PN-AAY-903

YEMEN ARAB REPUBLIC
EDUCATION AND HUMAN RESOURCES SECTOR ASSESSMENT
JANUARY 1986

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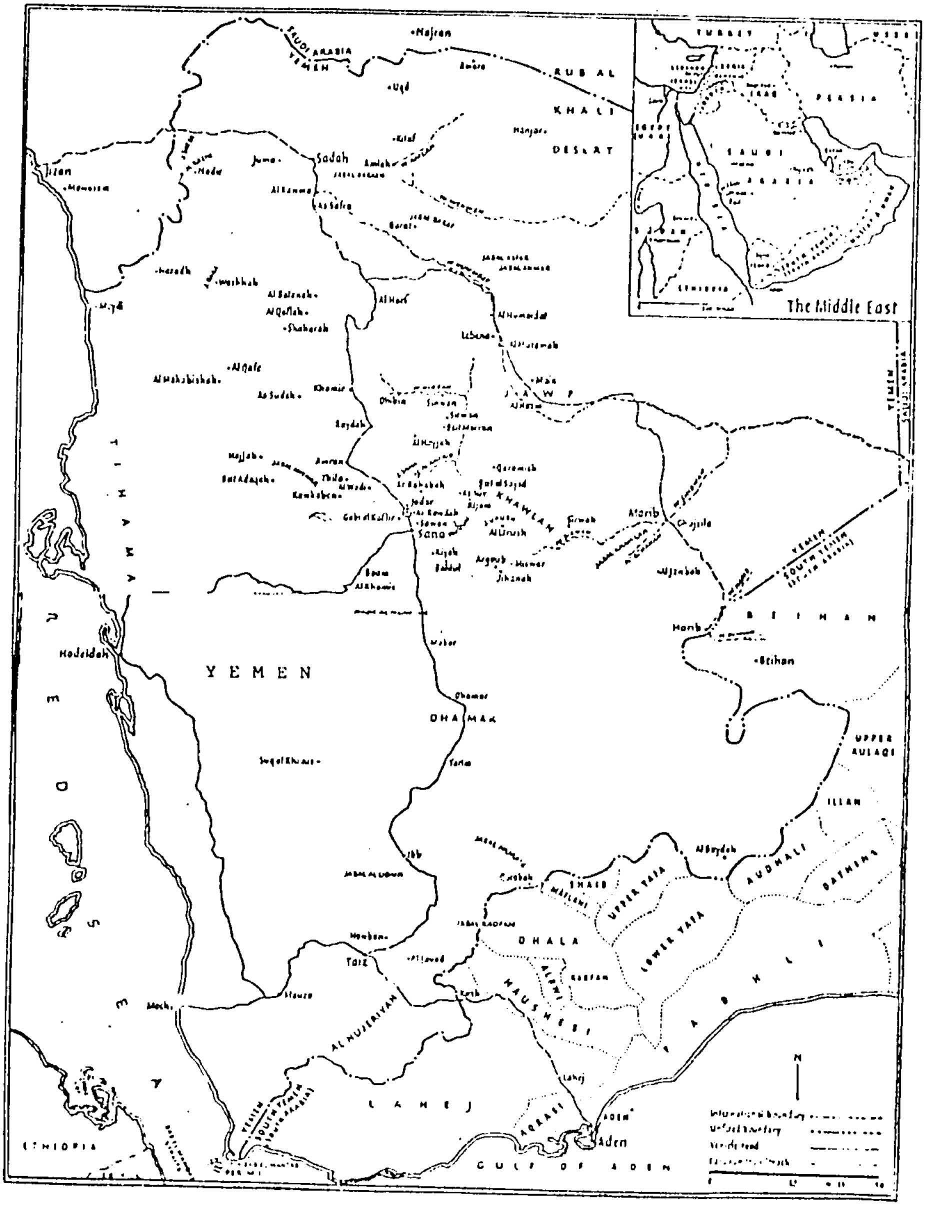
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The exchange rate in Yemen in November, 1984, was
YR 5.75 = US $1.00

The exchange rate in November, 1985, was
YR 7.60 = US $1.00

LIST OF ACRONYMS

ALECSO	Arab League Educational, Cultural and Scientific Organization
CPO	Central Planning Office
CRS	Center for Research Studies
CSP	Commercial Secondary Programs
CYDA	Confederation of Yemeni Development Associations
DNE	Department of Nonformal Education
DTC	District Training Center
EC	Educational Center
EHR	Education and Human Resource
ERDC	Educational Research Development Center
FOCE	Faculty of Commerce and Economics
FOE	Faculty of Education
FFYP	First Five Year Plan
GDP	Gross Domestic Product
GEO	Governorate Education Office
GPTTI	General Primary Teacher Training Institute
GTZ	Gesellschaft fur Technische Zusammenarbeit
IBS	Institute of Banking Studies
IMPC	Instructional Materials Production Center
LDA	Local Development Association
LTC	Literacy Training Center
MCSAR	Ministry of Civil Service and Administrative Reform
MOE	Ministry of Education
NIPA	National Institute of Public Administration
NFE	Nonformal Education
NLC	National Literacy Campaign
PIP	Performance Improvement Programs
PTTI	Primary Teacher Training Institute
SFYP	Second Five Year Plan
SPTTI	Senior Primary Teacher Training Institute
TFYP	Third Five Year Plan
TSS	Technical Secondary Schools
TTI	Teacher Training Institute
UAE	United Arab Emierates
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNDP	United Nations Development Program
UNICEF	United Nations International Cultural and Educational Foundation
USAID	United States Agency for International Development
VTC	Vocational Training Center
VTE	Vocational and Technical Education
YAR	Yemen Arab Republic
YR	Yemen Rials

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

This assessment of the education and human resources (EHR) sector in the Yemen Arab Republic (YAR) reviews the country's education and training systems in terms of the nation's goals and plans, the status of activities, the revealed needs, the existing constraints, and the opportunities and options for change. This report has been coordinated for the government of the YAR by the officers and staff of the Educational Research and Development Center (ERDC) with support from a team of technical specialist provided by the USAID Improving the Efficiency of Educational Systems (IEES) Project. Critical support has been provided by the staffs of government, parastatal, and private agencies, by the personnel of the USAID-Sana'a Mission and of the other major donor organizations, and by individual Yemeni citizens. In October, 1985, the working draft was revised by a committee representing senior Ministry of Education officials working in cooperation with IEES consultants.

The Purpose of this EHR assessment is to:

- -- establish a data base and methodological model for improving the systematic planning of the YAR's human resource development;
- -- identify the areas of most serious need and the constraints on the options for change;
- -- specify particular areas where new allocations, or reallocations of present resources, can promote the most cost-effective changes;
- -- provide a basis for long-term improvements in the planning, implementation, and monitoring of EHR development.

The basic structure of the assessment is to view sector-wide constraints in terms of financial, manpower, and management capacity/human resource subsectors. The subsector chapters

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cover primary education, preparatory/secondary education; vocational and technical education (VTE); teacher training; higher education; and nonformal education (NFE).

Within each subsector chapter the historical setting, national goals and strategies, and organizational structure of the subsector will be discussed. In addition, each subsector will be analyzed in terms of programmatic issues such as enrollments, teachers, curriculum, evaluation, facilities and equipment, and cost, financing, and donor support. The subsector analysis will cover five specified summary issues: external efficiency, internal efficiency, access and equity, administration and supervision, and cost and financing.

The review of the status of the subsector and the analysis of the major emerging issues have been the joint basis for development of specific options for policy, practice, and research. Two immediate next steps exist once this EHR assessment report has been reviewed and appropriately revised. The first is to identify areas where more detailed work is required before reform of policy or practice can be considered for implementation. This may involve areas that were not part of the scope of work of the assessment (such as religious instruction, agriculture, or health education) or areas in the report (such as VTE or teacher training) for which a more in-depth analysis is justified. The second necessary step is to prepare a detailed research agenda to allow for the analysis of the proposed options in terms of their relative cost-effectiveness. This analysis could review various scenarios of change in the context of the financial, manpower, and management constraints faced by the EHR system in the YAR.

This executive summary chapter is designed for use both as an introduction to the full EHR sector assessment report and as an independent sector-wide survey. However, the conclusions and summaries presented here can be appreciated fully only if taken within the context of the more detailed presentations of the individual subsector chapters. Readers are encouraged to

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refer to these subsector discussions when additional clarification or greater detail is required.

1.2 NATIONAL POLICIES, PLANS, AND STRATEGIES

Government's policies toward the EHR sector must be understood in the context of the larger national development program. Notwithstanding the substantial accomplishments made in the last decade, government recognizes the residual problems that exist and the constraints on government policies to resolve these problems. The Second Five Year Plan (SFYP), 1982-86, cites seven basic development assumptions. In summary, these are:

(1) Yemen's economic development must be a continuous and flexible process and all plans must lead to a better coordination of the use of human, natural, and financial resources;

(2) The responsibility of all citizens for participation in planning, implementation, and evaluation of development;

(3) Unity of the land and people in one Yemeni homeland;

(4) Steady improvement in the citizen's standard of living;

(5) Ensuring justice, job opportunities, and access to the benefits of development to all, especially to those in the distant and poor areas;

(6) To improve State participation in and increase private sector contributions to the national economy; and

(7) To continue Yemen's participation in the promotion of regional Arab and Islamic integration.

The strategy pursued by government to achieve these objectives has emphasized the regionalization of educational access at all pre-university levels. At the university level, the provision of new dormitory space and the consideration of branches of Sana'a University in other cities are strategies to achieve this same goal of wider access. Another major strategy is the widening of postprimary education alternatives; the preparatory graduate now can choose among vocational,

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technical, and commercial education, teacher training, between the academic secondary streams of science and arts, and a variety of other specialized training options.

The SFYP notes that constraints on the achievement of planned objectives exist in terms of inadequate financial resources (government and private), manpower shortages, and insufficient management skills and an inappropriate administrative tradition. Since the drafting of the SFYP two new developments have resulted in additional constraints on government's capacity of development support. First, the realized rate of economic growth has not supported the level of revenue growth anticipated by government. As a result, some development investment funds have had to be reallocated to cover recurrent cost obligations. Second, the earthquake disaster in Dhamar governorate in late 1982 required that government reduce new investments and use these resources for relief and rehabilitation of the affected population.

The SFYP objectives and strategies remain valid ones. The need for government to reassess expenditure priorities was anticipated and such reassessment is being conducted in a timely manner. The recent discovery of oil resources in the YAR offers encouragement for the future. However, government's conservative fiscal approach will remain appropriate for the foreseeable future if Yemen's resources are to be used effectively to the benefit of all its citizens.

1.3 POLITICAL AND SOCIAL SETTING

Formally independent since 1918, Yemen, under the government of the Hamid al-Din dynasty, placed little emphasis on formal social or economic development activities. Prior to the 1962 Revolution Yemen existed as one of the most isolated nations in the world. Tribal traditions and conservative administration had left Yemen with little of the infrastructure (educational system, roads, communication networks) that even the less developed nations of Africa and Asia enjoyed.

The Yemen Arab Republic is located in the southwestern corner of the Arabian peninsula and shares borders with the Kingdom of Saudi Arabia and the People's Democratic Republic of Yemen (PDRY). The capital city is Sana'a and the Sana'a-Taix-Hodeidah triangle is an important social and political designation as well as a geographic one. The total land area is 195,000 square kilometers and the population was estimated at slightly more than 8.5 million in 1981 (with approximately 15 percent of this number working abroad, primarily in the Kingdom of Saudi Arabia).

The nation is divided into twelve political governorates that are further subdivided into administrative districts. Yemenis are mainly of Semitic origin and Islam is the national religion. More than eighty percent of the population lives in towns and villages of 500 persons or less.

From 1962 to 1968 civil war existed in Yemen. The revolution culminated in victory for the Republican regime. By 1970, national reconciliation had resulted in the proclamation of the national constitution.

Prior to the 1940's the education system was limited to an emphasis on basic reading and writing skills, the principles of Islamic law, and classical Arabic literature. In the mid-1940's it is estimated that over 500 schools existed; the vast majority of these were Koranic (Katateeb) schools with limited training provided in science, mathematics, or other "modern" subjects. At that time, the capital city of Sana'a possessed only seven schools, five of which were at the primary level. The only other secondary educational institutions existed in Hodeidah and Taiz. It is fair to say that prior to 1962, a modern education system simply did not exist within Yemen.

Yemenis are faced with an unusual dilemma. The educational achievements of the last 23 years are extremely impressive, especially given the base that existed in 1962. However, there has been no time available to enjoy the accomplishments of the past because of the dramatic challenges

that remain. To some extent the successes of the past have been based on practices (e.g., utilization of expatriate staff) that are part of the issues faced by the present. However, the achievements of the last 23 years should provide confidence concerning the ability of the Yemeni people and their leaders to meet the emerging challenges.

1.4 ECONOMIC AND FINANCIAL CONDITIONS

Seven major economic conditions characterize the Yemen economy. These conditions represent both opportunities and constraints as government endeavors to improve aggregate economic development and the personal living conditions of its individual citizens. The major economic characteristics are as follows:

1. A high degree of external dependency. The economy, and society, of the YAR are highly dependent on the economic conditions in other nations. A major source of personal income is derived from the over one million Yemenis employed in the Kingdom of Saudi Arabia and elsewhere in the Arab Gulf States. The education system (and other social services) are staffed extensively by expatriate personnel--some of whose salaries are paid by some Arab governments (the Kingdom of Saudi Arabia, Kuwait, Qatar, and the United Arab Emirates) other than the YAR. In addition, Yemen remains a major importer of foodstuffs and almost all equipment and high-level technology required for its development program. Finally, the national development program was relied heavily upon foreign donors for finance of both capital and recurrent costs related to the three development plans implemented to date.

2. Small industrial base. Because of the availability of remittance income, Yemen has made an economic transition from an exclusively agrarian society to a service/retail-oriented economy without passing through a stage of major industrial development. This phenomenon has resulted in the aforementioned dependence on imported commodities and a pattern of negative balances in terms of foreign trade and foreign payments. The lack of an industrial base also has reduced the opportunities to develop the force of skilled and semi-skilled workers that is necessary if the present level of prosperity is to be maintained.

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3. Limited skilled manpower. The scarcity of middle- and high-level manpower in Yemen has resulted from a combination of historical, economic, and cultural factors. The modern education and training systems of Yemen have been in existence only for 23 years and there has not been the time to develop the cadre of workers necessary to staff the government and parastatal agencies as well as the private sector organizations. The existence outside Yemen of high salaried employment for unskilled workers has meant that many young Yemeni males have foregone or abandoned formal schooling to pursue immediate employment opportunities. The cultural traditions of the YAR have restricted the development of skilled manpower in three ways: (1) a belief that education has value and status only if pursued through the university level; (2) a general skepticism toward schooling, especially where that schooling is conducted by non-Yemenis; and (3) a lack of consensus over the proper role of women in the education system or in the economy.

4. Decline of agriculture. In the last two decades, the YAR has shifted from self-sufficiency to a net importer of foodstuffs. Job opportunities abroad and in the urban centers have reduced the supply of male workers in the rural areas. While competition of cheap foodstuffs from abroad has had a dramatic effect, this has been offset partially by government protection in the form of tariffs and import restrictions. The premium prices for qat have resulted in an internal reallocation of land usage away from food crops. Although agriculture remains the major occupation of the nation, the nature and level of commitment to agriculture have changed in such a way that Yemen's potential self-sufficiency has been reduced severely.

5. Significant levels of informal economic activity. The measured levels of gross domestic product and personal income severely understate the actual resources available to individuals in the Yemen economy. The statistics on the number of Yemenis involved in foreign employment and the estimates of the amounts of remittance payments both are underestimates of the actual levels. Also, since a large portion of economic activity in Yemen continues to take place in the village markets, it is impossible for government to ascertain the actual extent of the retail and service activities in the economy. Finally, the relatively open border with the Kingdom of Saudi Arabia allows for flows of goods and services that are not accounted for in the trade statistics.

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6. Lack of systematic linkage among policy, research, and planning. Although the accomplishments of the Central Planning Organization (CPO) are impressive, the CPO has itself been beset by the constraints of financial and manpower limitations. There is a need for both greater coordination of research among the ministries and a central collection and assimilation of the research that is done. Both planning and policy need to be related to data-based discussions of the present status and the desired outcomes in each development program area.

The fiscal capacity of the government has improved in recent years, but only to the point where revenues appear to be approaching a level adequate to finance recurrent costs. Development costs not covered by donor support have continued to be a source of the budget deficit. Unfortunately, even the more optimistic projections of revenue growth over the next decade do not appear fiscally adequate given the substantial growth anticipated in the public sector obligations. The obligations for education and human resource sector expenditures alone are projected to grow from 23.4 percent of total government expenditure in 1984 to 45.6 percent in 1992. If these forecasts are realized, either the enrollment growth and/or costs of education and training programs will have to be constrained or else dramatic reductions will be called for in other government programs.

The education and human resource system will face enrollment pressure from three main sources. First, the normal increase in the age cohort (at a rate in excess of three percent annually) will mean an increase in the number of potential students. Second, the relatively high levels of incomes in rural and urban areas may be expected to promote higher demand for schooling. This will mean that the cohort participation rate may be expected to increase. With the present low participation rates (especially among young females), the potential for increased aggregate participation is limited only by the availability of facilities and teachers. Third, as government's attempts to improve educational quality begin to take effect, both attrition and

repetition should decline. Since attrition is the greater of these two internal inefficiencies, the net effect of quality improvements in the short run should be to increase the aggregate level of enrollments.

1.5 LABOR MARKET CONDITIONS

Due to the continued outflow of Yemeni workers to neighboring countries the YAR is in the unusual position of having virtually no explicit unemployment. Domestically there exists a pattern of incentives which encourage a polar configuration of manpower supply in terms of educational characteristics. The attractive wage and employment conditions for uneducated manual workers have restrained the demand for the lower levels of education and increased the opportunity costs for the higher levels. The status and salary incentives in the public and private employment sectors have created a situation wherein the rewards to educational attainment become significant only at the secondary and postsecondary levels.

Employment projections for the SFYP indicate that aggregate employment in the formal economy will increase from 1.20 to 1.36 million workers between 1981 and 1986. While agriculture will continue to have the largest number of workers and the largest demand for new workers, the greatest percentage increase in labor demand over the period will occur in the Electricity and Water sector (12.4 percent) and Government Services (7.4 percent). Wholesale and Retail Trade will remain the second largest employment sector in the Yemen economy.

Two major labor market characteristics of the YAR are the dependence on expatriate workers and the underutilization of female workers in modern economic activities. Non-Yemeni workers fill positions from manual to clerical to senior advisory and technical categories. Almost nine of every ten teachers at the pre-university level in Yemen are foreign with the majority of the expatriates recruited from Egypt.

Cultural limitations on the education and employment of women are changing slowly. However, government is committed to

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full support of educational and employment opportunities for women and this support is stated clearly in the SFYP. Increased utilization of Yemeni women would assist in reducing the dpendence on foreign worker; this is an especially attractive option in terms of the teacher shortage issue.

Even under the most optimistic forecasts of teacher production and retention it will be a decade before Yemeni teachers will represent a majority of all teachers at the primary school level. At higher educational levels, it may be the next century before Yemeni staff are in a majority.

The most serious imbalance in projected manpower demand and supply will occur at the postprimary to university level. A special problem will exist in terms of the production of skilled vocational and technical workers. Similarly, government will continue to face shortages of Yemeni clerical and middle-level management personnel. The solution to these manpower problems has two parts. First, government must establish proper employment and training incentives to produce and retain the types of workers required for the Yemen economy. Second, these incentives must become part of the information distributed to citizens, and especially students and parents, as part of a labor market information program. This program should be linked closely to the school counseling activities at all levels of the educational system.

Finally, the research agenda for manpower planning should include both employer surveys and tracer studies of graduates. The employer surveys can provide information about patterns of existing employment and employer evaluations of future need as well as of the quality of present education and training programs. The tracer surveys, conducted on a recurrent basis, can alert government to possible problems of over - and under-supply of certain types of graduates as well as provide counseling information for future graduates on the job search process and the current state of labor market demand for their skills.

1.6 EDUCATIONAL FINANCE

The issues of educational finance dealt with in this assessment include the determination of the responsibility for educational costs, by type of schooling or training, and the unit (per student) and cycle (per graduate) costs for the major forms of education. In Yemen, the basic policy of government is to provide free education to all and for all levels of the education system.

Historically, the community and the Local Councils for Cooperative Development (LCCD's) have assisted with school construction expenses and, in some instances, have provided all or a part of teacher housing expenses. Some of the community assistance has been provided in kind (donations of land, materials, and labor) and some cash payments.

Parents also contribute to educational support through the sharing of school costs. At the primary education level no national enrollment fees are charged although school administrators may make assessments for special school needs. It is estimated that, on average, parents pay YR 133 per year for primary schooling costs. At the preparatory and secondary level school fees and the costs for uniforms amount to YR 168 and YR 205 per year, respectively, at each level.

At the postprimary education levels parents may be seen as sacrificing the income that their children (especially the males) could earn if the children were not in school. However, since most schools are on double shifts, many students are able to work part-time while in preparatory or secondary education. Subsidies exist for students in the teacher training institutions (TTI's) and Commerical Secondary Programs as well as for vocational and technical secondary education.

At Sana'a University special stipends exist only for the Faculty of Education (FOE) students. These subsidies amount to YR 11,200 for social science majors and YR 13,400 for all others. These subsidies are designed to pay for living costs, housing expenses, and books. The high rate of part-time study in faculties other than the FOE is a result of the high

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opportunity costs of students in terms of foregone earnings and the lack of subsidies similar to those received by the FOE students.

Donor financing has played a supportive role in school construction and teacher salary support at the pre-university levels. At Sana's University, donor support has financed a majority of capital costs and a major portion of recurrent cost in most of the faculties.

Nonformal education in Yemen is represented most extensively by the programs of the National Literacy Campaign (NLC) and of the District Training Centers (DTC's). Both activities are largely financed by the central government. However, local communities, ALESCO, and UNESCO have played important roles in supporting adult literacy classes and the DTC's have been constructed and staffed with major donor loans.

The calculation of unit and cycle costs for EHR programs in Yemen is beset by a variety of difficulties. Budget data is not always current, complete, or consistent; also, available figures do not always include donor assistance to recurrent costs. Cycle costs are even more difficult to derive because the cost per graduate calculation must involve estimates of attrition and repetition. For Yemen, reliable estimates of repetition were available only for primary education and for certain of the Sana'a University faculties. Table 1.1 presents the estimates of unit and cycle costs for the major levels of schooling.

The dramatic cost effects of student repetition and attrition may be seen by comparing the unit and cycle costs. While most dramatic for primary education, these costs issues reemerge at the univeristy level; the cycle cost for the Faculty of Commerce and Economics deserve special attention.

Because of the nascent state of the educational system and the problems of data quality and availability, no definitive arguements can be made about the efficiency of the EHR system. However, two conclusions do emerge. First, cost analysis of the type shown here can be an extremely valuable policy tool.

Second, greater attention should be directed to the issue of internal efficiency in the education and training system. Given the constraints on national fiscal capacity and the quantitative pressures on enrollment, it is mandatory that the available EHR funds be used with care.

TABLE 1.1

ESTIMATES OF UNIT AND CYCLE COSTS BY LEVEL OF EDUCATION

LEVEL OF EDUCATION	UNIT COSTS[1]	CYCLE COST[2]
Primary Education	YR 1,355	YR 18,000
Preparatory Education	YR 3,115	YR 16,200
Secondary Education	YR 5,298	YR 35,500
Sana'a University	YR 20,515	--
Faculty of Shari'a and Law	--	YR 251,100
Faculty of Arts	--	YR 212,000
Faculty of Commerce and Economics	--	YR 360,500
Faculty of Science[3]	--	YR 244,800
Faculty of Education[3]	--	YR 122,600[4]

NOTES

1 Include total of parent, student, and government contribution.

2 All costs rounded to nearest YR 100 value.

3 Do not include estimates of repetition costs.

4 Does not include special student subsidies.

Source: See detailed discussions in Chapter 2.0 to explain the calculation of cycle costs.

1.7 KEY ANALYTICAL ISSUES IN THE ASSESSMENT OF THE YEMEN EHR SYSTEM

Analyses of each of the EHR subsectors in the assessment identifies issues in five categories: external efficiency, internal efficiency, access and equity, administration and supervision, and costs and financing. These categories have proven useful for studies of the EHR sector and enable examination of the basic concerns of education and development. Furthermore, use of this comparative framework for all subsectors makes it easier to discern strengths and constraints which may be systematic to the EHR sector rather than specific to a given subsector.

An EHR system is externally efficient to the extent that education and training can contribute to sustained economic and social development, build knowledge and skills geared to specific employment opportunities in the economy, and are balanced in terms of type and quantity of output. A system is internally efficient to the extent that it optimally allocates and uses available resources for improving the quality and increasing the quantity of education. Qualitative inefficiencies, when they exist, are reflected in low student attainment, weak teacher preparation and effectiveness, inadequate or inappropriate content and presentation of curricula, and low availability and utility of instructional materials and resources. Quantitative inefficiencies, when they exist, can be manifest in high rates of attrition and repetition, low student/teacher ratios, and under-utilized physical facilities.

Access concerns the proportion of the target population reached by the education system. Equity concerns the extent to which these opportunities are made available for all segments of the population, without restriction due to such factors beyond an individual's control such as gender, socio-economic status, and rural-urban location.

Administration and supervision concern the capacity to manage the EHR system and its individual programs

effectively. In particular, this issue area is concerned with the managerial and analytic capabilities of the system and institutional administrators. Important in this regard is an ability to assess needs and to design, analyze, manage and evaluate education and training programs. Administration and supervision also include specifying responsibilities and distributing them from the central to the local levels, and having supports available for appropriate program monitoring and guidance.

Analysis of costs and financing focuses on aggregate expenditures for education and human resources development nationally, by level and type. It also involves growth projections and assessment of the likely impact of EHR development on total recurrent costs. At the micro level, the analysis of unit and cycle costs facilitates comparison of program outcomes relative to cost.

1.7.1 External Efficiency

Major external efficiency issues exist at all levels of the education system. Determination of these issues is limited by data or by systematic analytical research on the linkage between specific education and training experiences and the social and labor market needs of the nation. Since the perceived function of the formal primary, preparatory, and secondary education systems appears to be for further education, the recent dramatic decline in national examination results indicates a failure of these programs to achieve their objectives.

In terms of the ease with which vocational and technical education program graduates find employment, the state of job or training readiness on the part of graduates does not appear to be an issue. Nonformal education programs appear to have placed more emphasis on literacy than on the uses of these skills in the home or marketplace. Where affordable, nonformal programs would be more tailored to national manpower needs if skill or craft training were increased as a program emphasis.

A balanced manpower development strategy for Yemen will require more detailed and long-term forecasts of sectoral development projections. While information on labor supply by educational qualification is increasingly available, the Central Planning Organization and the Ministry for Civil Service and Administrative Reform need to cooperate to produce coordinated data on manpower demand.

Training incentives need to be assessed in terms of their effect on the supply of workers rather than simply on the supply of trainees. This is an especially critical concern for the teacher training programs.

1.7.2 Internal Efficiency

The major potential problems in terms of internal efficiency exist at the primary school level and at Sana'a University. In primary education the high attrition and repetition rates have led to high cycle costs that are a financial burden on government. These same phenomena discourage student access and perseverance in the primary education programs. The phenomena themselves are a result of overcrowded classrooms, inappropriate instruction, and problems related to the educational tradition of the nation.

At Sana'a University the failure of large numbers of students may be a program disfunction or may relate to the failure of the secondary schools to prepare students adequately for the demands of a university program. It should be noted that many of the best university candidates pursue studies outside the country. An additional internal efficiency problem at Sana'a University is the lengthy program time caused by the fact that some students do not finish in the required time. With exception of students in the Faculty of Education (who are subsidized generously), students in the other faculties often must pursue part-time employment. This employment is required to finance the students' living costs as well as to compensate for the foregone earnings incurred by students at this level. However, the ultimate benefits to the individual and to society

of a university education remain a powerful incentive for secondary graduates to continue their education.

1.7.3 Access and Equity

The government has achieved significant progress in the regionalization of educational access. Government continues to strive to achieve greater equity of opportunity among urban and rural populations.

The major issue of access and equity is that of female participation in all levels of the EHR system. Cultural factors require separate classrooms or schools for female students and the government has responded to this need. For the future, further stress needs to be placed on removing the unavailability of facilities (and teachers) as a barrier to female educational attainment. It is interesting to note that the current educational statistics indicate that, where appropriate facilities are available, the retention (and eventual success) of female students is comparable to that of the male students.

A special problem exists in regard to access to the Vocational Training Centers (VTC's). It has been suggested that these postprimary institutions expand their client population through acceptance of a wider range of applicants (including older workers and/or those with less than primary education). It can be argued that, in addition to resolving an access problem, this change would increase the internal efficiency of the programs (through better utilization of staff and facilities) and external efficiency (through producing graduates more suitable to local market demand).

1.7.4 Administration and Supervision

While the quality of management within the EHR ministries and in the higher level institutions (Sana'a University and NIPA) is of critical concern (and discussed in detail in Chapter 3.0), the major administrative problem in the EHRsystem is the proper leadership for the primary, preparatory, and

secondary schools. This problem is especially dramatic at the primary level where many schools have no designated administrator at all and very few have a full-time administrator. This situation has a detrimental effect on teacher and student morale and discipline, detracts from data collection activities, and exists as a major barrier to improved implementation of the national curriculum. Teacher trainees need more exposure to training in educational administration and such activities should be a major focus of inservice training programs.

Educational supervision from the local Education Centers and the Governorate Education Offices (GEO's) is constrained in three main ways. There is a lack of manpower, most of the supervisors who do exist have not received appropriate training, and the lack of transportation resources has meant that school visits are rare at the preparatory/secondary level and may be insufficient at the primary level. This lack of supervision is most common at the very schools that require the greatest external assistance: the small, remote primary schools.

1.7.5 Cost and Financing

It may be expected that the financing of education and training opportunities in the YAR will remain primarily a responsibility of the central government. However, attention should be directed to maintenance of the sharing of costs with the LCCD's and local citizens. This financing program must operate on the clear understanding of government's final authority for issues of school location, quality of construction, and curricular content.

The increased utilization of private resources should be encouraged throughout the EHR system. There are especially attractive opportunities for greater private involvement in vocational and technical education. Another possibility is to consider an introduction of greater user fees at the university level combined with a loan program designed to permit more students to pursue their studies in a full-time capacity.

