 1.00 1.10 1.21 1.33 1.46

- basis 28512 34848 44352 47520 47520

- cost (wtc) 28512 38333 53666 63249 69574

Sewage - rate 1.00 1.10 1.21 1.33 1.46

- basis 28512 34848 44352 47520 47520

- cost (swc) 28512 38333 53666 63249 69574

FIXED COSTS/ year

Admin. Salaries

Ad.1 98010 107811 118592 130451 143496

Ad.2

Ad.3

Ad.4

Ad.5

Admin total (Ado) 98010 107811 118592 130451 143496

Sy.1 58080 63888 70277 77304 85035

Sy.2

Sy.3

Secy total (Secy) 58080 63888 70277 77304 85035

Sp.1 58080 63888 70277 77304 85035

Sp.2 58080 63888 70277 77304 85035

Supprt tot. (spt) 116160 127776 140554 154609 170070

Phone (phn) 18000 19800 21780 23958 26354

Fax (fax) 18000 19800 21780 23958 26354

Insurance (Ins) 3000 3300 3630 3993 4392

Repr & Mnt. (RM) 6000 6600 7260 7986 8785

Bldg lease (lse) 0 0 0 0 0

Other (oth) 12000 13200 14520 15972 17569

Elec. - Fix. (fel) 1936 2130 2343 2577 2834

Fixed Assets -Equ

Beginning (eqb) 0 0 0 0 0

Building and Computers/Software Donated, 9/11/14/15 Students/10 % Inflation

Additions (eqa)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0
Fixed Assets -OAG					
Beginning (csb)	0				
Add.Yr#1 (csa)	0	0	0	0	0
Add.Yr#2		0	0	0	0
Add.Yr#3			0	0	0
Add.Yr#4				0	0
Add.Yr#5					0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0
Fixed Assets -Bldg					
Beginning (bgb)	0	0	0	0	0
Additions (bga)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0
Depreciation - Eq					
Beginning	0	0	0	0	0
Additions (dpra)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0
Depreciation -OAG					
Beginning	0	0	0	0	0
Addl.#1	0	0	0	0	0
Addl.#2		0	0	0	0
Addl.#3			0	0	0
Addl.#4				0	0
Addl.#5					0
Total Opr (dora)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0
Depreciation - Bldg					
Beginning	0	0	0	0	0
Additions (dora)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0
Inflation (infl)	10				

## Stripped School for only 1500 Students

PROPOSED MICROCOMPUTER TRAINING CENTER  
ANNUAL CASHFLOW/ CAPITAL REQUIREMENT STATEMENT

	year 1	year 2	year 3	year 4	year 5
Beginning Cash	300000	0	0	0	0
<b>RESOURCES:</b>					
Class type 1	252000	277200	304920	335412	368953
Class type 2	0	0	0	0	0
Class type 3	0	0	0	0	0
Class type 4	0	0	0	0	0
Class type 5	0	0	0	0	0
<b>TOTAL RESOURCES</b>	<b>552000</b>	<b>277200</b>	<b>304920</b>	<b>335412</b>	<b>368953</b>
<b>EXPENDITURES</b>					
Human Resources					
Instructors	98010	107811	118592	130451	143496
Administrators	98010	107811	118592	130451	143496
Secretaries	0	0	0	0	0
Support	0	0	0	0	0
Classroom Costs					
Textbooks	36000	39600	43560	47916	52708
Supplies	18720	20592	22651	24916	27408
Asset Costs					
Purch - Bldg	0	0	0	0	0
Purch - OIS	300000	0	0	0	0
Purch - Equipment	60000	0	0	0	0
Repairs & Maint.	3000	3300	3630	3990	4392
Other Costs					
Telephone	9000	9900	10890	11979	13177
Tele-facsimile	9000	9900	10890	11979	13177
Insurance	2000	2200	2420	2662	2928
Building Lease	120000	132000	145200	159720	175692
Electricity - Fix	1375	1513	1664	1830	2013
Elec. - Variable	1584	1742	1917	2109	2319
Water	7200	7920	8712	9583	10542
Mnt. & Other	8000	8800	9680	10648	11713
Sewage	7200	7920	8712	9583	10542
<b>TOTAL EXPENDITURES</b>	<b>779099</b>	<b>461009</b>	<b>507110</b>	<b>557821</b>	<b>613603</b>
<b>SURPLUS (SHORTFALL)</b>	<b>-227099</b>	<b>-183809</b>	<b>-202.90</b>	<b>-222409</b>	<b>-244650</b>
Cash Investment	227099	183809	202190	222409	244650
Ending Cash	0	0	0	0	0