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Facility utilization tends to be an area of major cost efficiency within Yemen's EHR system. However, the relatively low student/teacher ratios at preparatory and secondary schools and at the TTI's suggest that a closer linkage of the instructional programs among these institutions might promote reduced costs in the future.

1.8 SUBSECTOR-SPECIFIC OVERVIEWS

The following sections of the executive summary will provide abstracts on each of the major subsectors covered in this assessment of Yemen's EHR system. The subsectors reviewed are primary education, preparatory/secondary education, vocational and technical education, teacher training, higher education, and nonformal education. It is impossible to deal adequately in these brief reviews of each subsector with the detailed presentation of the status/programmatic concerns, and analysis which are presented in the individual chapters. These brief discussions attempt only to summarize the most critical concerns within each sector in terms of its present status, the plans and constraints that exist, and the options for future research and policy.

1.8.1 Primary Education

For the 1982/83 academic year, 602,000 students were enrolled in the six-year cycle of primary education. An additional 51,000 students were enrolled in the primary scientific institutes. Almost one-half (49.6 percent) of all regular primary enrollments were in the Sana'a and Taiz governorates. However, government's successful efforts at regionalization of access are indicated by the fact that the percentage distribution of enrollments by governorate is not greatly divergent from the percentage distribution of the population by governorate.

Female participation in formal education is a fairly recent policy emphasis within the YAR. However, in 1982/83 there were approximately 87,000 female students compared to

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515,000 male students. Females make up the highest percentage of total enrollments in the Taiz (20.4 percent), Sana'a (18.9 percent), and Hodeidah (16.5 percent) governorates. The lowest rates (all less than six percent) are found in the governorates of Sa'ada, Ma'rib, and Hajjah.

Because cultural traditions create a preference for female-only classes and schools, government has been faced with a special problem in terms of facilities demand. At present, a majority of both male and female primary school students attend coeducational schools. The enrollment data for 1983/84 do indicate, however, that the existence of female-only schools is correlated with female retention.

Because schools normally are established with a single first grade class and add the next higher grade each succeeding year, the primary education system has a large number of "incomplete" schools. Approximately 43 percent of 1982/83 enrollments in all primary schools are in schools that have a full six grade cycle; for male-only schools only 35 percent of enrollments are in full-cycle primary schools.

Attrition and repetition are serious problems in primary education. Estimates from a recent Educational Research and Development Center (ERDC) study (based on longitudinal data from 1977 to 1983) indicate that out of an average cohort of 100 students, only 21 will graduate in six years and seven more will graduate in an additional year. Repetition increases from eight percent in Grade One to over 25 percent in the higher grades. The ERDC estimate indicates that it required 12.9 student years of schooling for each graduate of primary education. More current statistics would indicate a lower cycle cost because of reduced attribution and repetition. No data exist to indicate the value of the educational experience to the over 70 percent of the cohort who begin but do not complete primary education. The ERDC identified ten major determinants of attrition including unsympathetic parental attitudes, cultural factors (especially relative to females), school location, and crowded classrooms.

As to the last, the overall student-teacher ratio is only 46:1. However, this figure disguises a reality wherein Grade One enrollments may exceed 100:1 while higher grades in the same school may have only five to ten students per teacher. The major characteristics of the teaching force for primary education is its dominance by expatriates and by males. For 1982/83 there were 11,149 non-Yemeni teachers and ony 2,106 Yemeni teachers at the primary education level. Only 6.9 percent of the Yemeni staff are women while 23.7 percent of the non-Yemeni teachers are women. Egyptians are the largest single group of expatriate teachers; for 1982/83 they constituted 78.7 percent of all expatriate primary education teachers.

Present facilities for primary education are adequate in quality but there is a serious shortage projected for classroom space for the next decade. Government will be severely constrained in meeting the recurrent costs of primary education over the next ten years, let alone financing the capital costs necessary to construct and furnish the needed expansion of the system.

The major policy options for primary education are to continue the development of a programmed teaching system structured on the existing national curriculum; to continue the assessment of the level of required teacher qualifications; to maintain the program of cost sharing with the LCCD's and the local communities; to plan school expansion for the greatest impact on access and equity standards; and to upgrade the quantity and quality of administrative personnel for school-level management. Of these options, the initial emphasis should be on the improvement of the teaching system, the cost-sharing program, and school administration. All of the other policy options become less critical or their solutions are facilitated by successful accomplishment of these primary options.

The recommendations for further research and analysis should include materials development work supportive of the

existing instructional system. An additional need is for expanded data collection on post-primary school education, training, and employment experiences. Researchers within the MOE, Sana'a University, the ERDC, and at NIPA should concentrate on research activities supportive of the emerging policy discussions. If policy options other than those suggested above are emphasized, the research agenda should be modified accordingly.

1.8.2 Preparatory/Secondary Education

The successful primary school graduate has four main choices:

- an academic preparatory school (3 years),
- a preparatory scientific institute (3 years),
- a primary teacher training institute (5 years), or
- a vocational training center (2 years).

Beyond the preparatory level students face the following options:

- an academic secondary school (3 years with separate arts and science programs in the last two years),
- a secondary scientific institute (3 years),
- an agricultural/veterinary secondary school (3 years).
- a commercial secondary program (3 years),
- a general teacher training institute (3 years),
- the telecommunications institute (3 years),
- a technical institute (3 years),
- a vocational training center (2 years),
- a health institute (3 years), and
- an industrial secondary school (3 years).

In this section the emphasis is on the academic preparatory/secondary programs with some attention paid to the enrollment effects of the scientific institutes.

In 1982/83 just over 43,000 students were enrolled in the regular preparatory schools; 37,966 males and 5,336 females. At the secondary level there were just under 12,000 students, 10,593 of whom were male and 1,391 female. In the scientific institutes there were 4,001 students at the preparatory level and 705 at the secondary level. Over 97 percent of all

preparatory scientific institute students were male and there were no female students at the secondary scientific institutes. The institutes presently are administered regionally from the governorates of Sana'a, Taiz, Hodeidah, and Ibb.

Returning to the formal academic preparatory and secondary schools, the concentration of students in the largest governorates is more pronounced than was the case for primary education. One finds that 83.4 percent of all male students and 96.5 percent of all females at the preparatory levels are found in the four most populous governorates. This pattern of enrollment concentration continues at the secondary level where Sana'a and Taiz alone account for 71.0 percent of male and 78.7 percent of female enrollments.

A special curricular access situation exists at the secondary level in regard to the availability of the arts program alternative. This program is available in only six of the governorates; also, in all but Ibb and Hajjah governorates, science enrollments greatly outnumber those in arts. There is a greater relative participation of females in the arts than in the science program. The majority of preparatory/secondary institutions are male-only schools and four governorates have no female-only schools. In contrast to primary education, the majority (75.9 percent) of females in preparatory education are in female-only rather than coeducational schools. At the secondary level female students make up only 6.3 percent of enrollments at coeducational schools with the majority again in female-only schools. A major conclusion of the analysis in this subsector is that female students, once in postprimary education, appear to have similar retention rates to those for males. This pattern is especially clear in those governorates with female-only institutions available.

In 1982/83 there were only 157 Yemeni teachers at the preparatory level and 63 at the secondary level. Three governorates had no Yemeni teachers in their postprimary schools and two others had only one Yemeni teacher each. Over

one-half of all Yemeni teachers at both levels are concentrated in Taiz governorate. Women constituted 10.9 percent of the Yemeni teachers and 8.7 percent of the expatriate teachers.

Again the vast majority (over 90 percent at both levels) of teachers were expatriates. Of this group, Egyptians represented 87.1 percent at the preparatory level and 92.4 percent at the secondary level.

The number of students per teacher averaged 18.2 for preparatory education (range among governorates: 6.7 to 22.5) and 11.4 for secondary education (range: 2.3 to 14.6). While these averages indicate a certain degree of excess capacity, this is offset somewhat for practical purposes because of the concomitance of high new demand and high existing ratios in the urban areas.

Similar evaluation problems exist at these postprimary levels to those that were discussed for primary education. Success rates on the leaving examinations have declined each of the years between 1982 and 1984 for the preparatory level. At the secondary level, pass rates have varied as follows:

ACADEMIC YEAR	Percent Passing Secondary Examination	
	Arts Students	Science Students
1979/1980	52.6	58.4
1980/1981	89.0	43.0
1981/1982	66.5	72.0
1982/1983	58.0	60.0
1983/1984	48.4	59.6
1984/1985	85.7	81.3

Financial issues at these postprimary levels are characterized by the need to fund new construction, the high cost of instructional personnel, and the special financial requirements related to greater regionalization of access to the secondary education science program. Donor support for school construction has been generous but the major need at the present time is for external assistance to support the improvement of the curriculum (including the supply of appropriate textbooks and instructional materials).

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The major needs of preparatory and secondary education may be summarized as follows:

(1) Improvement of instructional materials;
(2) Teacher supply;
(3) Organizational communications;
(4) Increased female access; and
(5) School and employment counseling.

With the fiscal constraints on full implementation of SFYP educational capital projects, the major concern of policymakers and practitioners should be on reforms that create little if any new recurrent costs and make no demands for new capital expenditures.

The policy options proposed for this subsector are: to continue the assessment of appropriate teacher qualification levels; promotion of an alternative teacher training option outside the TTI's; the continued development of instructional materials in a form sufficient to provide day-to-day teacher guidance; to increase counseling of students in regard to postschool training and employment opportunities; and to increase female participation through use of existing facilities for female-only classes on a half-day session basis.

Two major research agenda items are the conduct of tracer studies of school leavers and a monitoring program to enable the MOE to project emerging demands for facilities and teachers. The human resources for these activities exist in the MOE, ERDC, and Sana'a University staffs; the necessary financial support should be sought from the donor community.

1.8.3 Vocational and Technical Education (VTE)

The VTE programs in operation in the YAR consist of the two-year, postprimary and postpreparatory Vocational Training Centers (VTC's); the three-year postpreparatory Technical Secondary Schools (TSS's); and the three-year postpreparatory Commercial Secondary Programs (CSP's). In the review of these programs the term "vocational education" will be used to refer to training oriented toward craft-level skill development and

the term "technical education" will refer to academic and occupational training for higher order mechanical and engineering skills. Training in technical education at the postsecondary level (at Sana'a University and outside the YAR) is discussed as part of the higher education subsector.

The goal for the VTE under the SFYP is to establish greater self-sufficiency in terms of the supply of skilled and semi-skilled workers and to facilitate the development of industrial capacity through the provision of an adequate supply of appropriately trained personnel. The YAR program in this regard has faced severe constraints in terms of equipment and facilities, teachers, curriculum, and adequate manpower planning data. The high opportunity costs for skilled workers have made it difficult to recruit and retain teachers and have promoted the emigration of trained Yemeni workers.

In 1983/84 there were 417 students enrolled in the VTC's; for 1982/83, enrollments in the TSS's were 567 and in the CSP's were 498. The 123 female CSP students were the only females enrolled in any of the VTE programs. VTC programs exist at four locations with Sana'a the largest and Dhamar the smallest (Taiz and Hodeiyah are the remaining two VTC locations). The VTC sites vary in terms of the variety of program offerings and quality of instructional staff, facilities, and equipment.

TSS programs exist only in Sana'a and Taiz. Enrollment levels have tripled between 1978/79 and 1982/83 and attrition rates are very low. The establishment of a polytechnic institution and a Faculty of Engineering at Sana'a University is expected to increase student demand for the TSS's even more. The schools are able to attract a national student body because of the availability of dormitories and special stipends. Building construction, electricity, and automobile repair are the most popular specializations at the TSS's.

The CSP's differ from the other two VTE activities in that they operate in the same buildings as secondary education or teacher training programs. CSP's exist in four secondary schools and at two primary teacher training institutes. All of

the male students are in secondary schools with CSP offerings; only one of the female CSP's has this arrangement.

Teachers are an increasing area of concern in all three VTE programs. The VTC's and TSS's have been largely dependent on expatriate staff. However, Yemenization has proceeded further in these institutions than in the academic programs. This problem is less severe in the CSP's where employment of graduates from the Faculty of Commerce and Economics has allowed Yemenis to become a majority of the CSP staff. This is misleading, in one sense, however, because the CSP program draws more than fifty percent of its instruction from the staff of its "host" institution. With the predominance of expatriate teachers in the secondary and TTI institutions, it is unlikely that even the CSP students have a majority of instruction from Yemeni teachers.

The official emphasis of the curriculum at the VTC's is on manual training for students with no prior trades background; there is a 60:40 ratio in favor of practical instruction. For the TSS's the emphasis is on classroom work; the curriculum ratio 60:40 in favor of academic versus practical instruction. The CSP curriculum offers a general program in business studies with an emphasis on accounting and communication skills. At both the TSS's and the CSP's a majority of instruction is in subjects similar to those received by academic secondary school students but the number of hours devoted to these subjects is lower.

Agreement exists among most administrators that evaluation, even in the VTC's, needs to be oriented more to practical skill tests than is presently the case. In addition, more information on employment and postschool training opportunities needs to be provided to student. Another counseling issue is to provide expanded information about the VTC's to primary school students and on the TSS's, CSP's, and agricultural educational opportunities to preparatory students so that greater utilization will be made of these programs in the future.

The major need in the VTE subsector is for the programs to be coordinated among themselves and with the manpower needs of the nation. In addition, improvements must be made in VTE teacher training (the number of Yemenis and the relevance of instruction), employment counseling, and in the linkage between program administrators and the employers of prospective VTE graduates. Traditionally, low prestige has been attached to manual work. This attitude is changing as the perceived quality of VTE efforts improves and employment opportunities increase for the less skilled worker.

The major options available for the VTE subsector are: to develop detailed data on the status of program graduates to document the existence of possible external efficiency issues; to organize and activate the proposed national advisory board to link system and institutional administrators to public and private employers; to develop a new national trading strategy that is realistic in terms of the existing financial, manpower, and managerial constraints; and to promote greater private and parastatal participation in training responsibilities.

Within the existing resources and without changing institutional structures, it is important to focus the VTE programs on trainee needs. This requires more information on trainee abilities, interests, and probable employment and, in the case of the VTC's, may suggest a redefinition of the appropriate client population. Finally, an emphasis on program enhancement rather than proliferation will promote greater internal and external efficiency in the three VTE programs.

The two central research activities necessary to support these policy options are, first, a detailed analysis of present program resources, and, second, collection of information on graduate experiences. The first alternative suggests a financial and administrative assessment of the programs while the second is best served through recurrent tracer surveys.

1.8.4 Teacher Training

Because of the existing dependence on expatriate personnel to staff primary, preparatory, and secondary education in the YAR, the issue of teacher training expansion has been a central policy concern in recent years. At present there are three main sources for Yemeni-trained teachers: the five-year Primary Teacher Training Institutes (PTTI's); the three-year General Primary Teacher Training Institutes (GPTTI's); and the four-year program at the Faculty of Education (FOE) of Sana'a University.

The PTTI's are postprimary programs designed to prepare primary school teachers. Prior to the 1981 reform, the PTTI's had a three-year postprimary curriculum. In 1983 there were 37 PTTI's; 31 male-only institutions with an enrollment of 2,245 students and six female-only institutions with an enrollment of 911 students. Sixteen new PTTI's have been created in the last two years, all of them for male students only. The new PTTI's tend to be small programs attached to existing preparatory schools.

The GPTTI's have a three-year postpreparatory curriculum and also are designed to prepare teachers for the primary schools. In the 1983/84 academic year there were twelve GPTTI's with an enrollment of 1,233; there were 461 female students and 772 male students in that year. All but one of the GPTTI's share facilities with a PTTI. In contrast to the majority of the PTTI's that are rurally located, all GPTTI's are in urban centers.

The FOE has the responsibility for the training of teachers for the preparatory and secondary education levels. In 1982/83 there were 807 students enrolled in the FOE; of this population 781 were Yemenis. Female enrollments at the FOE consisted of 132 Yemeni women and twelve non-Yemeni women. The FOE offers a series of postgraduate degrees that are designed to prepare individuals for administrative and management positions.

Given the projected expansion in demand for education, a concomitant increase in demand for teachers may be anticipated. Nine percent of the present expatriate teaching staff consists of individuals whose total salaries are not paid directly by the YAR government. However, in recent years an increasing number of the expatriate teachers have become a direct financial responsibility of the YAR government. Thus, the normal pressure on government to create Yemeni teachers is reinforced by the effects of the expatriate teacher population on both budgetary and foreign payment balances.

The recent reform of teacher training emphasized the expansion of teacher training opportunities and has used increased teacher training incentives and expanded TTI locations as the major means to promote a solution to the teacher supply problem. Larger subsidies are paid to science than to arts trainees. The reform program appears to have succeeded in increasing the number of teacher trainees but there is some concern over its effect on the long-term problem of teacher retention. The annual subsidies (YR 8,200 for PTTI students, YR 10,600 for the GPTTI's, and up to YR 13,400 for FOE students) are designed to cover living costs (in the form of a basic stipend), and expenses for clothing, travel, housing, and books. The latter two subsidies are paid only at the FOE. The generosity of these subsidies is one reason for the low attrition rates that exist in the teacher training program.

The concern with the program, therefore, is not with its efficacy in expanding TTI or FOE enrollments, but with the question of whether the trainees, once they graduate, will remain as teachers beyond their period of service requirement. The high opportunity cost for individuals (especially males) with credentials equivalent to a secondary education suggests that a pattern of "teacher attrition" may occur. This has been the historical pattern of Yemeni teacher development. A recent government decree requires that TTI graduates be employed only by the government. The retention problem also justifies

examination of a policy of trainee recruitment with a greater, and perhaps majority, emphasis on females. The lower opportunity costs of women teachers (because of cultural limitations on emigration or urban migration) would increase the probability of their remaining as teachers.

The instructional staff at the teacher training programs has been expanded considerably in recent years to meet new enrollment demand. The number of teacher trainees per instructor is 14.2 at the PTTI's and 4.5 at the GPTTI's. These numbers are artificially low because instructors with incomplete schedules are required to teach in other institutions; one an adjustment is made for this practice the work load of teacher trainers is comparable to that of other equivalent instructional staff. The staff of the FOE are predominantly expatriates; only three of the eleven staff are Yemeni. All three Yemeni staff, including the Dean of the FOE, have a rank of lecturer.

The cirriculum at all three programs has a heavy emphasis on non-pedagogical courses. The PTTI's and GPTTI's follow an instructional program with courses similar in name (but not in time allocation) to those found in the academic preparatory and secondary schools. The FOE offers only the educational courses for its students; the remaining courses in the FOE curriculum are taken from the other faculties at Sana'a University.

The sharing of facilities in teacher training programs suggests good utilization and academic staff teach jointly in PTTI/GPTTI programs or PTTI/academic programs. Thus, the major source of cost divergence between the teacher training and normal academic programs is the student subsidization policy.

The relative cost of the teacher training course to the general academic programs should not be interpreted as an efficiency problem, however. The program still results in substantial savings for government because of the low cost of producing and employing a Yemeni teacher relative to continued employment of expatriate teachers. As current government programs increase Yemeni teacher retention, the budget savings generated by the teacher training program will increase.

The critical need for the teacher training subsector is for a clear rationale for the overall structure. The present system of teacher preparation is almost certain to be unable to meet the new demands and, for preparatory and secondary teachers, to be unable to meet even replacement needs at all schools. A means of expanding the pool of eligible teacher candidates is to provide a certification alternative for secondary and University graduates who have not specialized in teacher preparation. Such a policy would be facilitated by the existing congruence of the instructional curricula between the academic and teacher preparation programs. There remains the research question of whether present salaries are adequate to retain teachers with either the present or modified qualifications.

The established MOE policy is to place a priority on Yemenization of the primary school teaching staff. The MOE has recognized that long-term Yemenization depends as much on Yemeni teacher retention as on new production of teachers.

In addition to support for the existing system, the major policy recommendations for the teacher training subsector are: to identify an additional system of credentialization of Yemenis outside the present teacher preparation system; to review the efficiency of present qualification requirments and salary levels in retaining Yemeni teachers; to include teacher preparation courses in the curricula of existing programs of general academic and higher education, and to promote greater recruitment of female teachers and teacher trainees.

The major research recommendation is to determine the effectiveness of the present system of trainee subsidies on teacher production and retention. This will require a longitudinal study and should incorporate analysis of such considerations as rural/urban location of school, region (including proximity to home region), sex of teacher, size of school, and related variables. A second required study is to examine the fiscal impact of the aggregate growth of the teaching force and, more specifically, the impact of increased

Yemenization. The latter is of special concern because of the present system of teacher secondment and salary budget support by certain donors.

1.8.5 Higher Education

Postsecondary education within the YAR is provided by Sana'a University, the National Institute for Public Administration, and the Police College. Foreign study is available under government and donor financing. The emphasis within the assessment has been on the programs of Sana'a University because of its role as the central institution for higher education within the nation.

The University was founded in 1970 with two faculties, the Faculty of Shari'a and Law and the Faculty of Arts and Sciences. The latter faculty was divided into two faculties in 1973 and Education was added as a new faculty in that same year. In 1974 the Faculty of Commerce and Economics was created. More recently, a Faculty of Medicine and a Faculty of Engineering were founded in 1983 and a Faculty of Agriculture began operations in 1984.

Originally under the authority of the MOE, in 1974 Sana'a University became an autonomous institution headed by a governing council. The Minister of Education serves as President of the Council. Egypt and Kuwait have provided major support for the University's development. Egypt has provided a majority of the faculty and Kuwait has been a consistent funding source for capital expenditures at the new campus of the University and the salaries of all non-Yemeni teachers.

The key goals of the SFYP in regard to the University are for the creation of the aforementioned new faculties, increased enrollments (by 248 percent over the five-year plan period), increased standards of admission, and for more rapid Yemenization of instructional and administrative staff. In the first three years of the plan enrollments increased by 64 percent with Shari'a and Law the fastest growing faculty. Improved examination results, combined with the full operation

of the new faculties, could lead to a dramatic increase in enrollments over the next decade. The residual uncertainty concerning future enrollments is due to the indefinite availability of resources for prerequisite facility construction and equipment procurement.

Enrollments at the University are predominantly male (88 percent) and Yemeni (97 percent). The faculties with the largest percentage of females were Arts (36 percent) and Commerce and Economics (21 percent). The Faculty of Shari'a and Law had the lowest proportion of female students (eight percent).

Enrollment data indicate high levels of attrition and repetition in all faculties with the exception of Education (where students are highly subsidized). In fact, the attrition and repetition figures are indicators of the high incidence of part-time study engaged in by most students. Although University charges are low and there is no formal tuition expense, students have high foregone earings if they engage in full-time study. Since many students also represent a major source of income support for their families, there is a strong incentive for students to study only part-time. Thus, most repetition is not because of previous failure but simply the effect of taking two or more calendar years to complete a given academic year. However, extended programs of this type tend to be characterized by a higher rate of attrition than would be the case for programs of a shorter period with full-time study.

A significant facilities issue exists relative to the availability of housing. As the only source of domestic university training, Sana'a University has a national student population. Students from outside Sana'a, especially women students, have a special difficulty because of the limited residential space available.

University staff have estimated annual unit costs at approximately YR 20,000. This does not include the subsidies for FOE students; these costs would raise FOE unit costs by approximately 50 to 75 percent. Also excluded from the YR

20,000 figure is the estimated personal budget expense for students of YR 11,000 per year. The largest components of this budget are food and housing expenses (which may be paid for by parents or relatives in cash or in kind).

Foreign study is a popular option and some observers feel that many of the best students are involved in these programs. In 1982/83 there were approximately 4,600 students pursuing degree work in more than 13 specializations in over 21 countries. The most popular degree programs are medicine and engineering and the most common countries in which Yemenis were studying were the Kingdom of Saudi Arabia and Egypt.

The policy issues for the higher education subsector are less clear than for the other subsectors covered in the assessment. The University in general, and the new faculties in particular, are at early stages of their development. Needs exist in the quantitative dimensions of increased enrollments and more Yemeni instructional staff but these quantitative factors should not preclude examination of more qualitative issues.

A special concern exists in terms of the design and implementation of the curricula for the individual faculties. These curricula need to be assessed in terms of their internal rationale as well as their suitability to the level of student preparation and their support in meeting the manpower needs at the postsecondary education level. Other important qualitative issues relate to evaluation of students and instructors and the long-term staff development activities for Yemeni instructors once they are employed. The major policy options in regard to higher education are: to develop and use better internal institutional planning data; to promote greater employment of Yemeni and female instructors and administrators; to review and revise curricular offerings to meet new requirements of students and the economy; to increase the efficiency of facilities and equipment use; and to promote full-time study as the norm for University students.

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Among the research studies appropriate for this subsector are an institutional self-study and evaluation of Sana'a University; the exploration of user-financing and student loan alternatives; and a review of incomplete SFYP University activities to determine priorities for the Third Five Year Plan. Sana'a University has a special opportunity in that it has the capacity itself to conduct such research. In addition, these research and study programs could serve as training opportunities for junior staff.

1.8.6 Nonformal Education

For the purposes of the EHR assessment, the nonformal education (NFE) subsector was defined as including the programs for the eradication of illiteracy and for the support of adult basic education and training. The more generic use of the term "nonformal education" was defined to mean "any learning activity, outside the structure of the formal education system, that is organized to achieve specific and explicit education or training outcomes".

The 1975 census estimated that over 87 percent of the YAR's population was functionally illiterate. The literacy rate for males was only 25.4 percent and the rate for females was less than two percent. These low levels of reading and writing skills are a legacy of the pre-revolutionary government's failure to extend educational opportunities. Although substantial progress has been made in formal schooling in the last two decades, the challenge to government's plans for the eradication of illiteracy remain severe. Programs must focus upon both the adult population and the large proportion (still in excess of fifty percent) of school-age children who are not achieving literacy within the formal education system. Reading materials used by the NLC program incorporate topics related to agricultural instruction. In addition, where affordable, the Ministry will explore additional skill training as part of the literacy program.

In 1982 the government initiated the National Literacy Campaign (NLC). The NLC is operating on an ambitious twelve-year program to create universal literacy in the YAR. The goal of the first five-year phase (1982-1987) of the program is to reach a 50 percent level of literacy for those between the ages of 10 and 45. A goal of 1,250,000 enrollees in the NLC training courses has been established for this first phase.

A second major NFE activity of government is the basic training scheme implemented by the District Training Centers (DTC's). Partially financed with World Bank support, there are now seven DTC's operating in rural towns or in central cities of the more rural governorates. The DTC's provide introductory level training in such fields as agriculture, electricity, carpentry, automotive mechanics, construction, handicrafts, health, and nutrition as well as basic literacy skills training. In the 1982/83 year, there were 13,329 participants at the seven centers and 3,944 individuals have completed skills training programs.

Enrollments in the NLC campaign have been predominantly male. For the 1983/84 year, there were 87,863 male registrants and only 22,059 female registrants. The attrition rate over the first year of the program was higher for males than for females (26.8 percent versus 22.7 percent).

The NLC curriculum was designed originally to incorporate skills training but this aspect of the program has only been partially implemented because of financial constraints. At some locations skill training in sewing is being offered for women. The major subject areas of the NLC curriculum are literacy, numeracy, and religious studies. The basic NLC instructional sequence is to conduct three, 40-minute sessions a day, six days a week, six months a year, over a period of two years. A special two-year follow-up program, which is not a direct part of the NLC, is available after the NLC program is completed. The follow-up program is designed to promote skill-equivalency with primary school graduates and can qualify

the participant to reenter the formal school system at the preparatory level. All NLC instructors are primary school teachers who are working in addition to their normal school responsibilities. Some of the teachers have not received training in adult instruction.

The curriculum at the DTC's varies by skill specialization. However, the basic structure is an eight-month instructional sequence. Afternoon classes are scheduled for women and evening classes for men. Some of the special skill courses operate on an intensive four-month schedule with classes for four hours daily. The instructional staff at the DTC's are primarily expatriates teachers. The literacy trainers are locally-employed primary school teachers.

Both the NLC and DTC programs were designed originally to make use of existing facilities or of community constructed facilities. This procedure has been followed by the NLC. The availability of World Bank funding, however, has led the DTC's to create special-use buildings for their programs. The cost for additional DTC's is estimated to be as high as US $1 million, inclusive of land, equipment, and furnishings. Annual recurrent salary costs for a single DTC are estimated at YR 475,200.

There are two conclusions to be derived from the analysis of these two NFE programs. The curriculum of the DTC's appears to be more responsive than that of the NLC both to client desires (for literacy plus skill training) and to the social and economic needs of the nation. The DTC curriculum is also less extensive in terms of its time demands on clients. However, the organization and costs of the DTC's are more representative of formal than nonformal education programs.

In planning for the future of NFE activities in Yemen, it is essential that both the NLC and DTC programs develop instructional strategies that are realistic in terms of government resources, client interests, and the social and economic needs of the nation. This requires a continuing appraisal of both programs so that they operate as independently efficient but complementary activities.

Nonformal education programs exist outside the NLC and the DTC's. An important example is the set of training programs operated by the LCCD's and the cooperatives under the General Federation of Local Councils for Cooperative Development. The programs vary in length from a few weeks to six months. Among the skill areas covered are midwifery, rug making, machinery usage and maintenance, electricity, welding, and literacy.

The major policy recommendations for the nonformal education subsector are: expanding all literacy programs to include basic skills training; continuing the emphasis of literacy programs on attainment of functional literacy; continuing to require teacher training in NFE pedagogy for all NFE instructors; and making better use of existing facilities and equipment so as to avoid large capital expenditure requirments in the DTC's.

An area that requires additional study is the use of radio and television media to bear an increased if not majority responsibility for literacy training. There is little probability that, under current conditions, the NLC can meet even its quantitative goals. Media education can be cost-effective and is especially adaptable to cultural limitations on female participation. A secondary research topic is the skill needs of rural NLC and DTC participants. Program specializations are determined more on the basis of the availability of trainers than on the manpower needs of the economy or the individual wishes of the clients.

1.9 SUMMARY RECOMMENDATIONS FOR THE EHR SECTOR

In this section an attempt will be made to draw together the most important options for EHR policy and practice presented in the EHR assessment. These options are proposed as topics for review and discussion within government and, where appropriate, between government and the donor community.

A product of this process of review and discussion is that the options should be refined, articulated, and organized in terms of priority. The sequence in which the options are

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presented here should not be interpreted as implying in order of importance or of temporal prerequisites. Because the rationales for these options have been discussed earlier in this chapter (and in more detail in the subsector chapters) only a brief description will be provided here. The elevenmost important options proposed for government consideration are:

(1) To continue measures to guarantee the implementation of educational policies and to guide education in a manner that will assure the achievement of internal and external efficiency.

(2) Review of the appropriateness of current teacher credentialization requirements and assessment of alternative inservice accreditation programs for Yemenis without preservice teacher training experience.

(3) To continue the expansion of teacher training programs based upon the relative cost effectiveness of the production and retention of Yemeni teachers versus the employment of expatriate teachers.

(4) Establishment of a policy that new school construction should emphasize establishment of female and coeducational schools and the availability of all secondary education alternatives in each governorate.

(5) To expand the program of participation by the LCCD's and the general population in sharing the costs of education in general and of the District Training Centers and the National Literacy Campaign in particular.

(6) To conduct a study of the feasibility of parental sharing of the costs of education in order to alleviate the financial burden on the Ministry of Education.

(7) Development of a formal national training strategy with involvement of the private sector; improvement of the quality of manpower planning data and of the relationship between the content and size of vocational and technical education programs and labor market needs.

(8) Consideration should be given to conducting a management assessment of the Ministry of Education and to possible restructuring of the MOE administrative framework.

(9) Government should encourage the Ministry of Civil Service and Administrative Reform to establish detailed staff development plans with each government ministry.

(10) Government should review the present and projected fiscal capacity implications of EHR sector plans; such a review should be a recurrent responsibility and should be fulfilled by a committee composed of representatives from the Ministry of Educaton, the Ministry of Labor, the Central Planning Organization, the Ministry of Finance and the Ministry of Civil Service and Administrative Reform (and others as deemed appropriate).

(11) An enhanced role for planning and research should be promoted within the Ministry of Education; two immediate steps would be to upgrade the quantity and quality of staff in the MOE planning division and by the encouragement of collective research efforts among the MOE, the Educational Research and Development Center, and Sana'a University.

(12) A wider scope for nonformal education is required with an increased emphasis on the economic benefits of literacy acquisition and skill training; there is a need for teacher training for adult education instructors and for expanded recruitment of skill and craft instructors from the local community.

(13) Within the existing traditional and social context, government should attempt to remove all barriers to the efficient participation by women in the educational system and in the economy.

As these options are reviewed and discussed other options may be identified and some of these may be determined to be less central to the policy debate. The purpose of proposing this specific set of options is not to end but to stimulate the debate over the future course of policy and practice in the EHR sector in the YAR.

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2.0 ECONOMIC AND FINANCIAL ANALYSIS OF YEMEN HUMAN RESOURCE DEVELOPMENT

2.1 INTRODUCTION

The economic and financial analysis of human resource development is divided into four main sections: analysis of macro-economic conditions and trends, analysis of governmental fiscal capacity, analysis of manpower supply and demand, and analysis of unit costs and returns to the major levels of education. The economic and fiscal analysis sets the context for the subsequent discussion of the individual education and human resource (EHR) subsectors.

The review of national macro-economic data is required because ultimately the ability of the nation to support recurrent governmental expenditures, in general, and those on EHR activities, in particular, is determined by the vigor and stability of the general economy. In addition, the macro-economic data provide the basis for the specific consideration of government's fiscal capacity to absorb increased expenditures resulting from any new EHR initiatives.

The fiscal capacity analysis contrasts the expected growth of governmental resources with expected increases in demands on these resources. The analysis examines the likely availability of funds for EHR programs compared to the demand for funds from existing or planned education and training activities. Development expenditures are considered in the fiscal capacity analysis in order to project: (1) the effect of government development expenditures on reducing fiscal resources available to finance recurrent costs in the short term, and (2) the effect of development projects on increasing recurrent cost obligations in the long term.

The analysis of manpower supply and demand attempts to identify areas of surplus and shortage between the outputs of Yemen's EHR system and the emerging demands of the Yemeni economy. To be useful to national planners, manpower analysis must be as specific as possible about particular skills or

levels and types of education and training that are in current or projected under- or over-supply. In the context of the YAR, the impact of external supply and demand of manpower must also be taken into consideration. In particular, this manpower analysis must examine the potential for continued export of unskilled Yemeni labor (primarily to Saudi Arabia) and for the continued Yemeni demand for expatriate labor (especially as teachers in Yemeni schools). Both factors will continue to have significant effects on the magnitude of surplus or shortage in certain skill areas.

The focus of the unit costs and returns to education analyses is on a narrower EHR configuration. The unit cost analysis focuses on specific levels of education and training, and, where appropriate, on the major forms and types within a particular level. Indicative rates of return are calculated for selected forms of education and training. It is recognized that these estimates cannot incorporate all of the social, psychological, and economic factors that structure either private or social EHR investment decisions. Such rates are, however, a valuable tool in analyzing potential investment imbalances among types of education. In addition, a comparison of the variation between individual (private costs only) and total (private plus government costs) rates of return provides a useful indication of the differential incentives that exist between individual and collective rationales for EHR demand.

The focus of the economic and financial analysis is on the future constraints and opportunities of the EHR sector and how these factors should affect the planning requirements for EHR development. Although the analysis is based largely on data from the present and recent past, emphasis is solely on what might be done rather than on questioning past decisions that have structured EHR policy and practice. In addition, the total EHR assessment is concerned with both short-term, marginal changes that can improve EHR practice and long-run policy reform that might affect the EHR sector generally. The overriding goal of this economic and financial analysis (and of

the education sector assessment as a whole) is to propose a set of options that government may consider in its efforts to adapt EHR policy and practice to the YAR's emerging pattern of constraints and opportunities.

Full consideration of education policy options is particularly timely for the YAR as the country moves through its second decade of expanded educational opportunity. The first decade in the development of an accessible system of education in Yemen was characterized by a rapid growth in demand for formal education. In a little over ten years, the country has moved from almost no formal system of education to a participation rate at the primary level of almost 49 percent. This rate is certainly low by international standards (especially for females, who make up only 12 percent of total primary enrollment), but represents a dramatic improvement over a very short period of time. The demand for education is likely to continue growing at a fast rate, especially as rates of attrition are reduced and the proportion of women entering the education system increases.

2.2 THE YEMENI ECONOMY

This section of the analysis identifies key issues affecting the Yemeni economy, assesses economic performance, and reviews budget revenues and expenditure in order to provide a framework for examining macro-level educational expenditures.

2.2.1 Major Issues

The economy of the Yemen Arab Republic (YAR) can be characterized by the following seven salient issues:

1) external dependence;
2) small industrial base
3) significant levels of informal economic activity;
4) limited supply of skilled manpower;
5) decline of agriculture

Within a little more than a decade Yemen has moved from a position of near economic isolation in the early 1970's to one of significant dependence on workers' remittances and foreign

assistance as major sources of income and on foreign producers to provide necessities as well as luxuries. The rapid economic progress of the early 1970's in the Gulf Region resulted in an increase in Yemen's economic dependence on factors outside its own borders. This dramatic growth in the economies of the Gulf States led to a rapid expansion in demand for unskilled and semi-skilled workers. Attracted by high wages and geographic and cultural proximity, a large number of Yemeni emigrated to Saudi Arabia and the other oil producing states on the Arab Peninsula. The 1975 Census estimated that approximately 1.2 million (20 percent of all Yemenis) lived abroad as either short-term migrant laborers or as long-term emigrants. Since 1976, net factor income from abroad has been the single largest source of foreign exchange receipts for the YAR. In 1981, a 26 percent decline in measured remittances contributed heavily to the deterioration in the Yemeni balance of payments. Since 1982, the measured in-flow of workers' remittances has stabilized at a slightly higher level of YR 5.4 billion in 1982 and YR 5.6 billion in 1983.

The actual level of workers' remittances is believed to be considerably higher owing to the difficulty in keeping accurate statistics on the number of Yemeni working in Saudi Arabia. In recent years, greater efforts have been made to keep more complete records of labor migration on the basis of visa and passport applications. Many Yemenis cross the undefined northern border into Saudi Arabia without visas, however, and Yemeni seeking employment in Saudi Arabia are not required to have a work permit. Regardless of the absolute levels of workers' remittances or actual number of Yemenis abroad, it does appear that factor income from abroad will continue to play an important role in determining the future levels of Yemen's gross domestic product (GDP) and of foreign exchange holdings.

Large inflows of foreign assistance for development investments coincided with the rapid escalation of labor migration around 1973/74. Availability of large amounts of

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foreign aid has led to a dramatic increase in the scale of investments proposed under the Three-Year Development Plan (1973-75) and under the First Five Year Plan (FFYP). These ambitious development plans have resulted in domestic dissaving and foreign financing has become necessary to cover the foreign exchange gap as well as the budgetary gap. It is estimated that, in 1982, the net inflow of foreign official loans and grants was approximately YR 2.0 billion. In spite of the YAR's recent dependence on foreign aid, external debt service remains modest by developing country standards at 3.5 percent of current account receipts in 1982. There is less cause to be sanguine about the future implications of the nation's current dependence on foreign aid. By 1987, when a large proportion of the repayment obligations come due, it is estimated that servicing requirements on existing debt will increase by 26 percent per annum and could exceed 10 percent of GDP by the end of 1987. Also of concern is the long-term impact of foreign financed and foreign-designed projects on government recurrent costs. This issue will be discussed at greater length in the context of education recurrent costs in the fiscal capacity section.

The Yemeni economy thrived over the past decade on factor income payments and official grants from abroad; these have allowed the aggregate level of consumption and investment expenditures to exceed significantly the level of domestic production. The rapid increase in purchasing power of the average Yemeni and the relatively low manufacturing base promoted a rapid growth in imports since 1976. As early as 1974, imports reached a level of 26 percent of the GDP. Imports stabilized at this level from 1974 to 1976, but increased dramatically in 1978 and have remained at approximately 64 percent of GDP through 1982. It is estimated that imports increased at an average per annum rate of 38 percent during the 1978-1980 period.

The inflow of imports was relatively unrestrained by government during the 1974-1978 period due to initial delays in

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the development of an import regime of a scale to match the rapid inflow of workers' remittances. By the end of the decade, imports had become, by far, the largest single payments item in the YAR balance of payments. Though government has been successful in curbing the growth in imports since 1982 through stricter and higher levels of custom duties, the YAR remains dependent on foreign producers for the bulk of its foodstuffs. Given the sluggish performance of the agricultural sector and the increases in production of qat (at the sacrifice of locally produced foodstuffs) in recent years, the import bill for food is likely to remain high.

The rapid increase in the purchasing power of the average Yemeni has resulted in high levels of consumption in the private sector. Total consumption has exceeded GDP by 20 percent or more since 1976 (with the single exception of 1977) and, in half of those years, private consumption alone exceeded GDP. During the period from 1976/77 to 1980/81, private consumption accounted for an average of 86 percent of total consumption.

In recent years the composition of aggregate consumption has shifted slightly due to a more rapid increase in public consumption. The level of private consumption, however, remains high. The Second Five Year Plan (SFYP) proposes lower consumption ratios during the 1982-86 period; however, the data for 1982 indicate no change in the consumption ratio compared to 1981. The rapid growth in consumption and the continued dependence on imports to meet demand for consumable goods has had the effect of moving Yemen rather quickly from a traditional economy (largely dependent on subsistence agriculture) to a service economy in which the private sector primarily is responsible for distributing rather than producing consumable goods. In 1982, wholesale and retail trade, the third largest sector of the economy, accounted for 15.6 percent of GDP. High levels of dependence on imported raw materials and fuel, coupled with shortages of skilled workers, technicians, and managers, the small size of the domestic

market, and inadequate infrastructure are major impediments to the YAR's industrial development. The YAR's existing industrial base is very small, with manufacturing accounting for only seven percent of GDP in 1982. Most manufacturing production is for domestic consumption with only small quantities of a few items (biscuits, salt, and dairy products) being exported. The largest single industrial subsector is food processing and beverages, which accounted for about 45 percent of total industrial value added in 1980.

Though government policy is to promote the establishment of import-substituting industries utilizing domestic raw materials, an extensive and unregulated border trade makes it difficult to provide domestic industry with effective import protection. The vigorous trade across the Saudi/YAR border is but one example of the large informal economy that exists in the YAR. Unmeasurable economic activity is believed to be substantial in at least three areas: imports, workers' remittances, and traditional handicrafts. The large and, for the most part, unrestricted movement of Yemenis back and forth across the border has made possible a large and lucrative unofficial import business. It has been estimated that unrecorded transactions may account for one-third of total actual imports. Expenditures on these imports represent a potentially large and uncontrolled outflow of currency from the Yemeni economy as well as a disincentive to the development of local industries. Unrecorded inflows of workers' remittances are also believed to be substantial. Some estimates predict recorded workers' remittances will total U.S. $1.3 billion in 1984 and unrecorded remittances potentially another U.S. $.5 billion.

In addition, the bulk of economic activity taking place in small scale traditional businesses (largely handicrafts) is not recorded. Taken together, these three sources of informal economic activity are believed to account for a significant proportion of total economic activity in the YAR. One should, therefore, be aware of the incomplete nature of Gross Domestic

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Product figures used in the following sections and of the extent to which a large portion of Yemen's economy operates outside of the formal sector.

Since the large inflow of workers' remittances began in the mid-1970's, there has been a growing imbalance between the distribution of income and the distribution of social services. This is due to the widespread occurrence of labor migration in all regions of Yemen and the limited ability of a relatively new central government to provide social services to all regions of the country in a short period of time. The contrast between growth in services and growth in income can be illustrated by the comparison of key economic and social indicators. Between 1970 and 1982 per capita GNP increased by a factor of four from U.S. $120 in 1970 to U.S. $500 in 1982. In contrast, the population growth rate increased from 2.3 to 2.9 during the same period and life expectancy at birth improved only slightly from 38.5 years in 1970 to 42.6 years in 1981. In 1970, only four percent of the population had access to safe water; in 1980 the estimate was the same. Infant mortality rates improved only slightly during the period from 212 deaths per 1,000 births in 1970 to 190 in 1981. By the end of the period, approximately 79 percent of the adult population was still illiterate and less than 50 percent of 6-11 year olds were enrolled in primary schools.

Low levels of improvement in social indicators must, of course, be examined in the Yemeni as opposed to the international context. The present government has existed only a little more than a decade and delivery of social services has been constrained by a combination of factors; most important are the tradition of local autonomy, the limited fiscal capacity of the central government, and the inaccessibility to many of the most rugged and remote areas of the country. Hence, availability of centrally-provided social services remains in the early stages of development outside the Sana'a-Taiz-Hodeidah triangle.

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The decline in agriculture in the last decade has led to increased dependence of the YAR on foreign producers of food and decreased earnings from export of traditional products. Agriculture in Yemen has remained largely subsistent and dependent on fluctuations in weather conditions. Only seven percent of the total land area of Yemen (195,000 square kilometers) is arable. The out-migration of Yemeni labor has typically involved unskilled, manual labor from rural areas. The consequent shortage of unskilled workers combined with the remittance-financed construction boom of the last decade has rapidly inflated the domestic wage rate for unskilled labor. In 1970, the average wage rate for an unskilled worker was YR 5 per day. By 1980 the rate had jumped to YR 60-80 per day.

For agriculture, this meant the transformation from a labor-surplus sector to a sector facing full employment with higher wages. Most important, the higher wages were due to an increase in the opportunity cost of labor rather than to increases in agricultural productivity. The small size of land holdings (90 percent are less than five hectars) and the rough terrain of Yemen has impeded the introduction of mechanization to compensate for labor scarcity. The shift in cropping patterns between 1976 and 1982 from cereals to domestically consumed fruit, vegetables, and qat has led to a decline in agricultural exports. The increase in fruit and vegetable production was due largely to government incentives to produce these goods to enhance self-sufficiency. Production of cereals declined largely due to competition from cheaper imports. Local demand for qat increased dramatically with the growth in workers' wages. It is now estimated that 40,000-45,000 hectars are planted in qat which yields annual revenues of approximately U.S. $1 billion. Because qat is highly perishable, virtually 100 percent of the crop is consumed locally. Increased productivity of other agricultural goods has been hindered by inadequate infrastructure and financing, insufficient numbers of agricultural workers, and lack of modern inputs and production techniques.

In real terms, total agricultural output declined from YR 1.88 billion in 1981 to YR 1.83 billion in 1982. A further decline to YR 1.65 billion is estimated for 1983. The Second Five Year Plan has projected real growth rates in the value of agricultural production of 4.2 percent per year. The government plans to increase agricultural productivity through improved irrigation networks and through greater emphasis on the use of modern agricultural methods such as improved seeds, fertilizer, mechanization, etc. Agriculture's share of total investments under the SFYP will be 13.6 percent, an increase from the 7.5 percent allocated to agriculture in the First Five Year Plan.

The preceding review of major issues of the Yemeni economy is not exhaustive. The review should, however, provide a contextual basis for better understanding the analytical sections which follow. The overall conclusion to which the summary of issues points is the vulnerability of Yemen's economy to external events. In the medium-term, the YAR will continue to rely on foreign market demand for Yemeni workers as a major source of income and on foreign producers as major sources of daily necessities. The government's challenge is to structure a supportive administrative base with a clear and positive incentive system, and to incorporate flexible and adaptive planning strategies at both the macro-economic and subsector levels. Such flexibility will be especially important in the EHR sectors given the increasingly large demands which will be made upon them.

2.2.2 Measures of Yemeni Economic Performance

This section of the report reviews the statistics available on the formal monetarized economy of the YAR. As noted in the previous section, the exclusion of informal or parallel economic activity means that these data are incomplete and provide a biased view of the actual performance of Yemen's economy. Because of the government's dependence on easily identifiable modern or formal sector economic activity for much of its revenue base, however, these data are appropriate for the fiscal capacity analysis which follows.

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Table 2.1 presents Central Planning Organization (CPO) estimates of Gross Domestic Product, by source, for the national economy from 1977/78 to 1983. It should be noted that the YAR's fiscal year was changed from July 1/June 30 to January 1/December 31 in 1981. Despite declining productivity in recent years, the agricultural sector continues to dominate GDP. As indicated in Table 2.1 it was the single largest sector of the economy, averaging over 33 percent of GDP until 1982. Within the agriculture sector, crop production is the largest activity, accounting for 70 percent of value-added in 1981. Livestock and poultry account for 25 percent, fisheries 3 percent, and forestry the remainder.

The next largest sources of GDP during the 1977/78-1983 period have been Wholesale and Retail Trade and Government Services. Wholesale and Retail Trade moved from the second to third largest sector during the period as growth in the secror stagnated, while government services grew at an average annual rate exceeding 21 percent.

The data on GDP in Table 2.1 are presented in current prices, and, hence, represent an overstatement of the change in real (purchasing power) GDP. Table 2.2 presents the same GDP data as Table 2.1, but all amounts are adjusted for inflation (figures are in constant 1975/76 prices). The rate of increase in the Sana'a retail price index, which is broadly representative of price movements in other cities, declined from 21.8 percent in 1978/79 to 2.8 percent in 1982. The increase in prices up until 1978/79 were due to increased income levels and extensive housing construction and public infrastructure investments, all driven by the inflows of worker remittances. The moderation of inflationary pressures in 1981-82 reflected the general slowdown in economic activity, as well as the appreciation of the U.S. dollar to which the Yemen rial was pegged until 1983. In 1983, inflation reaccelerated to 10 percent and is projected to increase by another 10 percent by the end of 1984. The principal cause of increased inflation has been identified as the increase in the money

TABLE 2.1
GROSS DOMESTIC PRODUCT BY SOURCE
(Millions of Yemen Rials at Current Prices)

Item	1977/78	1978/79	1979/80	1980/81	1981	1982	1983*[1]
Agriculture, forestry, fishing	2,409	3,049	3,458	3,579	3,685	3,799	3,596
Mining & quarrying	100	133	149	149	156	168	190
Manufacturing	381	504	655	730	820	1,043	1,254
Electricity, gas, water	23	38	66	80	117	138	173
Construction	796	1,045	1,002	1,088	1,098	1,215	1,255
Wholesale and retail trade	1,448	1,686	2,060	2,124	2,046	2,204	2,304
Restaurants & hotels	83	104	129	136	139	165	172
Transport & communications	308	370	431	461	497	610	696
Financial services	512	707	874	984	550	592	720
Real estate & business services	350	465	578	552	567	682	756
Other services	97	122	144	154	155	182	193
Government services	858	1,202	1,505	1,748	2,207	3,574	3,668
Less: accounted-for-banking services	-449	-645	-802	-864	-211	-246	-257
Total (factor cost)	6,916	8,780	10,249	10,921	11,826	14,126	14,720
Total (market prices)*[2]	8,220	10,166	11,919	12,630	13,460	15,966	16,979

Source: CPO Statistical Yearbooks, 1982 and 1983

[1] Provisional
[2] Includes indirect taxes (i.e.: import duties)

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supply by the Central Bank of Yemen to finance the government's growing budget deficit. The increase in workers' remittances after 1982 has also pushed prices up.

Table 2.2, with GDP having been adjusted for these price changes, gives a more accurate picture of real change in GDP. During the period from 1978/79 to 1983, GDP grew at an annual rate of 5.4 percent. This contrasts with the five years ending in 1977/78 in which economic activity, particularly in the non-agricultural sectors, expanded vigorously resulting in annual real GDP growth rates averaging 8.3 percent.

During the 1978/79-1983 period, output from the agricultural sector became more stable than in the previous period, but overall productivity remained low. The general sluggishness of economic growth during the period has been attributed to slowed growth in the non-agricultural sector. With an average annual growth rate of 1.9 percent, stagnation in the Wholesale and Retail Trade sector also has contributed heavily to slowed growth. During the same period, government services grew at approximately 21 percent per year. This rapid growth in government services mainly reflects growth in defense, general administration, health, and education. The Manufacturing and the Electricity, Gas and Water sector's output rose steadily at rates higher than those for overall GDP, but the combined share of these sectors in GDP was only 8.4 percent in 1982 and 9.7 percent in 1983.

GDP declined in real terms in 1983. This was due to a fall in agricultural output because of poor weather conditions, a continued deterioration in the Wholesale and Retail Trade sector, and cutbacks in expenditures on government services. Projected growth in GDP for 1984 is a modest 2.4 percent.

Table 2.3 examines how GDP was expended. Private consumption is the largest expenditure component. In several years during the 1977/78 to 1983 period, private consumption alone exceeded total GDP. Government and final consumption taken together have exceeded GDP in all years between 1977/78 and 1983. Total consumption as a proportion of GDP increased

TABLE 2.2

GROSS DOMESTIC PRODUCT BY SOURCE

(Millions of Yemen Rials at Constant 1975/76 Prices)

Item	1977/78	1978/79	1979/80	1980/81	1981	1982	1983[1]
Agriculture, forestry, fishing	1,653	1,926	2,008	2,111	1,877	1,827	1,650
Mining & quarrying	64	74	78	74	79	81	87
Manufacturing	309	361	416	448	418	502	576
Electricity, gas, water	22	28	37	43	60	66	79
Construction	511	581	480	469	559	584	576
Wholesale & retail trade	987	963	1,063	1,059	1,042	1,060	1,058
Restaurants & hotels	72	76	81	83	71	79	79
Transport & communications	200	208	211	217	253	293	319
Financial services	338	380	421	448	280	285	331
Real estate & business services	221	226	241	265	289	328	347
Other services	71	79	84	87	79	88	89
Government services	585	672	760	833	1,124	1,719	1,684
Less: accounted-for-banking services	-305	-360	-405	-410	-108	-118	-118
Total (factor cost)	4,728	5,214	5,475	5,719	6,023	6,794	6,757
Total (market price)	5,615	5,988	6,318	6,555	6,855	7,679	7,794

Source: CPO Statistical Yearbooks, 1982 and 1983.

[1] Percent change in 1983 prices is based on the average of the change in retail price indices between 1982-1983 in five major Yemeni cities.

TABLE 2.3

EXPENDITURES ON GROSS DOMESTIC PRODUCT
(In Millions of Yemen Rials, Current Prices)

	1977/78	1978/79	1979/80	1980/81	1981	1982	1983
Final Government Consumption	1,242	1,786	2,190	2,539	3,891	6,752	6,958
Final Private Consumption	7,652	10,205	12,154	12,812	12,545	13,291	13,472
Gross Fixed Capital Formation	3,160	4,445	4,882	5,413	5,311	5,122	5,131
Increase in Stocks	407	30	355	107	219	240	-148
Exports	242	474	803	805	1,130	958	1,126
Imports	-4,483	-6,774	-8,465	-9,046	-9,636	-10,397	-9,560
Gross Domestic Product	8,820	10,166	11,919	12,630	13,460	15,966	16,979

Source: CPO Statistical Yearbook, 1983

steadily during the period from 101 percent of GDP in 1977/78 to 126 percent of GDP in 1982. Consumption as a proportion of GDP fell slightly to 120 percent in 1983. Due to the increase in the flow of foreign resources during the early part of the period - remittances of Yemeni workers as well as foreign loans and grants - the YAR has been able to expand its domestic expenditure much faster than measured GDP alone would permit. Gross fixed capital formation was an average 41 percent of GDP between 1977/78 and 1981, a level almost double that of the previous five-year period. This high rate of investment, combined with a decline in national savings, led to an increase in the YAR's deficit on its external capital account. In response to the growing deficit, gross fixed capital formation was reduced slightly in 1982 and held in check again in 1983.

Imports increased steadily during the period, peaking at YR 10.4 billion in 1982. As indicated in Table 2.4, high levels of imports have been the main cause of the balance of payments deficit which also peaked in 1982. Private receipts from Yemeni incomes earned abroad are the single item that has helped offset the high import bills. Exports have been insignificant as a source of foreign exchange receipts through the entire period. Table 2.4 shows a slight reduction in the payments deficit in 1983. This can be traced to an 8 percent reduction in imports from the previous year coupled with a 4.5 percent increase in workers' remittances and a 41 percent increase in net capital movement. Data from the first and second quarter of 1984 suggest that private receipts will increase slightly and imports will be lower than in the previous year.

2.2.3 Current National Budget Receipts and Expenditures*

The major source of government revenues in the YAR is the

*NOTE: Tables 2.4 through 2.9 have been revised from the February, 1985 drafts based on new figures provided by the Ministry of Finance in December, 1985. Later projections in this chapter are based on the original estimates of 1983 and 1984 revenues and expenditures. These adjustments do not change the direction or magnitude of the later estimates.

TABLE 2.4

YEMEN ARAB REPUBLIC BALANCE OF PAYMENTS
(In Millions of Yemen Rials)

	1980	1981	1982	1983	1984 (1st Qtr.)	1984 (2nd Qtr.)
Net Goods and Services	-8,655.3	-8,052.2	-8,932.6	-8,270.7	-1,589.5	-1,815.4
Exports	57.5	47.4	21.6	44.0	3.4	2.5
Imports	-8,619.5	-7,867.8	-8,785.7	-8,082.0	-1,571.5	-1,742.4
Trade Balance	-8,562.0	-7,020.4	-8,764.1	-8,038.0	-1,568.1	-1,739.9
Net Services	-93.3	-231.8	-168.5	-232.7	-21.4	-75.5
Net Transfers	5,544.8	5,062.8	6,266.3	5,819.2	1,181.1	2,080.6
Receipts	6,699.3	5,960.6	7,469.6	6,452.3	1,290.5	2,214.9
(Government)	(655.2)	(1,516.4)	(2,109.0)	(851.6)	(57.2)	(319.4)
(Private) [1]	(6,034.1)	(4,444.2)	(5,360.6)	(5,600.7)	(1,233.3)	(1,895.5)
Payments	-1,154.5	-897.8	-1,203.3	-633.1	-109.4	(-134.3)
(Government)	(-)	(-0.6)	(-1.1)	--	-	-
(Private) [1]	(-1,154.5)	(-897.2)	(-1,202.2)	(-633.1)	(-109.4)	(-134.3)
Current Account Balance	-3,110.5	-2,989.4	-2,666.3	-2,451.5	-408.4	265.2
Net Capital Movement	1,900.3	938.9	612.5	864.4	73.5	138.9
Errors and Omissions [2]	708.4	873.9	414.7	552.0	137.3	-42.4
Overall Balance	-501.8	-1,176.6	-1,639.1	-1,035.1	-197.6	361.7

Source: Central Bank of Yemen

1. Consists mainly of workers remittances.
2. Includes Net Private Capital flows and Short-term Nonmonetary capital flows.

taxation of international trade. In Table 2.5 central government revenue is given for the period from 1978/79 to 1984. Taxes accounted for 83 percent of all current government revenue in 1983 and 81 percent in 1984: the remaining revenues were accounted for by non-tax revenues, mostly property income and administrative fees and charges. Tax on international trade earned 50.3 percent of all current government revenues in 1983 and 45.4 in 1984. The "other taxes" category--zakat (religious tax) and stamp duties--was the second largest source of government revenues in 1984 (14.7 percent of the total) and the tax on net income and profits was the third largest (12.5 percent of the total). Government revenues grew significantly faster than nominal GDP during the 1970's, reflecting government's rapidly expanding role in the process of economic development. In the mid-1970's the rapid growth of imports led to increases in customs revenues which, together with improvements in tax administration, increased revenues more rapidly than government was able to increase its expenditures. Between 1974 and 1976 the average annual growth rate of revenues was nearly 85 percent compared with just under 50 percent for expenditures.