## Stripped School for only 1500 Students

## ASSUMPTIONS/ INPUTS

	year 1	year 2	year 3	year 4	year 5
CLASS REVENUE:					
Type 1:					
#/ Year (t#y)	25.00	25.00	25.00	25.00	25.00
#hrs/ class (t#h)	24.00	24.00	24.00	24.00	24.00
Av Cl Size (t#c)	12.00000	12.00000	12.00000	12.00000	12.00000
Rev/ Hr/ St (t#r)	35.00	38.50	42.35	46.59	51.24
Type 1 Rev. (t1t)	252000	277200	304920	335412	368953

## Type 2:

#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 2 Rev. (t2t)	0	0	0	0	0

## Type 3:

#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 3 Rev. (t3t)	0	0	0	0	0

## Type 4:

#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 4 Rev. (t4t)	0	0	0	0	0

## Type 5:

#/ Year (t#y)					
#hrs/ class (t#h)					
Av Cl Size (t#c)					
Rev/ Hr/ St (t#r)					
Type 5 Rev. (t5t)	0	0	0	0	0

Tot Instr Hr (inn)	600	600	600	600	600
Av Rev. Instr. Hr	420	462	508	559	615
Av. dOst. Instr HP	163	180	198	217	239

Tot Stud Hr (stn)	7200	7200	7200	7200	7200
Avg. Rev. St. Hr.	35	39	42	47	51
Avg. dOst. St.Hr.	14	15	16	18	20
Total Students	300	300	300	300	300
Total Classes	25	25	25	25	25
Avg. Class Size	12.0	12.0	12.0	12.0	12.0

## Initial cash

Investment (cash) 300000 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

## EXPENSES:

## COST/ INSTR.

Instructor 1	98010	107811	118592	130451	143496
Instructor 2					
Instructor 3					

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Instructor 4  
 Instructor 5  
 Instructor 6

Total (instr) 98010 107811 118592 130451 143496

COST/ STU. HR.

Electricity - rate 0.22 0.24 0.27 0.29 0.32  
 - basis 7200 7200 7200 7200 7200

- cost (elc) 1584 1742 1917 2108 2319

Supplies - rate 2.60 2.86 3.15 3.46 3.81  
 - basis 7200 7200 7200 7200 7200

- cost (suppl) 18720 20592 22651 24916 27408

Textbooks - rate 5.00 5.50 6.05 6.66 7.32  
 - basis 7200 7200 7200 7200 7200

- cost (txtc) 36000 39600 43560 47916 52703

Water - rate 1.00 1.10 1.21 1.33 1.46  
 - basis 7200 7200 7200 7200 7200

- cost (wtc) 7200 7920 8712 9583 10542

Sewage - rate 1.00 1.10 1.21 1.33 1.46  
 - basis 7200 7200 7200 7200 7200

- cost (swc) 7200 7920 8712 9583 10542

FIXED COSTS/ year

Admin. Salaries

Ad.1 98010 107811 118592 130451 143496

Ad.2

Ad.3

Ad.4

Ad.5

Admin total (Ad) 98010 107811 118592 130451 143496

Sp.1

Sp.2

Sp.3

Sp. total (Sp) 0 0 0 0 0

Sp.1

Sp.2

Support tot. (est) 0 0 0 0 0

Phone (phn) 9000 9900 10890 11979 13177

Fax (fax) 9000 9900 10890 11979 13177

Insurance (Ins) 2000 2200 2420 2662 2928

Repairs & Mnt. (R&M) 3000 3300 3630 3993 4392

Bldg Lease (Lea) 120000 132000 145200 159720 175692

Other (oth) 8000 8800 9680 10648 11713

Elec. - Fix. (fel) 1375 1513 1664 1830 2013

Fixed Assets -EQU

Beginning (eqb) 0 60000 60000 60000 60000

## Stripped School for only 1500 Students

Additions (eqa)	60000	0	0	0	0
Deletions	0	0	0	0	0
Ending	60000	60000	60000	60000	60000