The budgetary deficit (excluding grants) declined during the 1970's from just under 7 percent of GDP to 2 percent by 1976. A different pattern developed as the average annual growth rate of revenues declined to less than 15 percent during 1977-82, while at the same time expenditures increased at an average annual rate of 33 percent. Although current revenues were essentially stable relative to GDP for the period from 1977-1983, after the dramatic growth of the 1970's there have been differences in the growth patterns of various revenue sources as coverage of the tax base broadened and the efficiency in collection of some taxes improved. Receipts from taxes on net income rose most rapidly increasing their share in total revenue from five to 12 percent. Tax on goods and services also increased rapidly from approximately three

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TABLE 2.5
CENTRAL GOVERNMENT REVENUE
(In Millions of Yemen Rials)

ITEM	1978/79	1979/80	1980	1981	1982	1983[1]	1984[1]
TOTAL REVENUES	2,174.7	2,762.9	3,050.1	3,335.2	3,696.0	4,408.3	4,677.4
1. Current Revenues:	2,160.6	2,755.4	3,041.6	3,329.3	3,692.4	4,404.5	4,667.7
Tax Revenues:	1,731.9	2,123.4	2,424.9	2,614.3	3,041.7	3,659.8	3,762.8
Taxes on net income/profits:	139.0	204.2	225.9	304.5	451.7	516.4	585.0
-wages & salaries	(66.3)	(112.8)	(134.1)	(169.9)	(272.6)	(312.0)	(374.4)
-commercial & industrial profits	(66.7)	(73.3)	(73.2)	(116.0)	(146.7)	(165.6)	(175.1)
-rental income	(4.5)	(10.9)	(10.3)	(17.2)	(20.1)	(23.5)	(25.0)
-other	(0.5)	(7.2)	(8.3)	(0.9)	(12.3)	(15.3)	(10.5)
Taxes on property:	4.2	5.5	5.2	4.0	8.7	13.3	21.7
-real estate transfers							
Taxes on goods/services:	104.5	189.3	287.4	285.2	270.2	285.1	350.6
-selected excises on goods	(47.2)	(126.0)	(221.3)	(205.0)	(186.4)	(174.2)	(232.3)
tobacco/cigarettes	[0.3]	[5.1]	[4.8]	[5.4]	[6.2]	[8.9]	[7.2]
petroleum products	[44.4]	[106.2]	[162.8]	[86.5]	[34.6]	[-]	[60.0]
soft drinks	[2.5]	[5.7]	[11.5]	[25.5]	[28.9]	[38.0]	[44.7]
gat	[-]	[9.0]	[42.2]	[87.6]	[116.7]	[127.3]	[120.4]
-selective taxes on services	(0.6)	(0.6)	(0.7)	(0.6)	(83.8)	(110.9)	(118.3)
transport	-	-	-	-	-	-	-
cinema	[0.6]	[0.6]	[0.7]	[0.6]	[1.0]	[3.1]	[3.4]
-motor vehicle taxes[2]	(52.3)	(62.5)	(65.4)	(73.5)	[82.8]	[107.8]	[114.9]
-other	(-)	(0.2)	(-)	(6.1)	(-)	(-)	(-)
Taxes on international trade:	1,385.9	1,619.9	1,794.5	1,633.6	1,840.5	2,213.3	2,121.4
-import duties & taxes	(1,385.5)	(1,619.8)	(1,794.5)	(1,633.4)	(1,840.4)	(2,213.2)	(2,121.4)
custom duties	[1,021.1]	[1,169.4]	[1,291.3]	[1,159.1]	[1,301.5]	[1,[illegible]]	[1,524.7]
defense tax	[245.2]	[320.8]	[369.6]	[301.5]	[343.9]	[377.1]	[407.0]
statistical tax	[117.5]	[126.7]	[120.5]	[124.7]	[138.4]	[151.3]	[162.9]
other	[1.7]	[2.9]	[3.1]	[48.3]	[56.6]	[83.3]	[26.7]
-export duties and taxes	[0.4]	(0.1)	(-)	(0.2)	(0.1)	(0.1)	(-)
Other taxes:	98.3	104.5	111.9	387.0	470.6	631.7	684.1
-zakat (religious tax)	(40.0)	(46.6)	(38.3)	(25.3)	(100.8)	(109.3)	(166.3)
-stamp taxes	(58.3)	(57.9)	(73.6)	(361.7)	(369.8)	(522.4)	(517.8)
stamp duties	[16.2]	[27.8]	[32.3]	[55.8]	[44.1]	[44.5]	[58.0]
consular fees	[42.1]	[30.1]	[41.3]	[305.9]	[325.7]	[477.9]	[459.8]

TABLE 2.5 Contd.

ITEM	1978/79	1979/80	1980	1981	1982	1983	1984
Nontax Revenues:	428.7	632.0	616.7	715.0	650.7	744.7	904.9
-property income	337.7	510.1	487.6	450.4	476.2	512.7	504.1
-administrative fees and charges	73.1	96.5	98.4	163.7	127.7	167.3	182.1
-fines/forfeitures	14.0	20.0	24.6	11.1	30.0	47.8	187.1
-other	3.9	5.4	6.1	89.3	16.8	16.8	31.6
II Capital Revenues:	14.1	7.5	8.5	5.9	3.6	3.8	9.7

Source: Ministry of Finance

[1]Revised figures as of December, 1985.

[2]Included under selective taxes on services from 1982 forward.

percent to over six percent in 1984. Taxes on international trade have remained the single most important source of revenue during the period and averaged 58 percent of total current revenues between 1978/79 and 1981.

Receipts from import duties and taxes fell from 59 percent of total current revenues in 1980 to 49 percent in 1981 due to a decrease in the value of imports resulting from sluggish demand and a reduction in the exchange rate used for customs valuation. This fluctuation in revenues from import duties highlights the external nature of the Yemeni revenue base. Improved collection procedures introduced in 1980 expanded collection of taxes on wages and salaries by 10,000 taxpayers in the private sector. Taxes on goods and services were expected to grow rapidly between 1983 and 1984. The estimates for this period of growth in revenue from taxes on petroleum and qat were most noteworthy. In fact, revenues from the tax on petroleum products increased from YR 34.6 million in 1982 to an estimated YR 60.0 million in 1984. It must be noted that in absolute terms, however, this level is not much higher than in 1980. The increase in qat tax revenues from 1983 to 1984 was probably attributable to the opening of two new central markets. If the estimate of U.S. $1 billion from the annual sale of qat is at all accurate, only a very small portion of potential revenue from this tax has actually been collected. The collection of the qat tax is likely to remain difficult as a large portion of the qat is produced and consumed in rural areas without having passed through a formal market.

Despite additional projected increases in taxes on income and profits and on motor vehicles, it is believed that revenues from all sources will continue to grow more slowly as further expansion of the tax base becomes more difficult. Within this context, import duties and taxes are likely to remain the largest single source of central government revenue.

While government revenue growth rates stabilized during the period from 1977-1982, government expenditures continued to increase at a rapid pace. Tables 2.6, 2.7, and 2.8 give the

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TABLE 2.6

FUNCTIONAL CLASSIFICATION OF CENTRAL GOVERNMENT TOTAL BUDGETARY EXPENDITURES, 1978/79-1984

(In Millions of Yemen Rials)

	1978/79	1979/80	1980	1981	1982	1983	1984
TOTAL	4464.9	5023.7	6872.9	7008.7	9197.3	8861.5	9177.0
GENERAL PUBLIC SERVICES	736.3	940.6	1087.6	1175.9	1733.1	1699.7	1956.2
General Administration	471.4	590.7	746.3	723.2	1120.7	1064.0	1299.9
Public Order and Safety	264.9	349.9	341.3	452.7	612.4	635.7	656.3
OTHER PUBLIC SERVICES	2268.1	2256.7	2424.9	3167.8	4657.6	4914.4	4342.8
Defense	1705.1	1507.8	1545.3	2015.7	2933.3	3103.7	2584.8
Education	427.7	568.8	673.0	927.8	1352.6	1399.5	1415.7
Health	135.3	180.1	206.6	224.3	371.7	411.2	342.3
COMMUNITY & SOCIAL SERVICES	98.7	154.2	104.1	112.0	159.5	169.7	140.2
Recreational & Related Act.	51.3	60.4	51.9	39.3	66.6	76.9	49.0
Broadcasting, Press & Info.	15.2	56.4	52.2	72.7	92.7	92.8	91.2
Religion	32.2	37.4	-	-	-	-	
ECONOMIC SERVICES	359.2	578.3	795.0	829.4	713.2	724.0	715.4
Agriculture	43.1	61.7	76.4	108.1	106.7	109.0	153.4
Mining	-	-	-	-	-	-	
Electricity, Gas and Water	-	-	-	0.6	0.8	9.3	.9
Construction	204.5	255.6	364.6	404.5	465.8	477.4	476.4
Transportation & Communication	91.2	244.7	338.2	299.5	124.0	111.9	70.0
Commerce	20.4	16.3	15.8	17.3	16.7	16.4	14.7
INTEREST ON PUBLIC DEBT	17.0	22.1	27.0	35.0	53.8	59.5	50.2
CAPITAL TRANSFER	404.0	513.0	515.9	737.5	945.5	415.3	908.7
BUDGETED EXPENDITURES	3883.3	4464.9	4954.5	6058.2	8263.5	7982.6	8113.5
CAPITAL EXPENDITURES[1]	581.6	558.8	1918.4	950.5	933.8	878.9	1063.5
FINANCE BY EXTERNAL LOANS							

[1]Counterpart of project and commodity loans, which is not included in the budget document

Source: Ministry of Finance

TABLE 2.7
FUNCTIONAL CLASSIFICATION OF BUDGETARY CURRENT EXPENDITURES
(In Millions of Yemen Rials)

	1978/79	1979/80	1980	1981	1982	1983	1984
TOTAL CURRENT EXPENDITURE	1847.2	2531.3	2963.3	3325.4	5180.7	6200.3	5840.5
GENERAL PUBLIC SERVICES	523.8	758.8	900.2	937.0	1465.1	1479.0	1713.9
General Administration	319.3	478.0	610.4	550.1	923.6	911.3	112.7
Public Order & Safety	204.5	280.8	289.8	386.9	541.5	567.7	586.9
OTHER PUBLIC SERVICES	1159.2	1526.3	1808.4	2068.8	3357.6	4338.2	3780.8
Defense	794.1	1027.9	1233.4	1354.2	2165.5	3061.1	2436.7
Education	287.7	400.0	462.4	611.7	1030.1	1100.1	1170.9
Health	77.4	98.4	112.6	102.9	162.0	177.0	173.2
COMMUNITY & SOCIAL SERVICES	40.1	87.2	79.4	103.9	142.2	156.0	127.9
Recreational & Related Activities	19.7	24.0	25.0	35.0	61.3	72.7	44.4
Broadcasting, Press & Information	9.3	46.7	44.3	68.9	80.9	83.3	83.5
Religion	11.1	16.5	10.1	-	-	-	-
ECONOMIC SERVICES	107.1	136.9	148.3	180.7	162.0	167.6	167.6
Agriculture	10.4	16.7	14.7	19.4	25.3	27.7	29.4
Mining	-	-	-	-	-	-	-
Electricity & Water	-	-	-	0.4	0.7	1.0	.9
Construction	61.6	75.1	87.6	95.3	90.1	96.1	96.5
Transportation & Communication	28.5	34.9	38.0	53.5	31.4	27.5	26.3
Commerce	6.6	10.2	8.0	12.1	14.5	15.3	14.5
INTEREST ON PUBLIC DEBT	17.0	22.1	27.0	35.0	53.8	59.5	50.3

Source: Ministry of Finance

TABLE 2.8

FUNCTIONAL CLASSIFICATION OF BUDGETARY CAPITAL EXPENDITURES
(In Millions of Yemen Rials)

	1978/79	1979/80	1980	1981	1982	1983[1]	1984[1]
TOTAL CAPITAL EXPENDITURE	2617.7	2492.4	3919.7	3683.3	4016.6	2928.7	3229.8
GENERAL PUBLIC SERVICES	212.5	181.8	187.4	238.9	268.0	220.7	242.3
General Administration	152.1	112.7	135.9	173.1	197.1	152.7	172.9
Public Order and Safety	60.4	69.1	51.5	65.8	70.9	68.0	69.4
OTHER PUBLIC SERVICES	1108.9	730.4	616.5	1099.0	1300.0	576.2	562.0
Defense	911.0	479.9	311.9	661.5	767.8	42.7	148.1
Education	140.0	168.8	210.6	316.1	322.5	279.4	244.8
Health	57.9	81.7	94.0	121.4	209.7	234.2	169.1
COMMUNITY AND SOCIAL SERVICES	58.6	67.0	34.8	8.1	17.3	13.7	12.3
Recreational and Related Act.	31.6	36.4	26.9	4.3	5.5	4.2	4.6
Broadcasting, Press & Info.	5.9	9.7	7.9	3.8	11.8	9.5	7.7
Religion	21.1	20.9	--	--	--	--	--
ECONOMIC SERVICES	252.1	441.4	646.7	649.1	551.9	548.4	547.8
Agriculture	32.7	45.0	61.7	88.7	81.4	81.3	124.0
Mining	--	--	--	--	--	--	--
Electricity and Water	--	--	--	0.2	0.1	8.3	--
Construction	142.9	180.5	277.0	309.2	375.7	381.3	379.9
Transportation	62.7	209.8	300.2	246.0	92.6	84.4	43.7
Communication	13.8	6.1	7.8	5.2	2.2	1.1	0.2
Commerce							
CAPITAL TRANSFERS[2]	404.0	513.0	515.9	737.5	945.5	690.8	801.9
BUDGETED CAPITAL EXPEND.	2036.1	1933.6	2001.3	2732.8	3082.8	2049.8	2166.3
CAPITAL EXPEND. FINANCED BY EXTERNAL LOANS[3]	581.6	558.8	1918.4	950.5	933.8	878.9	1063.5

[1] Revised estimates as of December, 1985.

[2] Capital transfers as recorded in YAR budget documents include external loan repayments which are excluded here. Capital transfers have in some years included transfers to public sector enterptises for current purposes.

[3] Counterpart or project and commodity loans which is not included in the budget document.

Source: Ministry of Finance

functional classification of central government expenditures. Table 2.6 shows growth in total government expenditure between 1978/79 and 1984. Table 2.7 gives levels of current government expenditures by functional classification and Table 2.8 gives levels of capital expenditures. A comparison of Table 2.6 and Table 2.8 reveals that capital expenditures accounted for 50 percent or more of total budget expenditures from 1978/79 to 1979/80 and was still as high as 35 percent for 1984.

Capital expenditures in the areas of education, health, agriculture, and other economic infrastructure increased most rapidly, rising from YR 450 million in 1978/79 to YR 1.08 billion in 1982. External loans financed an average 29 percent of capital expenditures during the period from 1978/79 to 1982.

Since 1980 current expenditures comprised an increasing portion of total government expenditures rising to 70 percent in 1983. However, fiscal restraint has caused a decline in this proportion to 63.6 percent in 1984. Relative to GDP, current government expenditures have jumped from 21 percent of GDP in 1978/79 to 42.1 percent in 1983. The most rapid expansion in current expenditures has been in education, increasing from the already high level of 15.6 percent of current government expenditures in 1978/79 to almost 20 percent in 1982. Again, financial constraints reduced the education proportion to 17.7 percent in 1983. The steady growth in current education expenditures relative to both GDP and government expenditure over the past six years is illustrated in Table 2.9. Current outlays for health, community and social services, and agriculture also increased rapidly over the period.

Most of the increase in current expenditure during the period comprised higher outlays for wages and salaries, which rose by 54 percent following an increase in the wage scale and an upward reclassification of many employees. These increases, along with incentive payments to YAR teachers and increased employment of teachers contributed to a 60 percent increase in current education outlays. Budgetary outlays for defense rose

TABLE 2.9

EDUCATIONAL EXPENDITURES AS A PERCENT OF GDP
AND OF GOVERNMENT EXPENDITURE

	GDP [1]/	CURRENT GOVERNMENT EXPENDITURE	2/1	CURRENT GOV'T EXPEND. FOR EDUCATION	4/1	4/2
1978/79	8,780	1,847	21.0	288	3.3	15.6
1979/80	10,249	2,531	24.7	400	3.9	15.8
1980/81	10,921	2,963	27.1	462	4.2	15.6
1981	11,826	3,325	28.1	612	5.2	18.4
1982	14,126	5,181	36.7	1,030	7.3	19.9
1983	14,720	6,200	42.1	1,100	7.5	17.7

[1]/GDP at Factor Prices

Source: GPO Statistical Yearbook, 1983, and Ministry of Finance

less rapidly, but they remained the largest single functional category, accounting for about 47 percent of current outlays in 1983 and a lower estimate of 41.7 percent in 1984.

In summing up recent trends in the government budget, it is useful to compare growth trends of revenues and expenditures during three identifiable phases. The first phase was between 1973 and 1978, when the budget was approximately balanced. During this phase total revenues were adequate to cover total expenditures. As explained earlier, this was due to the rapid expansion of revenues that was possible during the initial expansion of the formal tax system and the relatively modest growth in expenditures during the government's first years of involvement in the economic development process.

The second stage extended from 1978 to 1982 and was characterized by a relatively faster growth in expenditures than in revenues, as can be evidenced in the trends in the current and total budget deficit outlined below.

GROWTH IN CURRENT AND TOTAL BUDGET DEFICIT
1978-1983
(in Millions of Yemen Rials)

	Current	Total
1978/79:	+ 313.4	- 2,290.2
1979/80:	+ 224.1	- 2,260.8
1980 :	+ 78.3	- 3,822.8
1981 :	+ 3.9	- 3,673.5
1982 :	- 1,488.3	- 5,501.3
1983 :	- 1,795.8	- 4,453.2
1984 :	- 1,172.8	- 4,499.6

Growth in tax revenues slowed during this period as options for increasing the tax base decreased and increasing revenues became dependent on improved efficiency in the collection of existing taxes. At the same time, the rate of expenditures continued to increase as government's role in the development process expanded. During this period, total revenues fell short of total expenditures by a substantial margin. Expenditures were, however, adequate to cover recurrent government expenditures during most of this period.

Beginning in 1982, government revenues fell short of recurrent expenditures as well. In the previous period, existence of government deficits were justified by the substantial development investments financed by capital expenditures. The emergence of a deficit in the recurrent budget in 1982 alerted government officials to the need to reduce expenditures. In response to the alarming growth in the budget deficit in 1982, government was successful in reducing total government expenditures by 4 percent in nominal terms in 1983. The decrease in total expenditures was due to a 27 percent decrease in capital expenditures between 1982 and 1983. The biggest cut in the capital budget was the 56 percent decrease in expenditures on "other public services," which includes defense, education, and health. The overall decrease in capital expenditures between 1982 and 1983 is consistent with the adjustments that are being made in the SFYP to offset growing budget deficits and national dissaving. The ambitious plans for YR 29.3 billion of new investment under the SFYP have been scaled down considerably during the first two years of the plan's implementation. Current intentions are to complete existing projects, but to reduce any new capital investments during 1985 and 1986.

Current expenditures of the government continued to grow between 1982 and 1983, but at a much slower rate. Between 1982 and 1983, current government expenditures grew by 14.3 percent in nominal terms. This contrasts with the 55.8 percent increase in current expenditures between 1981 and 1982. Of the "other public services," expenditures on defense grew most vigorously (by approximately 29 percent).

Growth in expenditures on education slowed dramatically between 1981 and 1983. Between 1981 and 1982 education expenditures grew by 68.4 percent and by only 6.4 percent between 1982 and 1983. Despite the overall decrease in government expenditures between 1982 and 1983, current government expenditures alone exceeded total government revenues by YR 1.7 billion. Estimates for current government

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expenditures in 1984 show a nominal decrease from YR 5.9 billion in 1983 to YR 5.8 billion in 1984; total revenues are estimated at YR 4.7 billion for 1984. Budgeted capital expenditures (total capital expenditures less capital expenditures financed by external loans) are estimated to increase by 5.7 percent between 1983 and 1984 (down from an earlier estimate of a 34 percent increase).

The ability of government to meet the development objectives set forth in the SFYP will depend on its ability to reduce the budget deficit. In response to the growth in the current budget deficit, government has already reduced its levels of new capital investment. If central government is to maintain its guidance of Yemen's development process, solutions must be found to the deficit problems that have emerged in recent years. A brief explanation of government development activities is given in the following section.

2.2.4 Development Expenditures

The SFYP has provided for YR 29.3 billion of new investment between 1982 and 1986. This represents more than a twofold increase over actual investment achieved during the First Five Year Plan. YR 28.1 billion have been allocated to investments in fixed assets and the remaining YR 1.2 billion will be invested in increasing domestic inventory. Gross planned fixed capital formation has been distributed among the major economic sectors as shown in Table 2.10.

Among the various sectors of economic activity, government services will be given the highest investment priority. Investments in this sector will be important in meeting the growing demand for social services in all regions of Yemen. Government's continued high priority on the development of basic infrastructure in Yemen is evidenced by the large portion of total new investment planned for the Transport and Communication sector. The sector receiving the third largest proportion of new investment is agriculture. This allocation of resources indicates government's concern in improving productivity in this very important sector.

TABLE 2.10

DISTRIBUTION OF GROSS PLANNED FIXED CAPITAL FORMATION
UNDER THE SECOND FIVE YEAR PLAN (1982-1986)
(In Million Yemen Rials)

Sector	Total	Percent
Agriculture, Forestry and Fisheries	3,825	13.6
Mining and Quarries	905	3.2
Manufacturing	3,290	11.7
Electricity and Water	2,340	8.3
Construction	850	3.0
Trade, Restaurants, Hotels	2,870	10.2
Transport and Communication	4,640	16.5
Financial Institutions	200	0.7
Housing and Real Estate	3,745	13.3
Government Services	5,165	18.4
Other Services	270	1.0
Total	28,100	99.9

Source: Central Planning Organization, The Second Five Year Plan, 1982-1986, 1982.

TABLE 2.11

PLANNED INVESTMENTS IN EDUCATION, 1982-86

(In Thousand Rials)

Project and Executing Agency	Type	Investments During Plan Year Local	Foreign	Total
A. EDUCATION (MOE)				
1. Elementary education	ongoing	322,660	599,231	921,891
2. Preparatory education	new	71,158	132,150	203,308
3. Secondary education	new	20,158	44,480	64,638
4. Teachers Training Institutes	new	3,920	7,280	11,200
5. Technical Commercial education	new	5,930	5,933	11,863
6. Technical Agricultural education	new	18,272	12,181	30,453
7. Technical Industrial education	new	56,935	56,935	113,870
8. Higher Technical Institute (Sana'a)	new	9,627	17,880	27,507
9. Basic training centers	new	475	4,276	4,751
10. Adult education	new	10,000	40,000	50,000
11. Auxilary services	new	32,698	51,312	84,010
12. Theological college	new	12,000	10,000	22,000
SUBTOTAL		563,833	981,658	1,545,941
B. UNIVERSITY OF SANA'A				
13. Faculty of Medicine	new	30,000	170,000	200,000
14. Teaching hospital	new	28,500	161,500	190,000
15. Faculty of Engineering	new	14,960	59,840	74,800
16. Faculty of Agriculture and Farm	new	45,000	46,515	91,515
17. Buildings, labs of new Faculty of Science	ongoing	21,600	81,600	103,200
18. University printing press	new	2,120	19,080	21,200
19. Student housing	new	12,950	24,050	37,000
20. Faculty housing	ongoing	2,746	5,100	7,846
21. Oceanography center	new	5,250	5,250	10,500
SUBTOTAL		163,126	572,935	736,061
TOTAL FOR EDUCATION		726,959	1,554,593	2,281,552

Source: The Second Five Year Plan, 1982-1986, Central Planning Organization, 1982.

Of the YR 5,165 million allocated for investment in government services, YR 2,281 million has been slated for education. This represents 44.2 percent of planned investment in government services or 8.1 percent of total planned fixed capital formation.

The strategy for achieving the educational objectives of the SFYP is summarized in the planned investment activities outlined in Table 2.11. Approximately 68.1 percent of total investments are to come from foreign sources. As can be noted from Table 2.11 primary education will receive the largest portion of planned investment in education. Expenditures on primary education will emphasize the construction of 11,300 new classrooms. Investments in preparatory and secondary education also will concentrate on the construction of classrooms, 998 and 765 classrooms respectively. Though no official mid-Plan reports exist, estimates from Governorate Directors suggest that very few new classrooms were built in 1983. This was due to the redirection of a large portion of government funds toward reconstruction of rural infrastructure that was lost in the Dhamar Governorate during the December, 1982 earthquake.

The major planned investments for the Sana'a University are the construction of a Faculty of Medicine and a Teaching Hospital, and construction of buildings and laboratories for the Faculty of Science. Faculties of Engineering and of Agriculture also are to be added to the university under the SFYP in an effort to meet growing demand for manpower with high level technical skills.

The recent deterioration in the government budget balance will require a curtailment of investment expenditures and recurrent expenditures. Under circumstances of a persisting government deficit and continued growth in money supply due to the Central Bank's financing of the deficit, government may have to redirect its priorities within the public investment program. The challenge to government will be reducing overall investment expenditures without sacrificing long-term development requirements. The task will be particularly

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difficult in the EHR sector where demand for educational services will continue to grow rapidly over the coming decade and where the existing capacity of primary education is fully utilized in most locations.

These general data on macro-economic characteristics, past budgetary trends, and development expenditures provide a useful base for the fiscal capacity analysis which follows. In the fiscal capacity analysis, the information presented here and in preceding sections will be combined to present a reasoned estimate of the YAR's capacity to absorb the recurrent costs of additional EHR development projects.

2.3 THE ANALYSIS OF YAR FISCAL CAPACITY

2.3.1 Projections of Economic Growth

The Second Five Year Plan anticipates an annual growth rate of seven percent in GDP (at constant-price factor cost). This is slightly higher than the average annual growth rate of 5.4 percent recorded for the 1978/79-1983 period, and seems generally optimistic considering the slow-down in economic activity in 1983 and 1984. In real terms GDP actually decreased by -0.5 percent between 1982 and 1983. The rate of growth in GDP in 1984 has been estimated at approximately 2.5 percent.

The discovery of oil in the Ma'rib Governorate during the summer of 1984 could have a dramatic effect on future growth in GDP. Because the size of the recently discovered oil deposit is not yet known, government has been appropriately reserved in official statements regarding the economic implications of the deposit. Even if the deposit proves to be a substantial one, the problem of transporting the oil from Marib, which is over 200 miles from the Red Sea, to a port will still need to be solved It is therefore unlikely that revenues from oil will have any major impact on economic growth for perhaps five to ten years.

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Though government was successful in curtailing expenditures in 1983 in response to the growth in the budget deficit, it will be difficult to reduce expenditures further if economic development is to continue. If government is to bring the deficit under control, it is vital for Yemen to improve the mobilization of domestic financial resources through more effective revenue generation. The two recommended areas where central government could hope to make its revenue source more effective are in the taxes on international trade and on goods and services, particularly petroleum and qat.

The largest source of revenue from tax on international trade is import duties. While taxes on imports have been identified as a future source of revenues, government has identified import reductions as an important trade policy. If government proves successful in carrying out this trade policy objective, tax revenues from international trade will have to fall.

The difficulties in improving the efficiency in collection of qat and petroleum taxes has been discussed in the previous section. It is reasonable to assume, then, that government revenues from the taxes on trade and goods and services will grow only slowly in the future. Government investment in economic development will be constrained by the need to first meet the growing recurrent expenditures bill.

In the projections that follow, two alternative scenarios for growth in GDP will be used. A "conservative" scenario estimates that GDP will grow at an annual rate of 2.5 percent through 1988 and at 5.0 percent thereafter. The rate of 2.5 percent during the remainder of the decade implies a status quo situation while government brings current deficit problems under control. A more "optimistic" growth rate of 5.0 percent will be used for the entire period reflecting a return to the level of growth maintained during the 1978/79-1982 period.

Table 2.12 presents the two projections of GDP and one of government expenditure. Government expenditure projections assume that government will continue to hold growth in recurrent expenditures in check as was done in 1983.

TABLE 2.12

PROJECTIONS OF GDP AND GOVERNMENT EXPENDITURE
1984-1994

(Million Yemen Rials in 1983 Prices)

Year	GDP (A) (Mil YRs)	GDP (B) (Mil YRs)	Current Gov't Exp. (Mil YRs)	3/1 (%)	3/2 (%)
1984	15,088	15,456	6,042	40.0	39.1
1985	15,465	16,229	6,163	39.9	38.0
1986	15,852	17,040	6,287	39.7	36.9
1987	16,248	17,892	6,412	39.5	35.8
1988	16,654	18,787	6,541	39.3	34.8
1989	17,487	19,726	6,671	38.1	33.8
1990	18,361	20,713	6,805	37.1	32.9
1991	19,279	21,748	6,941	36.0	31.9
1992	20,243	22,836	7,080	35.0	31.0
1993	21,255	23,977	7,221	34.0	30.1
1994	22,318	25,176	7,366	33.0	29.3

GDP (A) assumes 2.5% annual real growth to 1988, 5.0% thereafter.

GDP (B) assumes 5.0% annual real growth to 1994.

Government Expenditure assume 2.0% annual real growth based on November, 1984 Ministry of Finance estimates.

GDP amounts are in terms of factor prices.

A modest real growth rate of 2.0 percent is used for the entire period. Though this rate of growth is very low compared to growth rates in government expenditure over the last decade, higher growth rates would yield government expenditures as a proportion of GDP exceeding 40 percent well into the next decade. Government's success in bringing expenditures under control in 1983 suggests it could continue to do so in the future. As can be noted in Table 2.12, even this very low rate of growth in government expenditures results in government revenues remaining between 30 and 40 percent of GDP through the ten-year period.

Despite these high percentages and government's ability to curtail expenditures in the past, two percent real growth in current government expenditures is not likely to meet the growing demand for social services, particularly education. Government should therefore continue to work closely with the Confederation for Yemeni Development Association (CYDA) in the area of social services financing. CYDA is comprised of some 200 Local Development Associations (LDA's) which are distributed more or less evenly among the villages of Yemen's eleven Governorates. Governed by representatives elected from the community, the LDA has in the past been successful in mobilizing local resources for the building of roads, schools, clinics, hospitals, and other social infrastructure. The LDA's major sources of revenue are from the zakat tax and citizens' contributions to cooperative projects. Loans from specialized banks are also considered an important source for financing some projects.

The LDA's were very successful in mobilizing resources and providing social services in rural areas during the First Five Year Plan. In the last year of the FFYP, revenues increased by approximately 320 percent. During the period from 1973 to 1981, LDA's were responsible for the completion of 30,620 kilometers of new roads, 7,317 classrooms, 2,666 water projects, 176 clinics, and 156 other projects which included the construction of mosques, community centers, and

reforestation and electrification projects. The LDA's mobilized approximately YR 1.5 billion to complete these projects. The LDA's ability to exploit local private resources through citizens' contributions could be instrumental in balancing the disequilibrium in the distribution of income and social services.

Central government should take an active role in coordinating the development efforts of the LDA's. In education, government could work with the LDA's to identify those rural areas most in need of schools and in establishing minimum quality standards for construction. In any case, the assumption of a two percent real growth in current central government expenditures carries with it the parallel assumption that both central and local government will need to be more effective in mobilizing local resources.

2.3.2 Projections of Education and Human Resource Expenditures

The projection of aggregate economic activity has been done in a relatively simple manner as national account components are not available in sufficiently reliable detail to allow for a sectoral development of GDP estimates. It is, however, possible to develop micro-level projections for the various components of the education system. This will be done for primary, preparatory, general secondary, commercial secondary, technical secondary, agricultural secondary, vocational training centers, teacher training, and the eight faculties of the Sana'a University

The projection of educational costs in constant price terms consists of two separate procedures. The first is the generation of current price unit costs (costs per student or client) for each major level and type of EHR activity. The second procedure is to project enrollments of students and clients. By combining the unit costs with the student/client projections, one can estimate the expected increases in real costs for each of the EHR activities.

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Unit costs have been estimated for each of the following EHR activities:

- Primary Education
- Preparatory Education
- General Secondary Education
- Commercial Secondary Education
- Technical Secondary Education
- Agricultural Secondary Education
- Vocational Training Centers
- Primary Teacher Training Institutes
- Sana'a University

Details of these estimates and discussion of their implications for internal efficiency appear later in the analysis of educational finance issues. By combining the unit costs and the enrollment projections for those programs for which both are available, one can present a detailed as well as an aggregate cost projection for EHR expenditures. Total EHR cost projections will be given for the academic years 1983/84 - 1992/93.

Two alternative projections of enrollment have been made for primary, preparatory, and general secondary. Scenario I projections are based on an 8.0 percent annual growth in new Grade One enrollments, while Scenario II projections are based on a 16.0 percent annual growth in new Grade One enrollments. Scenario II projections of 16.0 percent annual growth in new Grade One enrollments are modest compared to the 32.7 percent average annual growth in primary school pupils that occurred between 1978/79 and 1981/82. The rate of 16 percent is used as the high estimate for growth in enrollments as it is unlikely that the earlier rates of expansion can persist given the existing constraints of teacher availability and limited construction of new facilities. As more and more students are brought into the education system the rate of increase will begin to stabilize at lower levels. The Scenario I estimates are used in projecting recurrent EHR expenditures. Although the assumed increase in new grade one enrollments understates the potential demand for education, this estimate more accurately reflects the rate of expansion government will be able to accommodate.

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It should be noted that there is little entry level excess capacity in the Yemeni primary education system. Classes exceeding 100 students are not uncommon in the lower primary grades. High attrition in the upper primary grades and considerably lower class sizes at these levels have offset the very high student/teacher ratio at the lower grades. In the crowded lower primary classrooms, equipment and textbooks are totally absent or in short supply. In Sana'a, Taiz, and Hodeidah where overcrowding is most serious, double shifting and the teaching of multiple classes is common. This evidence of full utilization of existing capacity suggests that any real increase in access to primary education must be accompanied by an expanded school construction program. As noted earlier, government's contribution to school building in 1983 and 1984 has fallen. Continued modest growth in school construction is likely to hold Grade One enrollment growth rates to a modest level.

Table 2.13 presents the projected growth in primary enrollments between 1982/83 and 1994/95 under the Scenario I assumption. Table 2.14 presents the alternative projection under Scenario II rates of growth. In both cases, 1982/83 and 1983/84 figures represent actual enrollments. The 1982/83 figures are given because primary education is the only level for which 1983/84 figures are available. At the primary level, then, the first projected enrollments are in the 1984/85 academic year. The only variable changed between Scenario I and Scenario II projections is the assumed rate of growth in new Grade One enrollments.

Progression and repetition rates have been held constant. Progression and repetition rates for the primary level were taken from the study of primary education attrition and repetition recently completed by the Education Research Development Center (ERDC). Progression and repetition rates used in Tables 2.13 and 2.14 are the result of a six-year longitudinal study in which dropouts and repeaters were traced in 43 boys', girls', and co-educational complete primary

schools. Schools were selected randomly from all regions of the country and from both rural and urban areas. The following progression and repetition rates were calculated on the basis of actual numbers of dropouts and repeaters in these 43 schools:

	Progression Rate	Repetition Rate
Grade 1:	-	.082
Grade 2:	.710	.061
Grade 3:	.747	.120
Grade 4:	.723	.074
Grade 5:	.774	.040
Grade 6:	.813	.054

It is interesting to note that the progression rate tends to increase with the increase in grade level. This would suggest that the incentive to stay in school rises with the successful completion of each grade. There is a large increase in the progression from Grade Two to Grade Three and the repetition rate for Grade Three is almost two times higher than in Grade Two. The high repetition rate suggests that if students reach Grade Three, they are more willing to repeat a grade in order to stay in school. As will be discussed in the finance section, the overall low levels of progression rates and relatively high levels of repetition have contributed to unusually high cycle costs (costs per graduate) in the primary grades.

In Tables 2.13 and 2.14 these progression and repetition rates have been held constant for the ten-year period of projected enrollments. It could be argued that internal efficiency is likely to improve over time as the education system develops and progression rates will improve and repetition rates will decline. All indications are that the growth in enrollments will continue to exceed growth in construction of educational facilities. It is therefore reasonable to assume that rapid expansion and resulting overcrowding will constrain improvements in primary education's internal efficiency in the next decade.

A comparison of Scenario I versus Scenario II growth in total primary enrollments offers an interesting contrast

TABLE 2.13

PROJECTIONS OF PRIMARY EDUCATION ENROLLMENTS, 1982/83 - 1994/95
Scenario I: 0% Growth in New Grade 1 Enrollments

ITEM	GRADE LEVEL ONE	TWO	THREE	FOUR	FIVE	SIX	TOTAL
Progression Rate	-	.710	.797	.723	.774	.813	
Repetition Rate	.082	.061	.120	.074	.040	.054	
YEAR							
1982/83[1]	178075	144445	115428	79112	50613	34529	602202
1983/84[1]	196338	142262	124335	99262	65175	45847	673219
1984/85	210067	140078	121190	97240	79436	55463	712274
1985/86	226471	159170	125157	94016	78441	67576	751631
1986/87	243230	170957	133919	97505	76525	67422	789558
1987/88	261279	183608	143775	104039	78530	65856	837037
1988/89	280560	197195	154408	111648	83667	67401	894879
1989/90	301321	211788	165834	119899	89762	71661	960265
1990/91	323619	227460	178105	128770	96392	76847	1031193
1991/92	347567	244292	191285	138299	103524	82517	1107484
1992/93	373287	262370	205440	148533	111185	88621	1189436
1993/94	400910	281785	220643	159525	119412	95179	1277454
1994/95	430578	302637	236970	171330	128249	102222	1371985

1. Actual Enrollments, Ministry of Education

TABLE 2.14

PROJECTIONS OF PRIMARY EDUCATION ENROLLMENTS, 1982/83 - 1994/95
Scenario II: 16% Growth in New Grade 1 Enrollments

ITEM	GRADE LEVEL ONE	TWO	THREE	FOUR	FIVE	SIX	TOTAL
Progression Rate	-	(.710)	(.747)	(.723)	(.774)	(.813)	
Repetition Rate	(.082)	(.061)	(.120)	(.074)	(.040)	(.054)	
YEAR							
1982/83[1]	178075	144445	115428	79112	50613	34529	602202
1983/84[1]	196338	142262	124335	99262	65175	45847	673219
1984/85	225396	148078	121190	97240	79436	55463	726803
1985/86	258755	169515	125157	94816	78441	57576	794260
1986/87	297058	194574	141646	97505	76525	67422	874722
1987/88	341014	223369	162344	109626	78530	65856	980739
1988/89	391484	256427	186338	125487	87991	67401	1115128
1989/90	449423	294379	213912	144008	100647	75177	1277546
1990/91	515938	337947	245570	165315	115488	85885	1466143
1991/92	592297	387963	281915	189781	132573	98530	1683059
1992/93	679957	445381	323638	217868	152193	113103	1932140
1993/94	780590	511298	371536	250112	174718	129840	2218094
1994/95	896118	586970	426524	287129	200576	149057	2546374

1. Official Ministry of Education Statistics.

between actual growth in demand for education in Table 2.14, and the level of expansion likely to be covered by government expenditures in Table 2.13. By 1994/95, Scenario II primary enrollments are almost twice as high as Scenario I projections.

Table 2.15 gives Second Five Year Plan estimates of expansion in all levels of education. In comparing government estimates of growth in primary education between 1981 and 1986, with Scenario I and II estimates, it is apparent that in academic year 1986/87, Scenario I estimates, though slightly lower, are closer to those of the SFYP. In fact, the SFYP estimates in primary enrollment growth are based on the assumption that 11,300 new classrooms will be completed during the five-year period. Current rates of construction suggest that the lower estimate of enrollments given in Table 2.13 are perhaps more realistic.

Tables 2.16 and 2.17 give Scenario I and Scenario II projections of growth in preparatory and general secondary enrollments. Estimates of the number of students in Grade Seven are based on the calculated progression of Grade Six students in 1981/82 to Grade Seven in 1982/83. The rate of progression between 1981/82 and 1982/83 was found to be .770.

The potential inaccuracies in this rate must be noted. If all enrollment statistics are collected at the beginning of the year, the calculated progression rate to Grade Seven probably overstates the actual level of progression as the number of students actually completing Grade Six are no doubt lower than the number of students beginning the grade in the fall. If the enrollments are taken at mid-year, progression rates are probably understated as some portion of students who actually entered Grade Seven have left by this time.

A better measure of progression should be the ratio of students passing the sixth grade leaving exam to the number entering Grade Seven the following year. Though these data are available, they seem to be no better measure of actual progression rates. Many students who fail the sixth grade leaving exam return to take the exam the following year without

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TABLE 2.15

SECOND FIVE YEAR PLAN ESTIMATES OF

QUANTITATIVE EXPANSION IN EDUCATION, 1981-1986

EDUCATION LEVEL	NUMBER OF STUDENTS 1981	NUMBER OF STUDENTS 1986
Primary	479,800	800,500
Preparatory	26,900	61,000
Secondary	10,600	19,000
Commercial Secondary	440	1,080
Agricultural Secondary	80	520
Technical Secondary	460	660
Vocational Training	480	880
Teacher Institutes	3,371	4,090
Illiteracy and Adult Education	-	-
University Education	4,520	15,710
Higher Studies Abroad for Masters Degrees	50	790
Higher Studies Abroad for Doctoral Degrees	50	210

Source: The Second Five Year Plan, 1982-1986

TABLE 2.16

PROJECTIONS OF PREPARATORY AND GENERAL SECONDARY ENROLLMENTS

(SCENARIO I)

ITEM	PREPARATORY GRADE 7	PREPARATORY GRADE 8	PREPARATORY GRADE 9	PREPARATORY TOTAL	GENERAL SECONDARY GRADE 10	GENERAL SECONDARY GRADE 11	GENERAL SECONDARY GRADE 12	GENERAL SECONDARY TOTAL
Progression Rate	(.770)	(.864)	(.990)		(.689)	(.707)	(.906)	
YEAR								
1982/83[1]	20332	13325	9645	43302	5070	3576	3338	11984
1983/84	26587	17567	12192	57346	6645	3584	3240	13469
1984/85	35302	22971	17391	75664	9089	4698	3248	17035
1985/86	42707	30501	22742	95950	11983	6426	4257	22666
1986/87	52034	36898	30196	119128	15669	8472	5822	29963
1987/88	51915	44957	36529	133401	20005	11078	7675	39558
1988/89	50709	44855	44507	140071	25169	14709	10037	49915
1989/90	51099	43813	44406	140118	30666	17794	13327	61787
1990/91	55179	44841	43375	143395	30596	21681	16122	68399
1991/92	59172	47675	44392	151239	29885	21631	19643	71159
1992/93	63538	51125	47198	161861	30586	21129	19598	71313
1993/94	68238	54897	50614	173749	32519	21624	19143	73286
1994/95	73288	58958	54348	186594	34873	22991	19592	77456

[1] Official Ministry of Education Statistics.

TABLE 2.17

PROJECTIONS OF PREPARATORY AND GENERAL SECONDARY ENROLLMENTS

(SCENARIO II)

ITEM	PREPARATORY GRADE 7	PREPARATORY GRADE 8	PREPARATORY GRADE 9	PREPARATORY TOTAL	GENERAL SECONDARY GRADE 10	GENERAL SECONDARY GRADE 11	GENERAL SECONDARY GRADE 12	GENERAL SECONDARY TOTAL
Progression Rate								
YEAR								
1982/83[1]	20332	13325	9645	43302	5070	3576	3338	11984
1983/84	26587	17567	13192	57346	6645	3584	3240	13469
1984/85	35302	22971	17391	75664	9089	4698	3248	17035
1985/86	42707	30501	22742	95950	11983	6426	4257	22666
1986/87	52034	36998	30196	119128	15669	8472	5822	29963
1987/88	51915	44957	36529	133401	20805	11078	7675	39558
1988/89	50709	44855	44507	140071	25169	14709	10037	49915
1989/90	51899	43813	44406	140118	30666	17794	13327	61787
1990/91	57886	44841	43375	146102	30596	21681	16122	68399
1991/92	66131	50014	44392	160537	29885	21631	19643	71159
1992/93	75868	57138	49514	182520	30586	21129	19598	71313
1993/94	87089	65550	56566	209205	34115	21624	19143	74882
1994/95	99977	75245	64895	240117	38974	24119	19592	82665

[1] Official Ministry of Education Statistics

enrolling. In some years, therefore, there are more students taking and passing the sixth grade leaving exam than are enrolled in Grade Six.

A high proportion of students who make it to Grade Six do, in fact, continue on to preparatory school. Insofar as the .770 progression rate used to project Grade Seven enrollments in Tables 2.16 and Table 2.17 reflects a high continuation rate from primary to preparatory school, it is probably as accurate as any available measure.

Repetition rates are not known for the preparatory and secondary levels of education in the YAR. Progression rates for Grades Eight and Nine were calculated from actual enrollments in 1981/82 and 1982/83. Progression rates at the preparatory level (.864 for Grade Eight and .990 for Grade Nine) were considerably higher than those at the primary level. This is consistent with the general assessment that in Yemen there are still many disincentives to entering education initially, but once in the system, there are strong incentives to continue on to the highest possible level. This issue will be discussed at greater length in the manpower analysis section.

Total preparatory enrollments in 1994/95 under Scenario II are only 1.1 times greater than total enrollments for the same academic year under Scenario I. This is because the full impact of growth at primary level during the time period will have only just begun to reach the preparatory level. More rapid growth at the preparatory level can therefore be expected by the end of the next decade.

In 1986/87 both Scenario I and II projections for total preparatory enrollment are 119,128. This is almost twice the number projected for the preparatory level in Table 2.15. The disparity between projections made in the SFYP and in this report are probably due to government's lower estimated rates of progression from Grade Six to Grade Seven. If the trend of the past few years (data not available at the time the SFYP was prepared) continues, the .770 progression rate used in this report could become a modest estimate.

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Tables 2.16 and 2.17 also present the two scenarios of projected growth in enrollment extended to general secondary education. Scenario I estimates of Grade Ten enrollments in general secondary are 68.9 percent of Scenario I Grade Nine enrollments of the previous year. The same ratio was used for estimates in Scenario II. The .689 progression from Grade Nine to Grade Ten of general secondary is based on the actual calculated progression of 1981/82 Grade Nine students to Grade Ten in 1982/83. Progression rates used in both Scenarios are .707 for Grade Eleven and .906 for Grade Twelve. It is interesting that the average progression rate for preparatory (.875) exceeds that of general secondary (.807). One explanation may be that the opportunity cost of remaining in school is much higher for general secondary students, and a larger portion drop out to join the workforce. The difference between total Scenario I and Scenario II secondary education enrollments in 1994/95 is considerably less than at the preparatory level: 77,456 for Scenario I compared to 82,685 for Scenario II.

Table 2.18 presents projections of the post-preparatory school leavers into the system of secondary education. Those who complete preparatory may enter general secondary, commercial, technical, or agricultural secondary or the three-year primary teacher training institutes (TTI's). For 1982/83 the estimated proportions of the previous year's ninth graders (7,359) that went to each of the alternatives were as follows:

General Secondary:	5070	68.9%
Commercial Secondary:	195	2.6%
Technical Secondary:	210	2.9%
Agricultural Secondary:	88	1.2%
Three-Year TTI:	447	6.1%

The projected shortage of mid-skill level technical workers and clerical workers suggests that a strategy of increased diversification of secondary education may be desirable. Current estimates suggest that facilities for technical and agricultural secondary education are

TABLE 2.18

DESTINATION OF GRADE NINE STUDENTS

1982/83-1994/95

	Previous* Years' 9th Graders	General Secondary	Commercial Secondary	Technical Secondary	Agricultural Secondary	Three Year TTI	Other
1982/83 1/	7,359	5,070	195	210	88	447	1,349
1983/84	9,645	6,645	251	280	116	558	1,765
1984/85	13,192	9,089	343	383	158	805	2,414
1985/86	17,391	11,983	452	504	209	1,061	3,182
1986/87	22,742	15,669	591	660	273	1,387	4,162
1987/88	30,196	20,805	785	876	362	1,842	5,526
1988/89	36,529	25,169	950	1,059	436	2,228	6,685
1989/90	44,507	30,666	1,157	1,291	534	2,715	8,144
1990/91	44,406	30,596	1,155	1,288	533	2,713	8,125
1991/92	43,375	29,885	1,128	1,258	521	2,646	7,937
1992/93	44,392	30,586	1,154	1,287	533	2,708	8,124
1993/94	47,198	32,519	1,227	1,369	566	2,879	8,638
1994/95	50,614	34,873	1,316	1,468	607	3,087	9,263
Proportions of previous years' 9th graders		68.9%	2.6%	2.9%	1.2%	6.1%	18.3%

*Assumes Scenario I Growth in Enrollments

1/ Actual Enrollments

Source: Original calculations

underutilized. Enrollments could be increased in these schools without concommitant increases in costs. Even if the total number of students proceeding from preparatory on to secondary education were redistributed so larger numbers were guided into the technical programs, the problem of meeting the demand for mid-skill level technicians would not be solved. In an effort to attract more students, the commercial, technical, and agricultural programs have been modified so students are able to continue on to the university if they complete the university entrance exams successfully.

Enrollment projections for the VTC's and for commercial and technical secondary education are given in Table 2.19. These projections are based on Scenario I assumptions. Grade Ten enrollments in each of the three programs are assumed to remain a constant proportion of previous year's ninth graders. Progression rates for each of the programs are as follows:

	Grade 11	Grade 12
Commercial secondary:	1.000	.876
Technical Secondary:	.932	.995
Agricultural Secondary:	1.000	.941

The very high progression rates, again, highlight the desire to continue on to the highest possible level of education once started in the system. In the absence of a major re-orientation from other secondary education programs, total enrollments for these programs will remain relatively low through the decade.

Table 2.20 gives projected growth in enrollments at the three- and five-year TTI's. Enrollments in grade ten at the three-year TTI's are taken from Table 2.18 and have been calculated in the same way as those for other secondary level programs. The five-year TTI's are a post-primary program that was introduced in the 1982/83 academic year. The five-year post-primary program replaces the old three-year post-primary program. The graduates of the old program were found to be entering into teaching positions at too early an age to be effective.

TABLE 2.19

PROJECTIONS OF VOCATIONAL TRAINING AND COMMERCIAL AND TECHNICAL SECONDARY EDUCATION
1982/83 - 1994/95 (SCENARIO I)

	Vocational Training Centers			Commercial Secondary				Technical Secondary			
ITEM	Grade 7	Grade 8	Total	Grade 10	Grade 11	Grade 12	Total	Grade 10	Grade 11	Grade 12	Total
Progression Rates	(.009)	(.786)		(.026)	(1.000)	(.876)		(.029)	(.932)	(.995)	
YEAR											
1982/83 [1]	229	158	387	195	190	113	498	210	191	187	588
1983/84	311	180	491	251	195	166	612	280	196	190	666
1984/85	413	244	657	343	251	171	765	383	261	195	839
1985/86	499	324	823	452	343	220	1015	504	357	259	1120
1986/87	608	392	1000	591	452	300	1343	660	470	355	1485
1987/88	607	478	1085	785	591	396	1772	876	615	468	1959
1988/89	593	477	1070	950	785	518	2253	1059	816	612	2487
1989/90	607	466	1073	1157	950	688	2795	1291	987	812	3090
1990/91	645	477	1122	1155	1157	832	3144	1288	1203	982	3473
1991/92	692	507	1199	1128	1155	1014	3297	1258	1200	1197	3655
1992/93	743	544	1287	1154	1128	1011	3293	1287	1172	1194	3653
1993/94	798	584	1382	1227	1154	988	3369	1369	1200	1166	3735
1994/95	857	627	1484	1316	1227	1011	3554	1468	1276	1194	3938

[1] Official Ministry of Education Statistics.

TABLE 2.20

PROJECTED GROWTH IN ENROLLMENTS AT THREE AND FIVE YEAR TTIs

(Based on Scenario I Assumptions)

YEAR	FIVE YEAR TTI						THREE YEAR TTIs			
	Gr. 7 (.051)	Gr. 8 (P=.837)	Gr. 9 (P=.067)	Gr. 10 (P=.813)	Gr. 11 (P=.950)	Total	Gr. 10 (.061)	Gr. 11 (P=.826)	Gr. 12 (P=1.00)	Total
1982/83[1]	964	546	160	-	-	1,670	447	356	290	1,283
1983/84[2]	1,576	1,094	586	-	-	3,256	558	369	356	1,314
1984/85[2]	2,358	1,641	1,183	595	-	5,777	805	406	369	1,660
1985/86	2,829	1,974	1,423	962	565	7,753	1,061	665	406	2,212
1986/87	3,446	2,368	1,711	1,157	914	9,596	1,387	876	665	2,928
1987/88	3,439	2,884	2,053	1,391	1,099	10,866	1,842	1,146	876	3,864
1988/89	3,359	2,878	2,500	1,669	1,321	11,727	2,228	1,521	1,146	4,895
1989/90	3,437	2,812	2,495	2,033	1,586	12,363	2,715	1,841	1,521	6,077
1990/91	3,655	2,877	2,438	2,028	1,931	12,929	2,709	2,243	1,841	6,793
1991/92	3,919	3,059	2,494	1,982	1,927	13,381	2,646	2,237	2,243	7,126
1992/93	4,208	3,280	2,652	2,028	1,883	14,051	2,708	2,185	2,237	7,130
1993/94	4,520	3,522	2,844	2,156	1,927	14,969	2,879	2,237	2,185	7,301
1994/95	4,854	3,783	3,054	2,312	1,831	15,834	3,087	2,378	2,237	7,702

1. Actual Enrollments
2. Actual Enrollments for Five Year TTI only.

Progression Rates for Grades 8-10 of the Five-Year TTI program are based on average number of students per class per school between 1983/84 and 1984/85.

Actual enrollments are given for 1982/83 to 1984/85 for the five-year TTI's only. Grade seven enrollments in the TTI's after 1984/85 have been projected on the basis of the proportion of 1984/85 seventh graders to 1983/84 sixth graders. Approximately 5.1 percent of all sixth graders were found to enter the five-year TTI's in 1984/85. This rate of progression was held constant for all years of the projection.

Rather substantial incentives in the form of stipends were introduced in 1981 in an effort to attract more Yemeni into the teaching profession. (The nature and amount of these incentives will be described in greater detail in the section on Teacher Training.) These incentives should have the effect of dramatically increasing the number of students entering the two TTI programs. In the three-year TTI's, at least, this has not been the case. Though incentives to enter into teacher training are, indeed, now lucrative, teachers' salaries are still low compared to those of other professions with similar skill level requirements. Therefore, unless teachers' salaries increase substantially in the future, it is reasonable to assume that the proportion of sixth graders entering the five year TTI's and the proportion of general preparatory ninth graders entering the three-year TTI's will not increase dramatically in the near future.

As can be noted from Table 2.20, progression rates for both programs are quite high. This can be explained, in part, by the fact that students who do not complete the program are obliged to repay the total subsidies awarded them through the program. A discussion of the future demand and supply for teachers will be taken up in some detail under the manpower analysis section.

Post-primary leavers, in addition to the options of general preparatory and five-year teacher training, have the option of enrolling in a two-year vocational training center (VTC). VTC's offer a two-year practical skills program which includes mid-level skills training in fields such as mechanics, electrical, construction, and plumbing. Enrollments in the

VTC's have remained low, in part because the program provides no opportunity to return to the college preparatory stream. Enrollments have been projected in the same fashion as for other technical programs. Grade Seven enrollments are assumed to be a constant proportion of the previous year's sixth graders. Under these status quo assumptions, total VTC enrollments will remain small through the period.

In Table 2.21, the primary, preparatory, and secondary levels of education in the Ministry of Education are projected on a cost basis. This has been done by combining the data on unit costs (detailed in the subsequent section of the economic and financial analysis) with the two scenarios for enrollment projections in Tables 2.13-2.14 and 2.16-2.19. The unit-cost levels used are those estimated by the MOE for 1982/83. The per-student annual cost levels used in Table 2.21 are as follows:

Primary Education	YR 1,222
Preparatory Education	YR 2,947
General Secondary Education	YR 5,093

In 1982/83 these three components were used to estimate MOE recurrent expenditures at YR 924.53 million. These projections do not include estimates for other post-primary and post-preparatory programs, nor do they include estimates for board and food costs or expenditures on central or regional administration. Based on enrollment projections for other post-primary and post-preparatory programs, it is possible to estimate the additional cost to the MOE of these programs.

In the absence of a more detailed breakdown of MOE recurrent costs, it must be assumed that central and regional administration costs have been included in unit costs. Table 2.21 is used to illustrate recurrent cost implications for the MOE under the alternative assumptions of enrollment growth. Under Scenario I, MOE expenditures would grow at an average annual rate of 9.4 percent over the period. Under Scenario II, the average annual rate of growth in MOE expenditures would have to total 13.5 percent. These rates compare with an

TABLE 2.21
GROWTH IN MOE RECURRENT EXPENDITURES (YR MILLIONS)
BY LEVEL OF EDUCATION, 1982/83 - 1994/95

	Scenario I*				Scenario II*			
Year	Primary	Preparatory	Secondary	Total	Primary	Preparatory	Secondary	Total
1982/83	735.89	127.61	61.03	924.53	735.89	127.61	61.03	924.53
1983/84	822.67	168.99	68.61	1060.27	822.67	168.99	68.6	1060.26
1984/85	870.40	222.98	86.76	1180.14	888.15	222.98	86.76	1197.89
1985/86	918.49	282.76	115.43	1316.68	970.59	282.76	115.43	1368.78
1986/87	964.84	351.07	152.60	1468.51	1068.91	351.07	152.6	1572.58
1987/88	1022.86	393.13	201.47	1617.46	1198.46	393.13	201.47	1793.06
1988/89	1093.54	412.79	254.22	1760.55	1362.69	412.79	254.22	2029.70
1989/90	1173.44	412.92	314.68	1901.04	1561.16	412.92	314.68	2288.76
1990/91	1260.12	422.58	348.35	2031.05	1791.63	430.56	348.35	2570.54
1991/92	1353.35	445.71	362.41	2161.47	2056.69	473.10	362.41	2892.20
1992/93	1453.49	477.01	363.20	2293.70	2361.07	537.88	363.20	3262.15
1993/94	1561.05	512.04	373.25	2446.34	2710.51	616.53	381.37	3708.41
1994/95	1676.57	549.89	394.48	2620.94	3111.67	707.62	421.12	4240.41

*Scenario I assumes an 8% annual growth in new Grade I enrollments.
Scenario II assumes a 16% annual growth in new Grade I enrollments.
1982/83 and 1983/84 enrollments are based on MOE statistics; later years are projections.

average growth rate of 6.6 percent in recurrent MOE expenditures between 1980/81 and 1982/83. With total current government expenditures targeted at 2.0 percent real growth during the period, even the lower estimate of 9.4 percent real growth in MOE expenditures will be difficult to attain without substantial re-allocations of funds to education from other government activities.

Table 2.22 gives projected growth in Sana'a University enrollments by faculty. Enrollment figures for 1982/83 and 1983/84 are actual enrollments. Projections of new first year enrollments in subsequent years have been calculated on the basis of the following assumptions:

a) Distribution of first year enrollments will remain moreor less constant over the period. Enrollments in the new Faculties of Medicine, Engineering, and Agriculture are projected to remain small as entrance requirements are expected to remain high for these faculties. The Faculties of Sharia and Law and Commerce and Economics will continue to attract the largest number of new students because there are no foreign language requirements for these programs and because job opportunities appear plentiful for graduates in these fields Enrollments in Arts, Science, and Education will grow at a slower rate either because foreign languages are required or because of inadequate salary incentives.

b) Total first year enrollment at the Sana'a University will equal total Grade Twelve enrollments in General, Commercial, Technical, and Agricultural Secondary schools from two years prior. This accounts for the high known progression from all secondary school programs to higher education, and for the one year compulsory military duty young men must serve after completion of secondary education.

The following progression rates, and, in certain cases, repetition rates, were estimated from the actual progression and repetition of students between 1982/83 and 1983/84:

	Second Class	Third Class	Fourth Class
Shari'a and Law:			
- repetition	.188	.098	.061
- progression	.399	.774	.877

TABLE 2.22

PROJECTED GROWTH IN ENROLLMENT, BAHA'A UNIVERSITY, BY FACULTY

FACULTY	1982/83 1/	1983/84 1/	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	DISTRIBUTION OF FIRST YEAR STUDENTS BY FACULTY
SHARI'A AND LAW												
First Class	1,329	2,104	1,541	1,535	1,553	2,035	2,783	3,669	4,797	6,371	7,706	42.0%
Second Class	687	653	1,129	904	910	1,003	1,315	1,800	2,366	3,112	3,971	
Third Class	385	590	616	563	789	902	907	1,209	1,625	2,136	2,800	
Fourth Class	201	363	555	599	893	741	758	869	1,159	1,555	2,044	
TOTAL	2,608	3,710	3,841	4,001	4,145	4,581	5,763	7,547	9,947	13,174	16,541	
COMMERCE AND ECONOMICS												
First Class	810	1,283	949	936	946	1,240	1,694	2,336	2,925	3,883	4,697	25.6%
Second Class	440	376	491	575	576	661	887	1,190	1,561	2,059	2,606	
Third Class	295	423	440	643	559	580	656	933	1,244	1,635	2,130	
Fourth Class	238	243	361	400	534	477	508	623	832	1,108	1,454	
TOTAL	1,783	2,325	2,432	2,554	2,615	2,958	3,787	4,982	6,563	8,685	10,887	
EDUCATION												
First Class	299	545	400	395	403	528	722	952	1,245	1,653	2,000	10.9%
Second Class	208	194	450	336	329	332	596	596	785	1,027	1,364	
Third Class	166	148	130	302	221	221	223	400	400	527	699	
Fourth Class	134	177	144	127	294	215	215	217	390	390	514	
TOTAL	807	1,064	1,124	1,158	1,247	1,296	1,756	2,165	2,820	3,597	4,567	
SCIENCE												
First Class	288	323	239	238	240	315	431	568	743	986	1,193	6.5%
Second Class	88	109	108	80	79	80	105	144	190	248	329	
Third Class	77	65	81	80	59	58	59	78	107	141	184	
Fourth Class	42	67	81	76	75	55	54	55	73	100	132	
TOTAL	495	564	489	474	453	508	649	845	1,113	1,475	1,838	

1/ Actual Enrollments

TABLE 2.22 (Cont.)