## Fixed Assets -C&amp;S

Beginning (csb)	0				
Add.Yr#1 (csa)	300000	300000	300000	300000	300000
Add.Yr#2		0	0	0	0
Add.Yr#3			0	0	0
Add.Yr#4				0	0
Add.Yr#5					0
Deletions	0	0	0	0	0
Ending	300000	300000	300000	300000	300000

## Fixed Assets -Bldg

Beginning (bgb)	0	0	0	0	0
Additions (bga)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

## Depreciation - Eq

Beginning	0	6000	18000	30000	42000
Additions (dora)	6000	12000	12000	12000	12000
Deletions	0	0	0	0	0
Ending	6000	18000	30000	42000	54000

## Depreciation -D&amp;S

Beginning	0	50000	150000	250000	300000
Add.#1	50000	100000	100000	50000	0
Add.#2		0	0	0	0
Add.#3			0	0	0
Add.#4				0	0
Add.#5					0
Total Dep (dora)	50000	100000	100000	50000	0
Deletions	0	0	0	0	0
Ending	50000	150000	250000	300000	300000

## Depreciation - Bldg

Beginning	0	0	0	0	0
Additions (dora)	0	0	0	0	0
Deletions	0	0	0	0	0
Ending	0	0	0	0	0

Inflation (infl) 10

APPENDIX G

ACCREDITATION REQUIREMENTS OF THE  
NEW ENGLAND ASSOCIATION OF SCHOOLS AND COLLEGES, INC.  
Commission on Vocational, Technical, Career Institutions



COMMISSION ON VOCATIONAL, TECHNICAL, CAREER INSTITUTIONS

CANDIDATE FOR ACCREDITATION

The Candidate for Accreditation program offers developing institutions of higher education the opportunity to establish a formal, publicly recognized relationship with the New England Association of Schools and Colleges through the Commission on Vocational, Technical, Career Institutions. Operating non-accredited institutions that meet the basic eligibility requirements of the Commission may apply.

Candidate for Accreditation is an affiliated, non-accredited relationship with the Association. Only accredited institutions are members of the Association. Candidacy indicates that an institution is, in fact or in plan, progressing toward accreditation. Attainment of the affiliated status does not assure accreditation.

All courses or programs sponsored by the institution, whether on-campus or off-campus, will be judged by the same Standards.

Conditions of Eligibility: Postsecondary institutions wishing to apply for Candidate status must first meet and, during the period of candidacy or accreditation, maintain the following eligibility requirements:

1. Have a license or charter from the appropriate governmental agency to operate and award a certificate, diploma, or associate degree.
2. Have a governing board which includes representation reflecting the public interest and which has the authority to carry out the mission of the institution.
3. Have employed a chief administrative officer.
4. Have learning resources appropriate to the stated objectives of the institution and adequate to support programs offered.
5. Have a basic plan for the development of an institution.
6. Have admission and enrollment policies compatible with its stated objectives.
7. Have established an adequate financial base of funding commitments and have available a copy of its current budget and a copy of its current audited financial statement prepared by a Certified Public Accountant who has no other relationship with the institution.
8. Have published policies and procedures, in keeping with generally accepted practices, for refunding fees and charges to students who withdraw from enrollment.
9. Have a catalog and other appropriate official publications available to students and public, setting forth purposes and

objectives; entrance requirements and procedures; rules and regulations for conduct; programs and courses; program completion requirements; costs; and other items relative to attending or withdrawing from the institution.