PROJECTED GROWTH IN ENROLLMENT, SANA'A UNIVERSITY, BY FACULTY

FACULTY	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	DISTRIBUTION OF FIRST YEAR STUDENTS BY FACULTY
ARTS												
First Class	753	648	473	472	477	625	855	1,127	1,474	1,957	2,367	12.9%
Second Class	259	258	222	162	162	164	214	293	387	506	671	
Third Class	148	226	226	190	147	147	158	209	283	374	490	
Fourth Class	107	123	194	188	157	126	127	143	191	257	338	
TOTAL	1,267	1,255	1,115	1,012	943	1,062	1,354	1,772	2,335	3,094	3,856	
MEDICINE												
First Class		42	29	29	30	39	53	70	91	121	147	0.8%
Second Class		-	38	26	26	27	35	48	63	82	109	
Third Class		-	-	34	23	23	24	32	43	57	74	
Fourth Class		-	-	-	31	21	21	22	29	39	51	
TOTAL		42	67	89	110	110	133	172	226	299	381	
ENGINEERING												
First Class	-	32	22	22	22	29	40	52	69	91	110	0.6%
Second Class	-	-	29	20	20	20	26	36	47	62	82	
Third Class	-	-	-	26	18	18	18	23	32	42	56	
Fourth Class	-	-	-	-	23	16	16	16	21	29	38	
TOTAL	-	32	51	68	83	83	100	127	169	224	286	
AGRICULTURE												
First Class	-	-	26	26	26	34	46	61	80	106	128	0.7%
Second Class	-	-	-	23	23	23	31	41	55	72	95	
Third Class	-	-	-	-	21	21	21	28	37	50	65	
Fourth Class	-	-	-	-	-	19	19	19	25	33	45	
TOTAL	-	-	26	49	70	97	117	149	197	261	333	

Commerce and Economics:			
- repetition	.277	.239	.136
- progression	.336	.732	.712
Arts:			
- repetition	.000	.195	.154
- progression	.343	.710	.703
Science:			
- progression	.334	.740	.935
Education:			
- progression	.825	.671	.975

Because 1983/84 was the first year for enrollments in the Faculties of Engineering and Medicine, it is impossible to project progression rates from past behavior. In all three new faculties, a constant progression rate of .900 was assumed. Because entrance requirements will be higher and enrollments lower in these programs, this higher success rate appears justified.

Low second year progression rates in the other faculties (except Education) would suggest that students are inadequately prepared for the university curriculum. Once in the university, there seems to be an incentive to stay as evidenced by the high repetition rates in the second class. Progression rates between the second and third, and third and fourth years are considerably higher, also reflecting the incentive to finish once in the higher education system.

The substantially higher second class progression rate for the Faculty of Education could be the result of one of two influences. Either students entering into the Faculty of Education are better prepared or, because of the high priority government has placed on increasing the number of Yemeni teachers, a greater effort is made to keep students in the program through incentives and flexible grading on exams.

Table 2.23 gives estimates of recurrent costs for the Sana'a University. If enrollment at the University continues along recent trends of high growth, total enrollment will have expanded by a factor of 5.6 by the 1992/93 academic year. Sana'a University estimates of annual student costs are

TABLE 2.23

ESTIMATED RECURRENT COSTS FOR UNIVERSITY OF SANA'A

1982/83-1992/93

Total Enrollment by Faculty	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
Shari'a and Law	2,608	3,710	3,861	4,001	4,145	4,581	5,783	7,547	9,947	13,174	16,541
Commerce and Economics	1,783	2,328	2,432	2,554	2,615	2,958	3,787	4,982	6,563	8,685	10,887
Education	807	1,064	1,124	1,158	1,247	1,396	1,756	2,165	2,820	3,597	4,567
Science	495	564	489	474	453	508	649	845	1,113	1,475	1,838
Arts	1,287	1,255	1,115	1,012	943	1,063	1,354	1,772	2,335	3,094	3,866
Medicine	-	42	67	89	110	110	133	172	226	299	381
Engineering	-	32	51	50	83	83	100	127	169	224	286
Agriculture	-	-	26	49	70	97	117	149	197	261	333
Total UOS Enrollment	6,960	8,992	9,145	9,387	9,666	10,695	13,678	17,759	23,370	30,809	38,699
Unit Cost (TRs)	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Total Current Cost (Mil TR)	139.2	179.8	182.9	187.7	193.3	213.9	273.6	355.2	467.4	616.2	774.0

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approximately YR 20,000. By international standards, these levels are rather low reflecting the large share of recurrent costs borne by donors. In addition, the University has been able to hold unit costs low because of the sharing of staff and courses among faculties. For example, students from the Faculty of Education will take basic science courses from the Faculty of Science instead of duplicating the same courses within the Faculty of Education. Despite these cost-saving approaches, the high projected growth in Sana'a University enrollments over the decade will increase University recurrent expenditures from YR 139.2 million in 1982/83 to YR 774.0 million in 1992/93.

Table 2.24 provides the projected recurrent expenditures for the EHR sector between 1983/84 and 1992/93. Projected expenditures on primary, preparatory, and general secondary education are from the more modest Scenario I estimates given in Table 2.21. Projected recurrent expenditures on commercial secondary, technical secondary, agricultural secondary, VTC's, and the three- and five-year TTI's are based on enrollment projections given earlier. The unit cost estimate used for these programs is YR 5,093, the same as was used for general secondary. This probably underestimates the actual per student cost of the non-general programs. In the case of technical secondary, agricultural secondary, and the VTC's the added cost of equipment maintenance has not been included. Because the numbers enrolled in these programs are small, even a substantial variation in unit costs from the estimated level would not have a significant impact on the estimates of total MOE recurrent costs.

The case of unit costs for TTI students is a special one. Because of the high level of subsidies offered to TTI students, the unit cost of YR 5,093 probably understates unit costs for TTI's by a substantial margin. Unlike the technical programs, TTI enrollments are projected to be relatively high. Given the implication for substantially higher recurrent costs arising from large subsidies to TTI students, an assessment should be

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TABLE 2.24

PROJECTED RECURRENT EXPENDITURES ON EDUCATION, 1983/84-1992/93

(BASED ON SCENARIO I ENROLLMENT PROJECTIONS)

(In Million Yemen Rials at 1982 Prices)

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
I. MOE EXPENDITURES										
- Primary Education	822.67	870.40	918.49	964.84	1,022.86	1,093.54	1,173.44	1,260.12	1,353.35	1,453.49
- Preparatory Education	168.99	222.98	282.76	351.07	393.13	412.29	412.92	422.58	445.71	477.01
- General Secondary Education	68.61	86.76	115.43	152.60	201.47	254.22	314.68	348.35	362.41	363.20
- Commercial Secondary	3.12	3.90	5.17	6.84	9.02	11.47	14.23	16.01	16.79	16.77
- Technical Secondary	3.39	4.27	5.70	7.56	9.97	12.67	15.74	17.69	18.61	18.61
- Agricultural Secondary	1.35	1.82	2.42	3.21	4.24	5.39	6.69	7.73	7.92	7.92
- Vocational Training Centers	2.50	3.35	4.19	5.10	5.53	5.45	5.46	5.71	6.11	6.55
- Three and Five Year TTI	23.28	37.88	50.75	63.78	75.02	84.66	93.91	100.44	104.44	107.88
TOTAL	1,093.91	1,231.36	1,384.91	1,555.00	1,721.24	1,880.19	2,037.07	2,178.63	2,315.34	2,451.43
II. SANA'A UNIVERSITY EXPENDITURES	179.80	182.90	187.70	193.30	213.90	273.60	355.20	467.40	616.20	774.00
TOTAL EXPENDITURES	1,273.71	1,414.26	1,572.61	1,748.30	1,935.14	2,153.79	2,392.27	2,646.03	2,931.54	3,225.43

conducted of the actual benefits (in terms of teacher production and retention) from these incentives. A shift in resources from training incentives to salary incentives may prove to have a greater impact on increasing the numbers of Yemeni primary school teachers.

Sana'a University expenditures, as given in Table 2.24, vary from the second to third largest expenditure category during the 1983/84-1992/93 period. By 1990/91 expenditures on the University will be second only to primary education with the gap between preparatory expenditures and University expenditures beginning to widen. In view of these developments, government may want to investigate policy options that would place a greater expenditure priority on basic education and development of programs offering mid-level skills training. This issue will be discussed at greater length under the manpower analysis section.

It should be noted that Table 2.24 does not include expenditure projections for three other categories of government educational expenditures. The projected budgets of the Education Research Development Center, the Center for Research and Studies, and the High Commission for Scientific Institutes have not been included. The budgets of the two education-related research centers will remain a rather insignificant portion of total government expenditures. The budget for scientific institutes could grow substantially in the upcoming years. Scientific institutes are government-financed schools that offer a curriculum of religious classes and other general classes, i.e., math, language, social studies, and science. In 1982/83, a total of 54,584 students were enrolled in primary, preparatory, and secondary scientific institutes. If a comprehensive analysis of the potential growth in government education expenditures is to be completed in the future, growth in expenditures for scientific institutes should be taken into account.

Because of the above-stated omission and understatement of certain unit costs, the total recurrent expenditures given in

Table 2.24 are a very modest estimate of what total recurrent government expenditures on education actually will be.

2.3.3 Fiscal Capacity and EHR Expenditures

The final step in fiscal capacity analysis is to combine EHR expenditure estimates with the earlier estimates of Gross Domestic Product growth. Table 2.25 presents the two projections of GDP growth as well as projected growth in government expenditures as given in Table 2.12. The educational expenditures are then presented as a proportion of GDP (under estimates A and B) and of total government expenditure.

A pattern emerges which has important implications for education and human resource development in the YAR for the next decade. Under the modest projections of growth in education expenditures used in this analysis, these expenditures will claim a steadily increasing portion of total government expenditures. By 1992, 45.6 percent of total recurrent government expenditures will be allocated to education if government is to meet the projected growth in demand. If the more optimistic rate of 5.0 percent growth in GDP is achieved (Alternative B), recurrent expenditure on education still will amount to approximately 14 percent of GDP. If the lower estimate of 2.5 percent growth in GDP is assumed, education expenditures as a proportion of GDP will approach 16 percent.

These proportions are unreasonably high by any country's standards, but do, in fact, dramatize the challenge government will face in meeting the impending expansion in demand for educational services. For a country at the YAR's stage of economic development, it is unreasonable to assume that almost 46 percent of government expenditure will be allocated to education alone when demand for other social and economic services will be high.

This fiscal capacity projection points to the need for government to re-examine priorities and the impacts of current

TABLE 2.25

PROJECTIONS OF GOVERNMENT FISCAL CAPACITY FOR

EHR EXPENDITURES FOR 1984-1992

(In Million Yemen Rials)

	1984	1985	1986	1987	1988	1989	1990	1991	1992
Total EHR Expenditure	1,414.26	1,572.60	1,748.30	1,935.14	2,153.79	2,392.27	2,646.03	2,931.54	3,225.43
Total Government Expenditure	1/ 6,042	6,163	6,286	6,412	6,541	6,671	6,805	6,941	7,080
EHR/Government Expenditure	23.4%	25.5%	27.8%	30.2%	32.9%	35.9%	38.9%	42.2%	45.6%
Gross Domestic Product (A)	2/ 15,088	15,465	15,852	16,248	16,654	17,487	18,361	19,279	20,243
EHR/GDP (A)	9.4%	10.2%	11.0%	11.9%	12.9%	13.7%	14.4%	15.2%	15.9%
Gross Domestic Product (B)	3/ 15,456	16,229	17,040	17,892	18,787	19,726	20,713	21,748	22,836
EHR/GDP (B)	9.2%	9.7%	10.3%	10.8%	11.5%	12.1%	12.8%	13.5%	14.1%

1/ 2.0% Annual Growth Rate

2/ 2.5% Annual Growth Rate to 1988, 5.0% thereafter

3/ 5.0% Annual Growth Rate

policies, especially those regarding continued expansion of the Sana'a University and the continued high subsidies for TTI students.

Much of the rapid expansion in recurrent education expenditures is a function of increasing enrollments at all levels of education. If government is to continue to meet this demand, new approaches to mobilizing local resources must be explored through greater cooperation with the LDA's. The rapid growth in per capita income over the past decade suggests there is a high level of private resources that could be tapped to expand access to education - especially at the primary level.

Donor assistance will be of continued importance in providing funding for new capital investments in education and for providing teachers at all levels of education. Given the potential for rapid growth in recurrent costs resulting from new development projects, government should work to coordinate donor assistance and to hold these costs to a minimum. A restructuring of current education policies and programs to mobilize local resources, and a more careful coordination of donor assistance will allow the Yemeni education system to continue to meet the growing demand for educational services and to make progress towards greater self-sufficiency in meeting the economy's need for trained manpower.

The two succeeding sections provide manpower and unit cost estimates. These analyses deal, respectively, with the issues of the external efficiency and the internal efficiency of the human resource development sector. The findings from these analyses are then combined with the fiscal capacity conclusions to form the basis for specific recommendations on the structure and financing of the EHR system.

2.4 MANPOWER DEMAND AND SUPPLY

Although education and training have important social and psychological outcomes, a priority function of the EHR system is to meet the emerging manpower needs of the economy. Failure of the EHR system to do this can restrict economic development

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in two ways. First, the lack of an adequate quantity of skilled manpower acts as a constraint on both public and private sector development initiatives. Second, the overproduction of graduates in areas for which there is low employment demand represents a waste of scarce EHR resources and a burden on government in the form of unemployment or underemployment.

This section of the economic and financial analysis reviews the most recent data on the existing manpower situation and the SFYP estimates of future manpower supply for the YAR. The nature of the GDP and employment data, and their limitations should be kept clearly in mind in the interpretation of any estimates of manpower demand. In addition to the general limitations in the data, it should be noted that the most recent estimates of manpower supply and demand in Yemen were completed in 1981 for the Second Five Year Plan. Growth in demand for manpower was based on an assumed real, annual growth in aggregate GDP of seven percent. As explained in some detail in the previous section, this growth in GDP was not achieved during the first three years of the SFYP and current indicators suggest it will not be achieved in the final two years of the plan. Growth in the individual economic sectors which have determined SFYP projections of growth in demand for manpower have, therefore, also overstated the actual situation during the plan period. Projected demand for new employment between 1981 and 1986 therefore is overestimated.

The existing data are useful in illustrating the following issues which have emerged regarding manpower supply and demand in Yemen.

a) External demand for Yemeni labor is likely to remain stable in aggregate terms, though there may be a relative increase in the demand for labor with higher skill levels;

b) Shortages of agricultural labor, especially those with some technical skills, will continue to be a problem;

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c) The most critical shortage will continue to be in mid-level skills, especially in teaching, engineering, and technical areas. The existing polar configuration of manpower supply will continue to exacerbate the shortage of mid-level skills;

d) There has been a continued "arbitrage" of local for foreign labor. This is especially true for the teaching profession and will be discussed in detail under the section on teacher supply and demand. This problem will be heightened by the absence of strong incentives to Yemenize the workforce.

e) Women's skill potential is dramatically underutilized in the workforce.

These issues will be discussed within the context of the following sections.

2.4.1 Manpower Demand and Employment in Yemen

Due to the continued outflow of Yemeni workers to neighboring countries, the YAR, as a developing nation, is in the unique position of having virtually no unemployment. Current estimates suggest the aggregate number of Yemeni working abroad will remain constant over the coming decade. These estimates also suggest that, in the future, external demand for Yemeni labor will shift to favor those with higher skills. Two possible effects may result if the change in the composition of external demand is significant. In the short run, external demand for skilled labor could exacerbate existing internal manpower shortages for such workers and lead to growing numbers of unemployed unskilled laborers in Yemen. In the long run, external demand for skilled or semi-skilled labor may increase the demand for low to mid-level skill training in the YAR.

There currently exists a polar configuration of manpower supply. Proximity to Saudi Arabia has bid up wages for unskilled Yemeni workers in Yemen. The relatively high wages for unskilled labor has kept the opportunity cost of entering school or training programs high. Thus, workers tend to have no formal schooling or, if they enter the school system, to attempt to continue through the system to higher education. If

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large numbers of unskilled Yemeni workers are forced to stay in Yemen due to decreased external demand for their labor, wage rates will fall and there will be an increase in the benefits and a reduction in the opportunity costs of training.

Another salient feature of manpower demand and employment is the large number of expatriate workers in Yemen. As noted earlier, 85 percent of all primary school teachers were non-Yemeni in 1982/83 and 94 percent of preparatory teachers were non-Yemeni. A large percentage of the clerical staff used by the public sector is also expatriate. Existing circumstances have made it difficult for government to take serious steps towards Yemenization of its workforce. In the teaching profession, for example, a number of teachers are seconded by their government to the YAR. Kuwaiti teachers, for example, are paid directly by the embassy of their government. In the short run, at least, these teachers are essentially a gift. Because most of the expatriate teachers come from economies with relatively long traditions of universal education, most expatriate primary teachers possess, at minimum, a Bachelor's degree. At present, there seems to be a reluctance to move away from the use of highly credentialed expatriate primary teachers to the secondary level graduates of Yemeni TTI's.

A third important feature of the Yemeni economy is the underutilization of women's skill potential. Estimates for 1981 show the percentage of women in the labor force to be only 5.4 percent. This compares to an average of 10.7 percent in other middle income North African and Middle Eastern countries. There is a need to encourage greater participation of women in areas of the workforce where women's involvement is most acceptable to Islamic culture.

The area with the greatest potential for increased utilization of women's skills is teaching. Extensive use of women in the education sector would allow the Yemeni government to move more quickly towards Yemenization of the teaching profession. This prevalence of expatriates and

underutilization of women will be discussed in greater detail within the context of teacher supply and demand.

2.4.2 Manpower Demand and Macro-Economic Growth

The first step in projecting manpower demand is to forecast the change in macro-economic activity. Labor demand is always a derived demand based on the marketability of produced goods and services and the productivity of labor. Earlier limitations stated concerning GDP calculations for Yemen should be kept in mind in the use and interpretation of subsequent manpower estimates.

As noted earlier, growth rate projections are those used for macro-economic forecasts under the Second Five Year Plan, 1982-1986. All estimates of Gross Domestic Product (GDP), unless otherwise defined, will be done in factor cost GDP in 1981 prices. Real growth in GDP, as stated earlier, has been assumed to be 7 percent per annum.

Table 2.26 presents projected GDP by economic activity in 1981 and 1986 and the estimated demand for manpower generated by each sector. The sectors with the largest projected growth rates are Electricity, Gas, and Water (25 percent) and Manufacturing (13.5 percent). The smallest sector growth rate expectations are for Agriculture, Forestry, and Fisheries (4.2) and Construction and Building (4.5). Projections for future manpower demand are derived from these sectoral rates of growth. Therefore, in Table 2.26, the Electricity and Water sector shows the largest annual rate of increase in manpower demand (12.4 percent) and the Agriculture, Forestry and Fisheries shows the smallest rate of increase (0.9).

The SFYP estimated that 1,201,600 people were employed in 1981 and distributed by sector as given in Table 2.26. The estimated numbers of workers by sector in 1986 are based on the annual rate of increase in demand for manpower derived from sectoral growth. In absolute numbers, the largest increase in demand for new manpower is estimated to come from the government services sector which will require 52,900 new

TABLE 2.26

EMPLOYMENT IN THE BASE YEAR (1981) AND PROJECTED EMPLOYMENT IN FINAL YEAR OF SFYP (1986)

Economic Activity	1981 GDP 1/ (Mil YR)	1981 No Workers ('000)	1986 GDP 2/ (Mil YR)	1986 Est No Workers ('000)	Increase in Demand for Manpower (1982-1986)	Annual Rate of Increase (%)	Increase Due to Turnover	Increase Due to Presence of Foreign Employees 3	Total Demand in 1986
Agriculture, Forestry, Fisheries	3,690	830.4	4,540	866.7	36.3	(0.9)	74.7		
Mining and Qarrying	156	1.3	275	1.9	0.6	(7.0)	0.9		
Manufacturing	770	52.9	1,470	81.6	28.7	(9.0)	4.7		
Electricity and Water	89	3.9	272	7.0	3.1	(12.4)	0.3		
Construction	1,139	72.0	1,420	78.0	6.0	(1.6)	6.4		
Wholesale and Retail Trade	2,124	66.5	2,852	80.3	13.8	(3.9)	5.6		
Restaurants and Hotels	139	4.6	200	5.6	1.0	(3.9)	0.4		
Transport and Communications	483	31.6	648	38.2	6.6	(3.9)	2.8		
Financial Institutions, Real Estate Services	1,565	4.5	2,255	6.0	1.5	(5.9)	0.3		
Government Services*	1,907	123.6	2,945	176.5	52.9	(7.4)	11.0		
Other Services	159	10.3	235	14.2	3.9	(6.6)	0.9		
TOTAL	12,221	1,201.6	17,112	1,356.0	154.4		108.0	21.7	284.1

Source: The Second Five Year Plan, 1981-1986

1/ GDP at Factor Prices

2/ Based on an Assumed Annual Real Growth in GDP of 7%.

3/ Detail not available by economic activity

*Annual Growth Rate = 9.1%

workers between 1982 and 1986. The second largest number demanded will be 36,300 new workers for the agricultural sector.

Although agriculture is predicted to grow at the slowest rate of any sector during the period, it will remain the single largest employer in the economy. This emphasizes the continued importance of agriculture to the Yemeni economy and the need for the EHR system to produce adequate numbers of manpower trained at various skill levels to enhance the future productivity of this sector. Other sectors contributing significantly to new manpower demand over the 1981-1986 period are Manufacturing which will require 28,700 new workers and Wholesale and Retail Trade which will require 13,800 new workers.

Table 2.26 also gives estimates of the demand for new labor during the 1981-1986 period due to turnover. The total number of existing jobs that will need to be filled during the period is 108,000. Among the sectors, the highest turnover is in the agricultural sector. This probably is due to the large numbers that leave agriculture to work abroad. The column labeled "Increase Due to Presence of Foreign Employees" is the projected number of foreign workers that will be replaced by Yemeni workers during the period. Taken together, increases in manpower demand due to economic growth, turnover, and replacement of foreign workers will total 284,400 workers between 1981 and 1986.

Table 2.27 presents detail on the new demand for manpower from economic growth, turnover, and replacement of foreign workers by skill level. This table also gives the estimated supply of new Yemeni workers by skill level. Aggregate supply and aggregate demand are almost balanced for the five-year period. Considerable disparity exists, however, from one skill level to another. There will be a large surplus of manpower with a primary education or less and relatively small shortages of university graduates in both the sciences and humanities. A large shortage is predicted for the skill level requiring primary education plus vocational training. Though the

TABLE 2.27

BALANCE OF LABOR DEMAND AND SUPPLY, 1981-85

(In Thousands of Yemen Rials)

Educational Category	Demand From Economic Growth	Demand From Turnover	Non-Yemenis in 1981	Total Demand (1982-86)	Supply of Yemeni	Balance 1982-1986 (A)
University or Higher (Science)	2.93	0.10	1.20	4.23	0.59	- 3.64
University or Higher (Humanities)	2.16	0.10	0.88	3.14	3.13	- 0.01
Other Post Secondary (Science)	4.94	0.40	1.85	7.19	1.14	- 6.05
Other Post Secondary (Humanities)	5.87	0.50	11.15	17.52	3.40	-14.12
Secondary Education	22.70	4.00	0.32	27.02	6.52	-20.50
Intermediate Plus Vocational Training	7.87	1.70	3.32	12.89	1.71	-11.18
Primary Plus Vocational Training	55.89	7.20	3.28	66.37	40.37	-26.00
Primary Education or Less	52.04	94.00	-	146.04	227.42	481,38
TOTAL	154.40	108.00	22.00	284.40	284.28	- 0.12

Source: The Second Five Year Plan, 1981-1986 and Manpower Projections and Policy Recommendations, Dec. 1981

shortage is largest in absolute numbers at this level, it is considered relatively easy to move manpower from the surplus category of primary education or less to the next higher category with literacy and skills training. The most critical shortages are considered to be those at the mid-level skills, particularly the two categories most likely to provide teachers: secondary education and other post-secondary education in Humanities. The shortage of Yemeni teachers, therefore, emerges as one of Yemen's most critical manpower problems. The following subsection explores this issue in some detail.

2.4.3 Teacher Demand and Supply in the YAR

Demand for new teachers will be driven by the expected increases in enrollments, particularly at the primary level. There are basically only two sources of domestic supply for Yemeni primary school teachers: the three-year and the five-year TTI's. For preparatory and secondary teachers, the major supplier is the Faculty of Education at Sana'a University.

This section examines the estimated growth in demand for teachers and compares it to the expected supply of new Yemeni teachers. Table 2.28 estimates projected teacher demand for the following levels of education: primary, preparatory, general secondary, and the three-year and five-year TTI's. The total number of teachers demanded between 1983/84 and 1992/93 are based on the earlier enrollment projections for each level (Scenario I growth rates in all cases) and constant student: teacher ratios at each level. The following student:teacher ratios have been used in estimating teacher demand:

Primary Education	45.1
Preparatory Education	20.1
General Secondary	15.1 through 1987/88 and 20.1 thereafter
Three-Year TTI's	15.1
Five-Year TTI's	20.1

The primary student:teacher ratio assumes that demand for primary education will remain high through the next decade and

TABLE 2.28

PROJECTED TEACHER DEMAND BY LEVEL, 1983/84-1993/94

(Based on Scenario 1 Enrollment Projections)

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
I. PRIMARY EDUCATION										
No. of Students	673,219	712,271	751,631	789,557	837,037	894,880	960,266	1,031,194	1,107,484	1,189,436
No. Teachers Required 1/	14,960	15,828	16,703	17,546	18,601	19,886	21,339	22,915	24,611	26,432
Increase from previous Year	1,795	868	875	843	1,055	1,285	1,453	1,576	1,696	1,821
II. PREPARATORY EDUCATION										
No. of Students	57,346	75,665	95,949	119,128	133,401	140,071	140,117	143,394	151,239	161,861
No. Teachers Required 2/	2,867	3,783	4,797	5,956	6,670	7,004	7,006	7,170	7,562	8,093
Increase from previous Year	486	916	1,014	1,159	714	334	2	164	392	531
III. GENERAL SECONDARY EDUC.										
No. of Students	13,470	17,035	22,665	29,963	39,558	49,915	61,786	68,398	71,159	71,313
No. Teachers Required 3/	1,051	1,136	1,511	1,998	2,637	2,637*	3,089	3,420	3,558	3,566
Increase from previous Year	0	85	375	487	639	0	452	331	138	8
IV. THREE YEAR TTI										
No. of Students	1,314	1,660	2,212	2,928	3,864	4,896	6,077	6,792	7,126	7,131
No. Teachers Required 4/	244*	244*	244*	244*	258	326	405	453	475	475
Increase from previous Year	0	0	0	0	14	68	79	48	22	0
V. FIVE YEAR TTI										
No. of Students	3,256	5,777	7,753	9,596	10,866	11,727	12,363	12,929	13,381	14,051
No. Teachers Required 5/	163	289	388	480	543	586	618	646	669	703
Increase from previous Year	45	126	99	92	63	43	32	28	23	34

1/ Assumes a constant student:teacher ratio of 45:1
2/ Assumes a constant student:teacher ratio of 20:1
3/ Assumes a student:teacher ratio of 15:1 until 1987/88 and 20:1 thereafter
4/ Assumes a constant student:teacher ratio of 15:1
5/ Assumes a constant student:teacher ratio of 20:1

that it will be difficult to lower the student:teacher ratio from the current level of 45:1. At the other four levels, it is assumed that the student:teacher ratio will be allowed to increase from the current relatively low levels: preparatory, 18:1; general secondary, 11:1; five-year TTI's, 14:1; and three-year TTI's, 5:1.

At present, all of these ratios vary considerably from one region of the country to another. It is assumed that as the education system expands, more efficient use will be made of post-primary teachers. The total number of teachers required each year and the number of new teachers required each year are depicted in Table 2.28.

As noted earlier, Yemeni teachers are educated at teacher training institutes and at the Faculty of Education. Table 2.29 presents the estimates of Yemeni graduates of the University by faculty. Faculty of Education graduates average 16.5 percent of total university graduates over the period, with a maximum of 458 new graduates projected for 1992/93. This average is very small when compared to the demand these graduates are expected to fill. The Faculty of Education is the only domestic source of preparatory, general secondary, and TTI instructors. In addition to this, Faculty of Education graduates are also the main source of school administrators. This is a major concern as expatriates normally do not fill administrative positions in the schools.

Table 2.30 compares the expected supply of Yemeni teachers to the anticipated demand. At the primary level, dependence on expatriate teachers is estimated to decline very gradually over the eleven year period. At the most optimistic rate of supply of teachers that can be expected under current policies, and assuming full retention of all teachers, it will be the end of the decade before dependence on expatriate teachers would drop below 50 percent. More realistic assumptions would postpone this achievement to near the end of this century.

The situation at the post-primary level is even more dramatic. The proportion of non-Yemeni teachers that will be

TABLE 2.29

ESTIMATED UNIVERSITY OF SANA'A YEMENI GRADUATES

BY FACULTY, 1982/83 - 1992/93

Faculty	1982/83 1/	1983/84 1/	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	Estimated Graduation Rate
Shari'a and Law	157	242	407	419	655	543	556	637	850	1,140	1,498	.733
Commerce and Economics	197	133	245	272	363	324	345	424	566	753	989	.680
Education	123	159	127	112	259	189	169	191	344	344	453	.881
Arts	86	86	160	155	130	104	104	118	158	213	280	.827
Total Graduates In Humanities	563	620	939	978	1,407	1,160	1,194	1,370	1,918	2,450	3,220	
Science	41	38	42	52	52	38	3[illegible]	38	50	69	91	.687
Medicine	0	0	0	0	28	19	19	20	26	35	46	.900
Engineering	0	0	0	0	21	14	14	14	19	26	34	.900
Agriculture	0	0	0	0	0	17	17	17	23	30	41	.900
Total Graduates In Science/Technical	41	38	42	52	101	88	87	89	118	160	212	
Total Graduates	604	658	981	1,030	1,508	1,248	1,281	1,459	2,036	2,610	3,432	

1/ Actual Graduates; Includes Non-Yemeni.
Estimates from 1984/85 are of Yemeni graduates only.

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TABLE 2.30

PROJECTED BALANCE OF TEACHER SUPPLY AND DEMAND,

1982/83-1992/93

	1982/83 1/	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
Primary Level											
Projected Demand (Total No. Teachers)	11,165	14,960	15,828	16,703	17,546	18,601	19,986	21,339	22,915	24,611	26,432
Projected Supply (Yemen):											
(Five-Yr TTI Grads)	-	160	-	-	560	907	1,090	1,310	1,573	1,912	1,912
(Three-Yr TTI Grads)	-	290	353	366	482	660	869	1,137	1,539	1,826	2,225
Total No. New Teachers	-	450	353	366	1,042	1,567	1,959	2,447	3,032	3,738	4,137
Total No. Exist. Teachers	2,016	2,016	2,466	2,819	3,185	4,227	5,794	7,753	10,200	13,282	17,020
Total Supply	2,016	2,466	2,819	3,185	4,227	5,794	7,753	10,200	13,232	17,020	21,157
Balance Supply/Demand 2/	-11,149	-12,494	-13,009	-13,518	-13,319	-12,807	-12,133	-11,139	- 9,683	- 7,591	- 5,275
(% of Total Demand)	(84.7%)	(83.5%)	(82.2%)	(80.9%)	(75.9%)	(68.9%)	(61.0%)	(52.2%)	(42.0%)	(30.8%)	(20.0%)
Post-Primary Level 3/											
Projected Demand (Total No. Teachers	3,734	4,325	5,452	6,940	8,678	10,108	10,553	11,118	11,619	12,264	12,837
Projected Supply (Yemen):											
(Faculty Education)	-	123	159	127	112	259	189	189	191	344	344
Total No. New Teachers	-	123	159	127	112	259	189	189	191	344	344
Total No. Exist. Teachers	236	236	359	518	645	757	1,016	1,205	1,394	1,585	1,929
Total Supply	236	359	518	645	757	1,016	1,205	1,394	1,585	1,929	2,273
Balance Supply/Demand 2/	- 3,498	- 3,966	- 4,934	- 6,295	- 7,921	- 9,092	- 9,348	- 9,724	-10,134	-10,335	-10,564
(% Total Demand)	(93.7%)	(91.7%)	(90.5%)	(90.7%)	(91.3%)	(89.9%)	(88.6%)	(87.5%)	(86.4)	(84.3%)	(82.3%)

1/ Actual Numbers; Excess demand in this year was met by expatriate teachers.

2/ (+) Surplus; (-) Shortage

3/ Includes demand for teachers at Preparatory, General Secondary, Three- and Five-Year TTIs.

required over the period declines only marginally from 93.7 percent non-Yemenis in 1982/83 to 82.3 percent non-Yemenis in 1992/93. In absolute terms, the number of expatriate teachers required by the end of the period actually increases from 3,498 in 1982/83 to 10,564 in 1992/93. The manpower shortage in education is one area in which government has the opportunity to reverse the current trends.

The pursuit of two broad strategies potentially could increase the supply of new teachers at a much faster rate. These two strategies would involve reducing required credentials for becoming a teacher and dramatically increasing the participation of women in the teaching profession. A review of current credentialing practices, an exploration of in-service training alternatives, and broadening the base from which primary and preparatory teachers are drawn are all options that should be examined.

Increased participation of women in the teaching profession could be encouraged by coordinating efforts to place women in schools in their home villages. Females completing general secondary school might also be asked to serve a compulsory year as a teacher to parallel the one-year compulsory military service for men.

2.5 FINANCING, UNIT/CYCLE COSTS, AND RETURNS TO EDUCATION

The macro-level approach of an educational sector assessment does not permit the detailed cost analysis required for assessment of the efficiency of specific educational projects. Nonetheless, even data aggregated to a high level when combined with qualitative analysis permit identification of areas of potential efficiency and inefficiency. Once these areas are identified, detailed cost reviews, necessary for correcting and enhancing the system, can be undertaken.

The analysis which follows is divided into two main parts. The first, largely descriptive, identifies the major sources of financing for each of the levels and types of education and training. It also provides summary data on enrollments, staffing, and other relevant institutional or

cycle characteristics. Additional detailed data are presented in the relevant subsector chapters.

The second part of the analysis presents estimates of the unit costs and cycle costs of the different levels and types of schooling. Finally, cost data is combined with information on the prospective earnings of graduates to produce estimates of individual and total (including government) returns to education.

2.5.1 Educational Financing

The YAR central government bears the major responsibility for financing schooling, although the local development associations (LDA's), communities, and students and their families may also share in the cost, depending on the level and type of program. Both the formal and nonformal systems are characterized by high donor dependency both for capital and recurrent expenditures. Donor support for recurrent expenditures is provided in a number of forms: general budgetary support of governmental activities, nontargeted aid to the MOE, categorical funds administered by the MOE, and direct payment of teachers. Available data on donor support is summarized in Table 2.31.

2.5.1.1 Primary Education

Primary Education in the YAR consists of Grades One to Six. Passage to preparatory school depends on successful completion of the primary school-leaving examination. Since 1971, the number of teachers, students, classrooms, and schools have grown rapidly. In 1982/83, there were 13,165 teachers serving 602,212 students in 18,945 classrooms and 4,169 schools. Average class size was about 45, although it was (and is) not unusual to find 150 students in primary grade one and less than 20 in primary grade six. Both attrition and repetition rates are high relative to the other Gulf states, but not in relation to other systems at the same stage of development.

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TABLE 2.31

DONOR SUPPORT FOR EDUCATION, 1983

	Donor	ASSISTANCE COMMITTED 1983 (In U.S. Dollars)	Life of Project (In U.S. Dollars)	Project Duration	Description
I. Recurrent Expenditures					
A. Institutional Support MOE					
	UNDP/UNESCO	137,692	290,000	1983-84	Technical Assistance
	British Council	(not broken out)	NA	1975-86	6 TA, Curriculum Development
	USAID	(not broken out)	NA	1981-87	Technical Assistance
B. Salaries and Expenses for Teachers					
1. Primary-Secondary	UAE	2,776,200		Indefinite	300 Teachers
	Saudi Arabia	1[illegible],233,140		Indefinite	1,496 Teachers
	Syria	6,000,000(E		Indefinite	733 Teachers
	Pakistan	NA		1980-8[illegible]	22 Language Teacher
2. Technical	Iraq	NA	NA	Indefinite	13 Teachers
	China	NA	NA	1 Year	126 Teachers, Technicians
	USSR	NA	NA	Indefinite	9 Teachers
	DED	192,000	NA	4 Years	8 Teachers
	F.R. Germany	870,000	7,200,000	1977-86	5 Experts, Train 10 Yemeni
3. University of Sana'a and other Post-Secondary	Kuwait	NA	NA	Indefinite	180 Non-Yemeni Faculty 70 Technicians and administrative Staff
	U.S. Peace Corps	22,549	NA	1981-83	1 Liberian
	France	85,000	4,100,000	1979-87	4 French Teachers (DGTS, NIPA, Institute of Armed Forces)
	British Council	(Not broken out)		1979-86	4 TA, Curriculum Development
	Radda Barren Sweden	85,715	280,000	1982-85	Seminars on Health Issues

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TABLE 2.31 Contd.

4. Intensive Techer Training	Sudan	120,000	NA	Indefinite	Training Yemeni, To do Inservice
	UNICEF	350,000	NA	Indefinite	Primary, School Administr.
5. Scholarships	USSR	NA	NA	Indefinite	200 Preparatory
	Saudi Arabia		NA	Indefinite	700 Secondary
	Sudan	NA	NA	4-6 Years	Post-Secondary
	UK	570,000	NA	Indefinite	Post-Secondary
	Saudi Arabia/Pakistan	2,166,138	NA		225 Post-Secondary
	Italy	45,500	NA	1981-87	12 "
	Iraq	NA	NA	Indefinite	70 "
	GDR	NA	NA	1983-84	10 "
	France	66,140	NA	Indefinite	18 "
	Czechoslovkia	208,000	832,000	1980-83	26 "
	USAID	4,268,000	20,174,000	1981-82	30 "
	Syria	NA	NA	Indefinite	
	UAE	224,100	NA	Indefinite	100 "
	UNDP/UNESCO	49,166	630,037	1978-86	12 "
	Saudi Arabia	752,840 (includes Secondary Scholarships)	NA	Indefinite	110 "
	Syria	NA	NA	1982-84	720 "
	Netherlands	--	1,500,000	Indefinite	Vocational
	Sudan	NA	NA	1980-86	Undergraduate
	UK	570,000	NA	Indefinite	63 in 1983
6. Short Term Training	FOA/TCP	50,000	50,000	2 Months	Training for School Feeding Program
	Japan/JICF	NA	NA	2-4 Months	Banking, Health Programs,
	CARITAS	NA	NA	Indefinite	Prison Workshops
	USAID	(not broken out)	NA	1981-87	Support for and Fellowships to Yemen American Language Institute
7. Other	Radda Barren, Sweden	7,800	NA	Indefinite	7 for lepers
	U.S. Peace Corps	210,462	NA	Indefinite	9 English Teachers
	U.S. Peace Corps	253,055	NA	Indefinite	13 Teachers NIPA
	USAID	3,600,000	13,000,000	1979-87	Basic Education Developm.

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TABLE 2.31 contd.

UK	675,000	NA	1979-86	Curriculum
UK	27,000	NA	Indefinite	Free English for 30 Yemen
FDG	800,000	4,100,000	1979-87	TextBook and Textbook Production
WFP	NA	2,427,500	1981-85	Food Assistance, Technical Institutes
China	NA	NA	1983-85	26 Physical Education Experts for Schools and University
FDG	40,000	180,000	1983-85	1 Expert Teacher Trainer, Physical Education

II. Capital Investments by Source

	Date Committed	AMOUNT COMMITTED Loans/Credits	Grants	1983	Description
World Bank III	1979	10,000,000		2,250,000	Ed. Projects
World Bank IV	1982	12,000,000		NA	-
World Bank V	1983	10,000,000		None	Training
Canada	1983		17,375	17,375	Assist. Dhamar Service Center
Canada	1983		NA for LDP	40,650	Equip Audio-Visual Center at University
Kuwait	1983		2,721,680	NA	School Construction
Saudi Arabia	1981/1983		7,550,656	2,394,323	School Construction
Saudi Arabia	1979		530,613	382,093	Construction of Khawlan Accomodations
Saudi Arabia	1981		788,947	76,357	Construction of Teacher Institute
Radda Barren Sweden	1982		25,000	NA	Equip 2 Preschools
Syria	1983		NA		Books for University Library
Algeria	1981		4,900,000	1,500,000	(1,000 each 1983, 1981) Construction of Vocational School, also TA

Source: United Nations Development Programme, Development Co-operation Report for the Year 1983: Yemen Arab Republic, Sana'a: Yemen Arab Republic, 1984.

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Total recurrent costs for primary education in 1982/83 were estimated at YR 736,243,790 or YR 1,222 per student. These figures, as well as those for the more advanced levels of schooling, are comparatively high given both enrollment rates and the YAR's stage of economic development. The unit costs, however, are not high relative to the other Gulf states and to some degree reflect the labor costs in the region, particularly within Saudi Arabia. Salaries and allowances for Yemeni and seconded expatriate primary teachers with three to four years of experience average between YR 29,000 and YR 39,000 per year. Yemeni salaries are now within eight to ten percent of those paid to the seconded teachers. Saudi Arabia, Kuwait, the UAE, and Syria have reduced some of the distorting effects of their economies by underwriting a portion of the MOE's salary obligations for primary teachers.

Prior to 1981, capital investments in schools were governed by an agreement among the MOE, the LDA's, and the community. Each party contributed roughly one-third to the construction and equipment costs of schools. In rural areas, the community contribution frequently took the form of land and labor. Communities in large towns often had less direct involvement in decisions related to the location of and the building of schools. More often than not, the government owned the land or purchased it with education's share of entertainment and transportation tax revenues.

The role of the LDA in these school transactions was an important one. It served as a liaison between government and local interests, hired contractors, and supervised construction. Frequently, the LDA also assisted rural areas in attracting teachers by providing financial help in building or renting housing for teachers. As a consequence teachers could save their accommodation allowances. This practice continues in some regions.

Donor funding also has been available for school construction. Kuwait and Saudi Arabia have contributed to the capital costs of primary, preparatory, and secondary schooling in the YAR.

Parents, in addition to their tax contributions, support schools directly by contributions for initial enrollment (YR 15), registration for the primary school-leaving examination (YR 30), student activities (YR 55 per year), and uniforms (YR 120 per year). In addition, the school director may request more funds as needed. Not infrequently, parental labor is the main source of repair and maintenance work.

2.5.1.2 Preparatory and General Secondary Education

Preparatory and secondary schooling each consists of three years. At the end of the third year students sit for a centrally-designed and corrected school-leaving examination. Success on the examination is a requisite for acceptance into the next higher level of schooling. Grades on the secondary-leaving examinations tend to be determinative of opportunities for study abroad and admission to the various faculties at Sana'a University.

Enrollments in preparatory schools increased by 42 percent between 1980/81 and 1982/83 to 13,302 students. Proportional representation of boys and girls, however, has remained stable at the ratio of seven to one. The growth in the teaching force during the same period has kept pace with that of the students, so that the 1980/81 average class size of 18 has declined only slightly. The percentage of Yemeni teachers has declined from 8 per hundred to 6.5 per hundred.

Growth in the number of students, teachers, and schools has been slower at the secondary level. Enrollments have increased since 1980/81 by 17 percent to 11,984. The percentage of Yemeni to non-Yemeni teachers has remained constant, as has average class size.

There is no appreciable difference in the manner in which primary, preparatory, and general secondary schooling are financed. Thus, the substantive problems identified with respect to primary also effect preparatory and secondary schooling. The chief differences among levels are in unit costs - YR 2,947 and YR 5,093 for preparatory and secondary,

respectively. These higher levels reflect the increased certification required for preparatory and secondary teachers and the effects of relatively smaller class sizes.

Donor salary support tends to be equally important at the preparatory and secondary stages as at the primary level. In addition to some salary support, some donors provide scholarships for out-of-country training for teachers at the preparatory and secondary levels. The number of students annually beginning studies outside the YAR is approximately 900.

Regardless of the lack of tuition at preparatory and secondary schools, the cost for families sending children to school is high. The largest portion of the cost is in foregone earnings. Young men, aged 14 or 15 with no education and experience, can earn as much as YR 17,550 for nine months' labor in Saudi Arabia. They could earn more than half that amount working in towns in the YAR. Average school fees for 1984/85 for both levels are shown below. Enrollment, examination, and certificate fees are generally one-time-only charges at each stage. They have been annualized in the figures presented. Although many schools have had uniforms for several years, they will not be legally required until 1985. Parents are asked to purchase two new sets per child per year.

	Preparatory	Secondary
Enrollment fees	YR 8	YR 10
Examination registration fee	10	20
Certificate	--	20
Student activities	10	15
Uniforms	140	140
Annualized total	YR 168	YR 205

Other contributions may be requested during the school year. Where books and supplies are not available until late in the semester, parents may pay out-of-pocket expenses for these items. In fact, government supply of texts for all stages to private distributors may be a more efficient way of assuring student access to such materials.

2.5.1.3 Vocational/Technical Education

Within the vocational/technical education subsector, there are four major types of institution: Vocational Training Centers (VTC's), Technical Secondary Schools (TSS's), Commercial Secondary Programs (CSP's), and Agricultural Secondary Schools. The last are not dealt with here as they are the subject of separate reports. In 1983/84, enrollments in the first three programs totalled 1,613.

The four Vocational Training Centers are located in Sana'a, Taiz, Hodeidah, and Dhamar. The facility at Taiz is shared with a TSS. The Centers were originally intended to provide training to primary graduates between the ages of 16 and 18. Applicants are supposed to have at least a 50 percent pass on the primary school-leaving examination. In practice, however, students who have not completed primary and who are as young as 12 years of age are enrolled. The program is for males only and is designed to lead directly to employment. The students who have successfully completed the two-year program are awarded a certificate.

New enrollees tend to be poorly informed with respect to the nature of programs; disappointment that VTC training does not lead to more advanced study is cited as the primary reason for attrition. The variation in attrition rates among centers (10 to 33 percent) suggests, however, that there are also Center-related factors responsible for attrition.

In 1983/84, there were 416 students enrolled in the VTC's; 207 in Sana'a, 38 in Taiz, 136 in Hodeidah, and 35 in Dhamar. The student/faculty ratios for that year were 5:1, 3.9:1, 4.5:1, and 2.5:1, respectively.

The Technical Secondary Schools differ from the VTC's in a number of important respects. First, admission requires both a preparatory certificate and a "pass" on an admissions examination. Secondly, while the curriculum of the VTC's is two to one in favor of manual over academic training, that of the TSS is strongly academic, with only one hour of manual training for every three of academic work. Third, the TSS

program is three years in length and graduates with "good" passes may go on to higher education. Fourth, both the TSS's have dormitory facilities and therefore can draw students nationally. The first VTC dormitory is currently under construction in Sana'a.

The two TSS's, located in Sana'a and Taiz, enroll more students than all four VTC's. In 1982/83 the Sana'a and Taiz TTS's had 241 and 353 students, respectively. The average student faculty ratio was 10:1. Student staff ratios were much lower as the Chinese teachers who provide instruction at the TSS's require translators.

Commercial secondary programs are available to preparatory graduates at selected Secondary and Primary Teacher Training Institutions. It is the only vocational program open to females. The sites for males are at secondary schools in Sana'a, Taiz, and Hodeidah. Females have the opportunity for commercial studies at a secondary girls' school in Sana'a and the girls' PTTI's in Taiz and Hodeidah. The program of studies is of three years' duration and students take the regular secondary subjects as well as several business courses. Students who pass the secondary leaving examination with scores of 62 percent or above, are eligible for the Faculty of Commerce and Economics at Sana'a University. It is estimated that approximately 65 percent of all commerce students achieve this score.

The opportunity for higher education is the prime reason given for the growth in commercial enrollments and the low attrition rates. Student/teacher ratios are difficult to compute since students share general secondary teachers for part of their program. The estimated ratio of commercial teachers to students is 1:26, although there is considerable variation among the individual sites.

Data for detailed analyses of the cost of these three programs are not available. In 1981, recurrent expenditures per student for all technical secondary schools were estimated as YR 6,383 (compared to YR 2,152 for general secondary).

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Judging by the growth in recurrent costs at other levels, the generally small teacher/student ratios, the improvement in teacher salaries in the past few years, and the costs of maintaining equipment, current unit costs are probably about 50 percent higher than they were in 1981. A conservative estimate would be between YR 10,000 and YR 12,000 per student.

The MOE recurrent cost obligations include not only staff salaries and maintenance but also substantial subsidies for participants in the three programs. Students receive housing or a housing allowance of YR 150 per month as well as YR 350 per year for travel. As is the case with other levels and types of education, a number of donors contribute salary support. The USSR, the German Volunteer Services, and the Federal Republic of Germany contribute both personnel and their salaries to the VTC's. The 126 Chinese teachers, translators, and technicians at the TSS's are, however, paid by the MOE. Both teachers and translators receive an estimated US $600 per month (YR 32,724 per year); salaries well within the normal YAR salary schedule for secondary teachers. Costs, therefore, are not likely to decrease at the TSS's as Yeminization takes place.

Both the VTC's and the TSS's were built and equipped with donor support. The four VTC's were part of the World Bank's First and Second Education Projects, while the People's Republic of China underwrote the costs of constructing and equipping the TSS's.

2.5.1.4 Teacher Training

Teacher training at the YAR consists of primary teacher training in the Teacher Training Institute and preparatory and secondary teacher training at Sana'a University. A major reorganization of primary teacher training has just been completed. In the past, the teacher training institutes were concentrated in urban centers and provided three year programs for both primary and preparatory graduates. The desire for reorganization was based on the consensus that: (a) the average quality of institute graduates was poor; (b)

graduates from the postprimary institutions lacked the maturity and experience to manage classrooms; (c) teacher training institutes were needed in rural areas; and (d) strong incentives were necessary to attract individuals into primary teaching.

Thirty-seven Primary Teacher Training Institutes now exist in ten governorates. They offer either or both a five-year program for primary graduates and a three-year program for preparatory graduates. The curriculum follows the general MOE guide for preparatory and secondary school with the addition of several courses in pedagogy and some practice teaching in the last year of study.

In 1982/83, there were 2,464 students; 1,671 in the five-year program and 1,093 in the three-year program. Thirty-nine percent of the students are females. Teacher/student ratios tend to be low, suggesting excess institutional capacity. Estimates suggest that the system could absorb a 20 percent increase in enrollments without need for additional facilities or instructional staff.

Students are evaluated on the basis of their course work, practice-teaching and success on a national examination for PTTI-leavers. Statistical data on student repetition, attrition, the exit/re-entry patterns, particularly of young women, the number of graduates who actually go on to teaching, and the length of time they remain in teaching are not yet collected.

PTTI students are heavily subsidized. The schedule of stipends and allowance is shown below:

	Five-Year Program (YR/year)	Three-Year Program (YR/year)
Stipend	7,200	9,600
Clothing	800	800
Travel	200	200
	8,200	10,600

In addition to these subsidies, males are exempted from military obligation and transportation is provided for day

pupils to and from the Institute. The contractual obligations agreed to by the students are modest. Graduates of the five-year program agree to teach up to four years. If, however, they are good students, they may apply to the MOE for a release from the obligation after two years in order to continue their studies at the Faculty of Education, Sana'a University. Three-year students are obligated to teach for two years. Unit costs for the five and three year programs are estimated at YR 13,523 and YR 15,898 respectively.

Teacher training for preparatory and secondary school takes place in the Faculty of Education at Sana'a University. The official minimum entrance requirement is 57 percent on the secondary school-leaving examination. Faculty of Education enrollments in 1983/84 totaled 807, 18 percent of which were female. Repetition rates are not available for the faculty; however, attrition rates tend to be much lower than those for other faculties. This may well be due to the subsidies education students receive. Financial incentives for the 1984/85 academic year are shown below:

	AREA OF SPECIALIZATION	
	Social Studies	All Others
Stipend	YR 10,200	11,400
Housing Subsidy	1,800	1,800
Book Subsidy	200	200
	11,200	13,400

Students receive the housing allowance whether they require it or not. The book subsidy is available only for third and fourth year students. In addition, FOE students receive financial rewards for maintaining high averages and are penalized for inadequate attendance at classes. Students agree to teach for five years. The extent to which this contractual obligation is fulfilled is not known. The estimated total annual government costs for university students, inclusive of the FOE subsidies, is approximately YR 20,000.

Donor financing has contributed to teacher training at all levels. USAID has committed in excess of US $20 million for scholarships for future PTTI staff, as well as direct support

for the Faculty of Education. UNICEF and the Sudan, in 1983 alone, supported and administered teacher inservice training projects for a total of US $120,000 and US $350,000, respectively. Capital expenditures for PTTI's have been financed through the World Bank's educational projects.

2.5.1.5 Higher Education

Opportunities for higher education in the YAR are provided at Sana'a University and through scholarship programs for study out-of-country. Sana'a University now has eight faculties, five well-established and three new. Enrollments in the faculties of Shari'a and Law, Arts, Science, Commerce and Economics, and Education totaled 6,960 for academic year 1982/83. The percentage of female enrollments has remained constant, approximately 12 percent since the University was established in 1970. Under three percent of the student body are non-Yemeni.

The Faculties of Medicine and Engineering were established in 1983/84 and the Faculty of Agriculture in 1984/85. Their enrollments will be restricted to 30 to 40 students each until adequate facilities are available.

In addition to its undergraduate programs, the Faculties of Shari'a and Law, Arts, Commerce and Economics, Science, and Education offer one-year diploma and two-year Master's degree programs. In 1983/84, total enrollments in these programs were 234. Of the 234, 153 were enrolled in the diploma program in Shari'a and Law.

A not inconsiderable number of both undergraduates and postgraduate students are sent abroad for study each year, some through government programs and some through the Sana'a University program for future faculty members. For the government program, the contractual obligation is a year of work for each year of support. For the Sana'a University program the contracted requirement is two years for every year of supported study. No monetary repayment is required. It should be noted that these are the only students, other than

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those in the Faculty of Education, whose living expenses are subsidized.

Higher education has been even more dependent on donor financing of both recurrent and capital costs than have been the lower levels of schooling. While records are not published of the portion of the expatriate instructional and administrative staff whose salaries are paid for or supplemented by other countries, it is estimated that Kuwait and other donors contribute at least 62 percent of total recurrent costs. Kuwait, in 1983, paid the salaries and allowances of some 180 non-Yemeni instructional staff and some 70 technicians and administrative staff. Approximately nine other staff members were supported by France, the German Democratic Republic, the United Kingdom and the United States. Foreign support for recurrent costs is projected to increase in the future as a result of the development of the Faculties of Medicine, Engineering, and Agriculture.

With respect to capitalization, Kuwait is estimated to have financed at least 60 percent of University construction and equipment to date. Kuwait, Iraq, and the World Bank were cited in the SFYP as possible sources for support for the construction and equipping of facilities for the three new faculties.

As noted earlier, the current unit cost per university student is estimated at YR 20,000. No tuition is charged and non-science texts are subsidized by 25 percent and science texts at 50 percent. Yearly costs borne by students include the YR 115 registration fee and the YR 100 student activities fee as well as an estimated YR 300 for books and materials. Students who live away from home may spend an additional YR 11,085 for housing, food, and travel. Donor support, the differences in subsidies among students, and the obvious need for nonsubsidized student access to capital markets are the major cost issues at this level of schooling.

2.5.1.6 Nonformal Education

Nonformal education in the YAR consists of two major programs: The National Literacy Campaign and the District Training Centers. The campaign, launched in 1982/83, has two stages. The goal of the first stage is to bring participants to mastery of the primary Grade Four curriculum in two years. The second stage is designed to complete coverage of the primary curriculum; it requires an additional two years. Participants, mostly adults, are asked to attend classes six days a week for three forty-minute sessions a day. In 1983/84, some 109,922 individuals registered for the program. The government's ban on hiring nonenrolled illiterates has undoubtedly boosted enrollments.

The data indicate that participants are primarily male (80 percent) and are from within the Sana'a-Taiz-Hodeidah triangle (77 percent). Attrition rates tend to be somewhat lower for women (23 percent) than for men (27 percent). The absence of attendance information and evaluation procedures make it difficult to judge whether presence at the end of the year is an indicator of achievement.

Some 3,297 primary teachers (with no special training in adult education) conduct literacy classes after their normal day's work. The average beginning class size is 33. Attrition and high absenteeism mean that on any given day, the teacher/participant ratio is lower than the class size figure would suggest.

District Training Centers (DTC's) were designed to provide basic skills to individuals, between 11 and 40 years of age, who have had little or no primary schooling. All seven of the existing centers are in rural areas. The curriculum includes training in literacy; home economics; agriculture (including livestock management); automotive and farm equipment mechanics; carpentry; electricity; and typing. Most literacy and nontechnical classes are taught by local primary school teachers. The technical skill instructors are usually Arabic-speaking expatriates from the region or from Holland,

the Federal Republic of Germany, or Sweden. Some are volunteers, others are secured through bilateral agreements. To increase the representation of Yemeni among the technical faculty, the MOE has begun to assign graduates of local technical/vocational programs to the technical faculty. Thus, many expatriates are, or will be, paired with a local counterparc.

In 1982/83 the total number of trainees in the DTC's was 13,329. It is estimated that about 20 percent of the enrollees are female. The lack of knowledge of the skills acquired in these centers, of their usefulness to participants, or of employer assessment of the value added by the training has led the World Bank to initiate an evaluation of these programs under the auspices of the Educational Research and Development Center. The evaluation is scheduled for completion in 1985.

Financing for the Literacy Campaign (in rials) in its first two years is summarized below:

	Government		Donor		
Year	MOE	LDA's	ALESCO	UNESCO	Total
1982/83	15,700,000	20,000	12,155,000	28,135,000	56,410,000
1983/84	15,700,000	--	585,000	16,311,000	35,596,000

Both ALESCO and UNESCO made substantial contributions to the launching of the Literacy Campaign. Their current involvement, by comparison, is quite modest. The figures indicate a 1983/84 recurrent cost per participant of YR 297. Capital expenditures associated with the actual literacy training are few, as existing facilities are used for classes.

The annual recurrent costs for each of the DTC centers has been estimated at US $56,000 (YR 339,360), approximately YR 178 per enrollee. The DTC's were built and equipped as part of the World Bank's First and Second Education Projects.

Of special concern are the low stipends paid to teachers in the literacy campaign. The monthly payment of YR 700 is accumulated and actually paid only at the end of each

semester. If class size during the course of the semester falls below 30, the teacher receives less. Should class size fall below 15, the teacher is not paid at all. The stipend itself, little more than YR 590 per month after taxes, suggests that teaching in the Campaign is almost a voluntary activity. The low pay combined with penalties for small classes is a major disincentive for teaching in the program. It would be more equitable to pay the stipend each month and combine classes and lay off teachers as attendance falls.

2.5.1.7 Summary Issues

A number of issues have emerged from the preceding discussion of enrollments, financial sources, recurrent costs, and capital expenditures associated with the major levels and types of schooling. The issues tend to be similar for all levels. They are: (a) the lack of data on which to base evaluation of the financing and success of programs; (b) the extensiveness of donor dependency for recurrent, as well as capital cost obligations; (c) inefficiencies related to redundancy of curriculum across institutions (Preparatory/Secondary Schools, Commercial Secondary programs, and PTTI's) and the provision of texts and workbooks to teachers and students; (d) the excessive qualifications required for teaching and, therefore, the relatively high salaries commanded by formal sector teachers; and (e) the high rates of repetition and low student/teacher ratios (except in lower primary).

The issues considered separately and together point to the need for structural and organizational changes designed to increases administrative capacity, to decentralize responsibility for the provision of some inputs, and increase user support for the system. The last can be achieved without instituting tuition charges at the lower levels.