10. Offer one or more educational programs of at least one academic year in length or the equivalent at the postsecondary level with clearly defined and published educational objectives appropriate to postsecondary education in level, quality and standards, as well as a clear statement of its means for achieving them.
11. Include general education, when appropriate, at the postsecondary level as a prerequisite to or an essential element in its principal educational programs.

Application: If the chief administrative officer and governing board of the institution believe that conditions of eligibility exist, a letter of application signed by the chief administrative officer, is submitted to the Commission through the office of the Director of Evaluation. An institution is required to submit an application fee to cover the costs of investigation to include processing of the application and a consultant visit. The institution will also be responsible for Investigator Team Member expenses to include travel, meals, lodging and out-of-pocket expenses incurred while en route and on campus. When Candidate status is granted, the institution will pay an annual affiliation fee to be prorated the first year in accordance with the Association's fiscal year (October 1-September 30).

In its letter of application, the chief administrative officer will submit three copies of the following materials:

1. basic planning documents;
2. current catalog;
3. current budget and audited financial statement;
4. articles of incorporation, or charter if the institution is independent and, when appropriate, proof of state authority to grant degrees.

If the institution appears to meet the conditions of eligibility, a preliminary visit may be made by a representative of the Commission. At this point, the institution may be encouraged to proceed with its application for candidacy or to consider other alternatives. If the institution is encouraged to proceed, tentative dates are set for an evaluation team to conduct the on-site visit.

Self-Study: The institution that proceeds is to prepare a self-study directed to the current state of institutional development and the Standards of Membership for the level of postsecondary education. The self-study should include the following:

1. a comprehensive, narrative analysis of the state of institutional development as it relates to each of the ten Standards of Membership.

2. an identification of strengths as perceived by the staff and administration as they relate to each of the ten Standards of Membership;
3. an identification of weaknesses as perceived by the staff and administration as they relate to each of the ten Standards of Membership
4. a list of recommendations related to each of the ten Standards of Membership that could lead to improved vocational, technical, career opportunities and eventual accreditation.

Team Visit: The self-study is to be completed at least thirty days prior to the scheduled Investigator Reporter-Team visit. Copies are to be mailed from the institution to the Director of Evaluation and to members of the Investigator Reporter-Team. The size of the team will be at least two and no more than five members depending upon the size and complexity of the institution. The charge for Candidate evaluation fee is as specified in the Dues and Fees Schedule.

Commission Procedures: The Commission relies heavily upon the report of the Investigator Reporter-Team in determining whether or not:

1. the conditions of eligibility are met;
2. the institution appears to be currently capable of offering the educational programs and services as set forth in the catalog; and,
3. the institution appears to have the potential for achieving institutional stability in order to qualify for accredited status within six years.

In arriving at a decision on the application for candidacy, the Commission, at one of its regular meetings, will review:

1. the self-study and other institutional documents;
2. the report of the Investigator Reporter-Team, and
3. all other supportive documents.

If deemed appropriate, the Commission may defer action on any report and request that, at its next scheduled meeting, the Investigator Reporter Chairperson be present.

The Commission will, after considering all evidence, submit a recommendation to the Executive Committee of the New England Association of Schools and Colleges. Notification of the Commission's recommendation is forwarded by mail to the chief administrative officer of the institution, with reasons for Commission action stated, following the Commission meeting. The Executive Committee's final decision on affiliation will be forwarded subsequent to the Executive Committee meeting.

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Reconsideration: The applicant institution that does not receive candidacy after an evaluation may reapply as soon as major deficiencies have been corrected. The institution also has the option of appealing an adverse decision at the Association level. The basic principles of due process at the accreditation level will be applied to Candidacy review.

Terms of Agreement: The institution recognized as a Candidate for Accreditation must agree to the following terms:

1. Use the prescribed official definition of Candidate for Accreditation in all official publications and correspondence:

(Name of Institution) has been granted Candidate for Accreditation status by the Commission on Vocational, Technical, Career Institutions of the New England Association of Schools and Colleges, Inc. Candidacy is not accreditation nor does it insure eventual accreditation. Candidacy for Accreditation is a status of affiliation with the Association which indicates that the institution has achieved initial recognition and is progressing toward accreditation.

2. Candidacy covers only those programs and geographic locations of the institution at the time of the Investigator Reporter-Team visit. Program, degree, and geographic location changes subsequent to the initial recognition as a Candidate for Accreditation must be approved in advance by the Commission through a prospectus and usually an on-site visit by a representative of the Commission.
3. On or before March 1 of the designated year, each institution must file a Biennial Progress Report directed to; (a) specific concerns designated by the Commission in its letter notifying the institution of its candidacy status, and (b) the following issues which will provide evidence of continuing progress toward eventual accreditation:
  - a. changes in institutional format;
  - b. changes in educational requirements;
  - c. changes in locations where programs are offered;
  - d. substantive changes in educational programs;
  - e. change in admissions, grading and student personnel services;
  - f. changes in policies affecting the faculty, in size, changes in faculty salaries and other benefits, and the extent to which the faculty has been strengthened;
  - g. changes in the physical plant, library and laboratories to better serve the educational program and students;
  - h. changes in financial structure and condition of the institution, noting budgetary increases and/or decreases,
  - i. changes in administrative structure and personnel;
  - j. contractual relationships with any non-regionally accredited organizations;
  - k. old plans for the future that have been realized and new ones that have been formulated.

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## Candidate for Accreditation

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4. When directed by the Commission, host an on-site visit by a representative or representatives of the Commission at least every two years.
5. Apply for accreditation only after consultation with the Director of the Commission.

Limitation: Candidate for Accreditation status is limited to a maximum of six years provided that Biennial Progress Reports indicate that the institution is progressing towards regional accreditation. If an institution does not achieve accredited status within the six-year period, it will no longer be listed as a Candidate for Accreditation (unless the Commission extends the period) and must wait at least two years before applying for same status or applying for accreditation.

Removal: The Commission reserves the right to remove an institution from Candidate status, after due notice, when in its judgement the institution is not progressing satisfactorily. The decision for removal may occur on the basis of the Biennial Progress Report, or with accumulation of evidence that causes the Commission to judge that the institution no longer meets one or more of the conditions of eligibility.

In the event a Candidate institution fails to make satisfactory progress towards accreditation, the Commission will issue a show cause order requesting within a period of time that the institution respond to the expressed Commission concerns. The burden of proof rests with the institution to demonstrate why its candidacy should be continued. The circumstances may vary, but among the matters to be taken into account are:

1. general lack of comprehensive planning;
2. concerns about institutional integrity;
3. failure to meet enrollment projections;
4. inadequate financial control and support;
5. inadequate physical facilities and equipment;
6. weakness of library and supportive educational resources;
7. inadequacies in numbers and professional competence of faculty, administration, and supportive staff;
8. insufficient development of programs and curricula as related to the institution's catalog and other publications.

Receipt of the response of the show-cause order may be followed by a visit from a Commission representative or representatives. The institution is responsible for the cost of that visit.

Application and Affiliation Fees: The application fee for Candidate for Accreditation status varies according to the institution's full-time equivalent enrollment. If the institution is accepted as a Candidate, it will pay an annual affiliation fee also based on its full-time equivalent enrollment.

NATIONALLY RECOGNIZED U.S. ACCREDITING AGENCIES THAT MIGHT EVALUATE AN  
INSTITUTION OPERATING IN ANOTHER COUNTRY

Accrediting Commission  
National Association of Trade and Technical Schools  
Dorothy Coyne Fenwick, Executive Director  
2251 Wisconsin Avenue, N.W., Suite 200  
Washington, D.C. 20007 U.S.A.  
Tel. (202) 333-1021

Commission on Higher Education  
Middle States Association of Colleges and Schools  
Howard L. Simmons, Executive Director  
3624 Market Street  
Philadelphia, Pennsylvania 19104 U.S.A.  
Tel. (215) 662-5606

New York State Board of Regents  
Denis F. Paul, Assistant Commissioner  
Higher Education Academic Review  
Cultural Education Center - Room 5A37  
Empire State Plaza  
Albany, New York 12230 U.S.A.  
Tel. (518) 474-8299