2.5.2 Unit Costs, Cycle Costs, and Rate of Return Analysis

The purpose of the cost and rate of return analyses, presented in this subsection, is to provide a framework within

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which to consider the comparative costs and benefits to individuals and society of the current patterns of investment in education. As a result of incomplete data, the analyses are limited to primary, preparatory, secondary and higher education. In each case, costs include only recurrent budgetary items. No attempt has been made to calculate depreciation expense or the implicit interest cost of facilities and equipment.

2.5.2.1 Unit and Cycle Cost

Estimates of unit costs for primary education, as well as the cost per graduate, are provided in Table 2.32. Unit cost data were derived from MOE statistics and conversations with Ministry officials in Sana'a and Taiz. Assumptions regarding progression, repetition, and attrition were based on the ERDC 1984 study, Enrollment Dynamics at the Primary Level. The first estimate of the percent of students passing the school-leaving examination (Assumption I) is based on the ERDC subsample of forty-three complete schools, while the second estimate (Assumption II) is based on a three-year national average. The latter assumption is probably the more appropriate one for analysis of both current efficiency and real costs, given the wide variation in the demand for education, the quality of schools, and the number of incomplete schools in different regions of the country. The relatively high cost (YR 24,119) of producing a primary school graduate reinforces the recommendations for primary education in Chapter 4.0 and teacher training in Chapter 7.0.

Unit and cycle cost data for preparatory and general secondary education are shown in Table 2.33. Baseline figures were also provided by MOE officials in both Sana'a and Taiz. Progression rates were derived from MOE statistical data. Repetition and dropout rates were not available. The calculation of graduation costs assumes a 60 percent pass rate for the preparatory school-leaving examination and a 54 percent pass rate for the secondary school-leaving examination. Again,

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TABLE 2.32

UNIT COSTS AND CYCLE COSTS:

PRIMARY SCHOOLING

I. Unit Costs

Government*	YR	1222
Parents	YR	133
	YR	1355

*Includes donor support

II. Cycle Costs

Grade / Years	1	2	3	4	5	6	Passes
1	100						
2	8	71					
3		9	53				
4		1	12	38			
5			2	10	29		
6				1	8	24	21
7						8	8

Assumption I: 89 percent pass rate among first time sixth graders; 98 percent pass rate among second time sixth graders.

A. The average cost of producing a primary graduate in 6 years is 17.43 person years or YR 23,618.

B. The average cost of producing a primary graduate in 6 or 7 years is 12.89 years or YR 18,035.

Assumption II: 67 percent pass rate. Based on the average test results for all schools in 1981/82, 1982/83, and 1983/84.

The average cost of producing a primary graduate is 17.8 years or YR 24,119.

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TABLE 2.33

UNIT COSTS AND CYCLE COSTS:
PREPARATORY AND GENERAL
SECONDARY SCHOOLING

I. Unit Costs

	Preparatory	Secondary
Government*	YR 2947	5093
Parents	YR 168	205
	YR 3115	5298

*Includes donor support

II. Cycle Costs

	PREPARATORY				SECONDARY			
Grade / Year	7	8	9	Passes	10	11	12	Passes
1	100				100			
2		86				71		
3			85	51			64	35

A. Preparatory. Assuming an average pass rate of 60 percent, the cost of producing a graduate is 5.3 man years or YR 16,150.

B. Secondary. Assuming an average pass rate of 54 percent, the cost of producing a graduate is 6.7 man years or YR 35,497.

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these represent national pass rates averaged over the past three years.

The table indicates that there is less wastage at the preparatory level than at the primary or secondary level. This may be due, on the one hand, to the considerable investment that students at this stage already have in their education, and, on the other hand, to their age which forecloses extensive migration for jobs. The low passage rates on the leaving examinations indicate either inefficiencies related to the quality and quantity of inputs (teachers, texts, curriculum) or lack of articulation between what is learned in school and what is tested.

Comparable information for Sana'a University is shown in Table 2.34. Estimates of government unit costs were provided by the University. Student costs were derived from interviews. Available data do not permit calculation of government costs by faculty, although there are indications of considerable differences. Cycle costs based on the University-wide recurrent cost figures are shown for each of the five well-established faculties. It should be noted that repetition data were available only for Shari'a and Law, Arts, and Commerce and Economics; the cycle costs of Science and Education are, therefore, understated.

The relatively high cycle costs for Shari'a and Law, and Commerce and Economics suggest patterns typical of poor attendance, and part-time students. In contrast, the sharp drop between first- and second-year enrollments in the Faculty of Arts is indicative of the relatively low admission standards and possible disappointment in expectations. The use of English as the medium of instruction for much of the Science program, as well as the difficulty of the content, may contribute to the high loss between first and second years in that faculty. This loss may, of course, be partially mitigated by sizeable repetition. Students in the Faculty of Education show the best progression rates among years. In so doing, they point to the efficiencies which might be achieved by reducing

TABLE 2.34 Cont.

C. Faculty of Commerce and Economics

Year / Years	FIRST	SECOND	THIRD	FOURTH	GRADUATES
1	100				
2	30	34			
3		28	25		
4			8	18	
5				3	14

The cost of producing one graduate equals 17.57 years or YR 360,478.

D. Faculty of Science*

Year / Years	FIRST	SECOND	THIRD	FOURTH	GRADUATES
1	100				
2		33			
3			24		
4				22	15

The cost of producing one graduate, assuming no repetition, equals 11.93 years or YR 244,812.

E. Faculty of Education*

Year / Year	FIRST	SECOND	THIRD	FOURTH	GRADUATES
1	100				
2		83			
3			56		
4				54	48

The cost of producing one graduate, assuming no repetition, and payment of only the student activities fee is 6.1 years or YR 122,611.

*Since repetition rates were not available for these faculties their cycle costs are not directly comparable to those of the other faculties.

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TABLE 2.34

UNIT COSTS AND CYCLE COSTS:
SANA'A UNIVERSITY

I. Unit Costs

Government	YR 20,000
Students*	YR 515
	YR 20,515

II. Cycle Costs

A. Faculty of Shari'a and Law

Year / Years	FIRST	SECOND	THIRD	FOURTH	GRADUATES
1	100				
2	34	40			
3		19	31		
4			4	27	21
5				2	

The cost of producing one graduate is 12.29 years or YR 251,065.

B. Faculty of Arts

Year / Years	FIRST	SECOND	THIRD	FOURTH	GRADUATES
1	100				
2		34			
3			24		
4			7	17	17
5				4	

The cost of producing one graduate is 10.33 years or YR 211,986.

*The student costs estimated here do not include food, housing or travel expenses. They reflect fees and texts.

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TABLE 2.34 Cont.

F. Average of the Faculties of Shari'a and Law, Arts, Commerce and Economics, Science and Education

Year / Years	FIRST	SECOND	THIRD	FOURTH	GRADUATES
1	100				
2		63			
3			30		
4				29	22

The cost of producing one university graduate, assuming no repetition, averages 10.09 years or YR 206,409.

Note: Since contracted students have much lower private costs, the average cost per student is assumed to be YR 20,455, not YR 20,515.

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student need for employment. Contracted students in this faculty are, of course, the only students whose expenses are subsidized. The recommendations detailed in the higher education chapter are not for greater investment in aggregate subsidies but rather investment in student loan programs.

2.5.2.2 Returns to Education

The difficulty in forecasting income differentials by educational level and the nature of the data used in the calculations, suggest a cautious approach to interpretation of rates of return. Their best use is as indicators of relative under or over investment in different levels and types of schooling, given the particular structure of the economy.

The rates shown on Table 2.35 and 2.36 assume full employment and a 15 percent interest rate. In addition, rates have been calculated separately for working and non-working students. Because of the low participation rate of females in both schooling and formal employment, the rates apply only to males. Government costs shown in Tables 2.35 and 2.36 are based on unit cost and cycle costs, respectively. Both the interest rate and the expected earnings figures were supplied by the Department of Economics at Sana'a University. For the most part, they reflect the government pay scale. The government salary and allowances for a university graduate have been increased by one-third to reflect opportunities for consulting work.

The rates of return based on unit cost figures reflect both the unique economic structure of the YAR and the structure of the government pay scales. Because of high wages commanded by nonliterate migrants, in particular, the expected increase in earnings due to primary schooling is relatively low. To the extent that children do part-time work and therefore lower their opportunity costs, the rate rises, although modestly.

At the preparatory level, the picture is much the same. Returns to schooling compare unfavorably with working. While the average preparatory school graduate may have a starting

TABLE 2.36

INDICATIVE RATES OF RETURN BASED ON CYCLE COSTS

	DIRECT PRIVATE COSTS	FOREGONE EARNINGS	TOTAL PRIVATE COSTS	GOVERN-MENT COSTS	TOTAL COSTS	COMPOUND VALUE PRIVATE COSTS	COMPOUND VALUE GOVERN-MENT	COMPOUND VALUE TOTAL COSTS	AVERAGE INCREASED EARNINGS	PRIVATE RATE OF RETURN	TOTAL RATE OF RETURN
Primary											
1. No Employment	133	3,600	3,733	1,222	4,955	69,041	89,893	158,934	764	- 6%	-10%
2. Part-time Job last 3 years only	133	3,600	3,733	1,222	3,155	39,143	89,893	129,306	764	- 3%	- 9%
Preparatory											
1. No Employment	168	7,580	7,748	2,947	10,695	56,689	21,562	78,251	1,272	- 3%	- 5%
2. Part-time Job	168	3,790	3,958	2,947	10,695	28,959	21,562	50,521	1,272	+ 1%	- 3%
Secondary											
1. No Employment	205	16,536	16,741	5,093	21,834	173,079	52,655	225,734	12,125	+ 5%	+ 2%
2. Part-time Job	205	8,268	8,473	5,093	13,556	87,599	52,655	140,254	12,125	+13%	+ 7%
University											
1. No Employment	455	28,661	29,116	20,000	49,116	591,163	406,074	997,237	41,337	+ 4%	+ 0%
2. Part-time Job	455	14,300	14,755	20,000	49,116	299 581	406,074	705,655	41,337	+13%	+ 3%

Assumptions: No unemployment, 15% interest rate

Assumptions for Compounding: 17.8 years Primary; 5.3 years Preparatory; 6.7 years Secondary; 10.33 years University.

Sources: As stated in text.

annual salary of YR 16,536, an unskilled, unschooled migrant can earn as much as YR 17,750 for nine months work.

Significant returns accrue to both secondary and university schooling. This is at least partially due to the government payment of a graduation allowance roughly equal to 40 percent of the salaries of secondary and higher education graduates.

The returns shown in Table 2.36 reflect both the relative efficiency of schooling at the different levels, as well as external economic factors. The relatively high progression rates in preparatory schools, as compared with primary, reverses the pattern noted in 2.35. The rates of return to preparatory are higher than those for primary, although all are negative. In short, current inefficiencies combined with external economic factors make primary and preparatory schooling an undesirable investment for individuals except as a means to gain access to higher levels.

Since repetition rates for secondary and higher education in general were not available, the rates of return for these levels remain positive, though barely so.

Taken together, these analyses suggest that incentives are structured so that: (a) students who are successful in primary school will face incentives to remain in school through university in order to justify previous investments of time in schooling; (b) students need to work as well as study at all levels in order to minimize the effect of opportunity costs; and (c) the need for part-time work may exacerbate inefficiencies in the system resulting from the quality and quantity of available inputs.

2.5.2.3 Summary Issues

The cycle costs analyses point once again to the internal efficiency issues mentioned earlier and discussed in depth in the subsector chapters. The rate of return analyses suggests, in the light of future needs for midlevel skills, that special

TABLE 2.35

INDICATIVE RATES OF RETURN BASED ON UNIT COSTS

EDUCATION LEVEL COMPLETED	DIRECT PRIVATE COSTS	FOREGONE EARNINGS	TOTAL PRIVATE COSTS	GOVERN-MENT COSTS	TOTAL COSTS	COMPOUND VALUE PRIVATE COSTS	COMPOUND VALUE GOVERN-MENT	COMPOUND VALUE TOTAL COSTS	AVERAGE INCREASED EARNINGS	PRIVATE RATE OF RETURN	TOTAL RATE OF RETURN
Primary											
1. No Employment	YR 133	3,600	3,733	1,222	4,955	13,655	10,697	24,362	764	+ 4%	0%
2. Part-time Job last 3 years only	133	1,800	1,933	1,222	3,155	7,414	10,697	18,111	764	+10%	+ 2%
Preparatory											
1. No Employment	168	7,580	7,748	2,947	10,695	26,905	10,234	37,139	1,272	+20%	- 1%
2. Part-time Job	168	3,790	3,958	2,947	6,905	13,744	10,234	23,978	1,272	+ 8%	+ 3%
Secondary											
1. No Employment	205	16,536	16,741	5,093	21,834	58,133	17,685	75,818	12,125	+21%	+16%
2. Part-time Job	205	8,268	8,473	5,093	13,566	29,423	17,685	47,104	12,125	+41%	+26%
University											
1. No Employment	455	28,661	29,116	20,000	49,116	145,387	99,868	245,255	41,337	+28%	+16%
2. Part-time Job	455	14,300	14,755	20,000	34,755	73,677	99,868	173,545	41,337	+56%	+24%

Assumptions: No unemployment, 15% interest rate

Assumptions for Compounding: 6 years Primary; 3 years each Preparatory and Secondary; 4 years University.

Sources: As stated in text.

attention needs to be paid to the incentives offered to preparatory secondary-leavers to fill this gap. At the present time, attention might be focused on short courses for preparatory secondary students who do not pass the school-leaving examination and those who drop out of these cycles.

2.6 MAJOR RECOMMENDATIONS

2.6.1 Introduction

It is important to repeat here that the role of economic and financial analysis in the EHR Assessment is contextual, not definitive. Within the constraints of time and manpower inherent to the assessment, the attempt has been made to summarize the major characteristics of the Yemen economy and to highlight special policy issues in the areas of fiscal balances, manpower demand, and educational costs. To do this, certain projections have been made, e.g., of enrollment-related costs and of GDP growth.

These projections are not predictions. They represent what would happen to the EHR and fiscal systems of Yemen if present patterns of change continue unabated. In fact, a major purpose of the assessment exercise is to alert policymakers to future areas of crisis so that appropriate plans can be made to avoid or ameliorate the effects of the crisis. The educational supply projections are driven by the changes in primary education enrollment. This does not mean that it is not reasonable to expect myriad other changes elsewhere in the system. However, the projections incorporate the policy of government as it exists today.

The value of this methodological approach can be seen in the primary level itself. The anticipated expansion in enrollments will create an extensive new demand for teachers, facilities, and other school requirements. Simply to note that the expansion cannot occur at the rate shown in the projection is rather obvious. The critical issue is how government will

balance the demands of parents and children for primary education with the competing demands from elsewhere in the EHR sector and from other sectors, especially health and agriculture, where equal shortialls in the delivery of services may be expected. Government cannot ignore social demand just because it is limited in resources. Government must present alternatives to show how this problem will be dealt with in the long run and identify alternative opportunities for those denied places during this next decade.

A major next step in the post-assessment process should be to formulate alternative scenarios for EHR expansion over the next decade. If conducted in an itterative manner with provision to study the interaction of multiple policy options, a much better understanding of the EHR planning process would be achieved. The "scenarios" presented here are indicative of the value of this approach; with proper computer modeling much more complex (and perhaps more realistic) scenarios may be developed.

If the projections of GDP prove too conservative, government can always use the same planning methods to expand the EHR sector. However, this assessment is predicated on the assumption that conservative fiscal management should remain the central policy of government. In an economy so exposed to both the political and economic influence of external forces, any other policy would be irresponsible.

In the section that follows there are no options proposed for the aggregate economic and fiscal issues touched on in this assessment. It is felt that government has more than sufficient expertise to identify its areas of needed reform. The comparative advantage of the assessment is in the area of EHR policy and its effects and that area will be the focus of the proposed options for future discussion.

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2.6.2 Recommendations for Policy, Practice, and Further Study

As the support for and detail on most of these options exist in the preceding chapter, the options will only be summarized here. As options are identified for further analysis, greater detail, of course, will be required.

Recommendation 1: Restructure the role of central government in the financing of education and training. There is a need to reestablish, under government control, the sharing of financial responsibilities with the LDA's and local citizenry so as to extend the ability of central government funds to meet the individual demands for education.

Recommendation 2: Improve the coordination of donor assistance. There are two major aspects here. The first is to have an educational plan in which external donors can participate rather than creating a plan based upon the current project interests of donors. The second aspect is that better estimation needs to be made of the recurrent cost effects on government of donor activities. The result of this coordination program should be much more detailed negotiations with donors as to the nature and scope of their activities in Yemen.

Recommendation 3: Expand nonformal education to help offset the reduced ability to serve students in the regular pre-University system. Nonformal education, if restructured in line with the suggestions of Chapter 9 of this assessment, will have a major role to play in softening the effects of the fiscal and manpower constraints on the formal education system over the next decade.

Recommendation 4: Improve the information and counseling system in the EHR system. Government has established a set of incentives in terms of training subsidies and wages so as to encourage a certain pattern of choices by students. Unfortunately, lack of information on the future schooling, training, and employment opportunities is a common characteristic at all levels of the EHR system. The two steps

needed are, first, collection and assembling of this information and second, distribution of this information through a more extensive counseling system.

Recommendation 5: Improve the manpower utilization of women. Within the cultural limitations on female participation in education and training and in the modern economy there remain significant opportunities for increasing the participation of females in a way that will benefit the nation as well as the individual. The greatest immediate opportunity lies in the area of teacher training where the lower opportunity costs of women in terms of foreign or urban migration mean that there is a greater chance of retaining their services in the classroom than has been the case for male teachers.

Recommendation 6: Require formal Yemenization programs in all private enterprises. All firms or companies that employ expatriate staff should have a formal program that details how and at what rate expatriate personnel will be replaced by Yemeni staff. While Yemenization may be a long term process, it is important to establish goals and benchmarks for its achievement. Expatriates should establish apprenticeship relationships with their Yemeni colleagues so as to permit exploitation of on-the-job training opportunities.

Recommendation 7: A formal policy research activity should be initiated to determine the relative effectiveness of training subsidies versus wage increases in reducing manpower imbalances. The programs that could be included are the teacher training institutes, the vocational/technical schools, and the commercial secondary programs. This longitudinal study should help identify both the most effective form of incentives and the type of student most likely to remain in the area for which they have been trained.

Recommendation 8: A feasibility study should be conducted on the introduction of a loan program at Sana'a University to allow more students to participate as full-time students. Another topic would be to explore areas for cost-sharing with

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students for charges that are not common to the University curriculum (e.g., greater use of special fees and charges, room and board, etc.).

Recommendation 9: Government should consider again the appropriate role for the private sector in YAR education and training programs. Two areas of current interest are the expanded use of private vendors for textbook distribution and whether there is a form of private schooling appropriate to Yemen's social and political environment. These changes might improve educational access and quality without placing new financial burdens on the central government.

3.0 MANAGEMENT CAPACITY

3.1 INTRODUCTION

Management capacity will be discussed in this education and human resource sector assessment in terms of two main perspectives. The first is the general capacity of public and private sector organizations to support and utilize the development activities related to the education system. The second is the manner in which the internal structure and operation of the Ministry of Education affects its ability to implement, maintain, and improve educational activities in the YAR. The specific education subsector chapters that follow will deal with the administrative and supervisory issues which are critical to the individual levels and forms of education. In this chapter, the attention will focus on the more generic problems faced by the Ministry of Education (MOE) and the other major ministries and agencies involved in education and training.

This emphasis on management capacity is justified by the fact that a nation's administrative skills and managerial structures are major determinants of the ability to implement a successful development program. In this chapter, the management issues will be dealt with in terms of the critical concerns which exist, the status of programs for training and organizational development, and the options for further modifications in the organizational structures and management training programs. These options will be reviewed in terms of the existing constraints on individual and organizational effectiveness within the education sector.

3.2 STATUS

3.2.1 Management Issues in the Yemen Arab Republic

The constraints on managerial efficiency in the YAR may be categorized in terms of human resources, organizational

structures, individual and group attitudes, personnel incentives, and data availability and utilization. The most evident constraint is that of the scarcity of appropriately trained manpower to staff senior, middle-level, and supportive management positions in the public and parastatal agencies. A similar constraint affects private sector firms. The lack of appropriately trained Yemeni manpower has meant that government has had to depend on expatriate workers to staff many key positions and to accept individuals with training that is less than that appropriate to the employee's level of responsibility.

Table 3.1 indicates estimates of the educational distribution of the labor force in 1981 and 1986 by educational category. These estimates are taken from the Second Five Year Plan (SFYP), 1982-1986. The percentage distribution of public sector employment in 1981 and 1986 is estimated as follows:

Educational Category	1981	1986
University or higher (science)	2.29%	2.78%
University or higher (humanities)	12.88	12.75
Other postsecondary (science)	4.96	4.73
Other postsecondary (humanities)	4.21	4.27
Secondary education	44.36	47.89
Intermediate plus vocational training	3.89	5.68
Primary plus vocational training	6.53	5.38
Primary education or less	20.89	6.51

These figures indicate the reduction in relative dependence on the least educated workers and the greater reliance that will be placed in the public sector on personnel with an education at the secondary level or above.

For the SFYP period, it is projected that 91 percent of the university or higher (science) category and 17 percent of the university or higher (humanities) category will be supplied by expatriate workers. While the proportion of total manpower in the civilian public sector amounted to less than 4.5 percent in 1981, civilian public employment accounted for 69.5 percent of the university or higher (science) graduates employed and 94.9 percent of the humanities graduates. In 1986, civilian

TABLE 3.1
EDUCATIONAL DISTRIBUTION OF THE LABOR FORCE
BY PUBLIC AND PRIVATE SECTOR
1981-1986

	1981			1986		
Educational Category	Public	Private	Total	Public	Private	Total
University or higher (Science)	1,230	540	1,770	3,069	1,029	4,098
University or higher (Humanities)	6,932	373	7,305	14,058	569	14,627
Other postsecondary (Science)	2,667	1,520	4,187	5,220	2,401	7,621
Other postsecondary (Humanities)	2,267	2,516	4,783	4,714	4,180	8,894
Secondary education	23,863	52,377	76,240	52,826	90,657	143,483
Intermediate plus vocational training	2,091	8,972	11,063	6,269	19,741	26,010
Primary plus vocational training	3,511	80,084	83,595	5,933	113,273	119,206
Primary education or less	11,238	1,001,419	1,012,657	18,208	1,013,853	1,032,061
TOTAL	53,799	1,147,801	1,201,600	110,297	1,245,703	1,356,000

Source: The Second Five-Year Plan 1981-1986

public-sector employment is expected to increase to 8 percent of the total labor force and will include 74.5 percent of the science graduates and 96.1 percent of the humanities graduates. The SFYP notes that most of these highly-educated individuals are working in the areas of education and health.

The adequacy of the human resource configuration in most ministries varies among the senior, intermediate, and support staff levels. At the senior levels (from Minister to Director General) of most ministries, the quality of staffing varies from barely adequate to excellent. At the support level (including secretarial and clerical staff) the quality of personnel is said to have shown some improvement in recent years. Further improvement will require a better quality of new employees (albeit a continued reliance in the short term on expatriates), on-the-job and in-service training, and continuance of the special programs for these staff offered at the National Institute of Public Administration (NIPA). There remains a continuing need for these training activities because of the quantity of such support personnel in the ministries who are not yet adequately prepared for their duties.

To many observers, the most serious manpower problem, however, is located at the middle-management positions of the ministries, agencies, and firms. Included in this strata of management are the heads of departments and the other subordinates who work in para-administrative positions in support of the senior administrative staff. In government offices, these individuals have been promoted from within the ministry concerned and have had little if any formal training or experience in administration. The utilization of remedial training in management skills is limited by the reluctance of senior personnel to release subordinates for full-time or long-term training. Even where this problem is overcome, assignment policies may reduce the effectiveness of training programs. An attempt was made in the Ministry of Education to provide preservice training in educational administration and planning. However, because promotion and appointments have

depended more on experience than formal qualifications, few of the trainees, upon their return from training, were assigned to positions that best utilized their skills.

In the past, NIPA has made use of afternoon training sessions to upgrade specific skills of middle-level administrators. However, these programs have necessitated the payment of special stipends because training was in addition to the trainee's regular duties. An additional problem related to the efficacy of these programs has been the difficulty faced by trainees in applying their newly-acquired skills and approaches when they return to their ministries.

Tables 3.2 and 3.3 present estimates of public sector training needs based upon ministry surveys conducted by the Ministry for Civil Service and Administrative Reform (MCSAR). The MCSAR requested information from each ministry on the total number of workers and the number requiring training. Because each ministry was allowed to establish its own definition for training requirements the data presented are subject to multiple interpretations. Also some ministries (e.g. Foreign Affairs) double-counted training needs when a single worker required upgrading in more than one area.

Table 3.3, based on the same data as Table 3.2, reports training needs by educational and administrative level. The ministries, by their own definitions of training, cite the greatest needs as at the middle skill levels (from preparatory to secondary education). This supports one of the major manpower conclusions in Chapter 2.0. This point is further reinforced by the indication that greatest needs exist at the intermediate and subordinate administrative levels.

The organizational structure of the ministries is itself a potential constraint on management effectiveness. The basic framework of a government ministry is to have a minister, one or more deputy-ministers, and a number of directors-general who staff the senior personnel structure. In most ministries there are some directors-general that report directly to the minister, while others report to a deputy-minister. The

TABLE 3.2
TRAINING NEEDS FOR GOVERNMENT MINISTRIES - 1983

Ministry	Workers		% of workers in ministry requiring training	Ministry workers needing training as % of Gov't. total
	total number	requiring training		
Communications	843	40	4.7%	3.0%
Local administration	1,086	11	1.0	.8
Social affairs	273	16	5.9	1.2
Religious affairs	54	27	50.0	2.0
Information and culture	294	22	7.5	1.7
Public works	458	57	12.4	4.3
Municipalities and housing	782	161	20.6	12.2
Foreign affairs	150	154	102.7	11.6
Justice	642	17	2.6	1.3
Trade and storage	397	91	22.9	6.9
Finance	675	19	2.8	1.4
Health	2,420	230	9.5	17.4
Electrical and water	9	9	100.0	.7
Industry	176	74	42.0	5.6
Agriculture	574	250	43.6	18.9
Civil service	197	91	46.2	6.9
Education	5,251	56	1.1	4.2
Totals	14,281	1,325	9.3%	100.1%

Source: Ministry of Civil Service and Administrative Reform, 1984

TABLE 3.3
MINISTRY TRAINING NEEDS - 1983
BY
EDUCATIONAL AND ADMINISTRATIVE LEVEL

	Level	Training needs	
		Number	Percentage
A.	Educational		
	Above university	16	1.2
	University	308	23.2
	Secondary	458	34.6
	Below secondary	501	37.8
	None	42	3.2
B.	Administrative		
	Senior	150	11.3
	Intermediate	570	43.1
	Subordinate	605	45.7

Source: Ministry of Civil Service and Administrative Reform, 1984.

directors-general have responsibility for a specific area of ministerial activity. As will be shown later in the discussion of the MOE, the distribution of work load and responsibility among the directors-general is often dramatically unequal. A generalized problem within the government is that no systematic relationship exists between the size of a ministry, the complexity of its responsibilities, and the internal organization of its structure. Some smaller ministries have a higher degree of internal division of responsibilities than does the Ministry of Education, the single largest agency of government.

The shortage of trained subordinates and the hierarchial administrative structure interact to create an inordinate demand on senior staff. Even minor procedural issues often must be resolved at the level of a director-general. It is not uncommon to have staff or clients of the agency personally appeal minor decisions to a deputy-minister or even to the minister himself. This procedure for making decisions creates delays in the resolution of problems and means the final decision-maker is often less well informed of relevant details than would be a subordinate.

When a greater amount of time is spent by senior staff on mundane matters, less time is left for those issues of general policy and long-term planning that <u>only they</u> are qualified to resolve. And if subordinates recognize that any decisions that they might make are subject to immediate appeal, and possible reversal by senior staff, the subordinates will have good reasons to leave all decision-making to their superiors.

The phenomenon of highly centralized ministerial authority is not unique to Yemen and has been reinforced by the scarcity of subordinate staff competent or willing to make even procedural decisions. However, the present administrative behavior in government is reinforced by certain of the individual and group attitudes which exist within the larger society.

The SFYP notes that since the 1962 revolution there has been "...a sincere trend towards modernizing the country's

administration... ." The SFYP also notes, however, that "the country is still in need of further development of its basic infrastructure..." and needs to "upgrade the capacity of civil servants in the administration." Among the most difficult challenges to modernization of the civil service are the social and personal attitudes of staff and of the general public. The tradition of administration in Yemen is one of personal contact among leaders and subordinates. The concept of personalized decision-making which has worked so effectively at the village level has been transposed to the operation of the ministries with much less favorable results.

Substantial diseconomies of scale exist in modern administrative structures and these must be countered by delegation of authority. To delegate authority remains counter to the country's former leadership tradition. When this situation is combined with the personal obligations an administrator has to family and community and the scarcity of qualified subordinates, the result is an organizational system where access to senior administrators may not be based on the bureaucratic structure but rather may be related to personal relationships. The problem of inadequate delegation is reinforced by the reluctance of subordinates to assume responsibility even when senior officials attempt to delegate it.

A less obvious but equally important attitudinal factor is the tradition that leaders govern by consensus rather than autocratic authority. Leaders are expected to "protect" subordinates rather than to impose sanctions on them. Within a modern bureaucratic structure this implies potential restrictions on any attempt to create an efficient system of incentives for individual performance.

In most government documents, references to incentives are limited to the issues of wages. A larger definition would include possibilities for promotion, for further training, general conditions of the workplace, <u>and</u> the sanctions for failure to perform one's duties satisfactorily. Wages of civil

servants are a dramatic issue. The high wages for unskilled and semiskilled labor and the opportunity costs of foregoing private sector and foreign employment mean that there is a constant danger of losing the best civil servants to nongovernment employment. This also affects training plans in that the returns to training may be greater if individuals leave public employment rather than resume their civil service position. "Bonding" of trainees provides some short-term financial protection for government but such coercive measures are never satisfactory ones.

The conflict is between the government's need for personnel versus the fiscal constraints discussed in the preceding chapter. Only a substantial expansion in the number of graduates with a secondary education or above will reduce the present real wage demands of such workers. To produce such an increased quantity of educated manpower, however, will impose extensive fiscal burdens on the public education and training system. The implication of this situation is that government should pay more attention to nonwage incentives (job security, retirement, health, training opportunities, and working conditions) because the cost-effectiveness of these measures is likely to be superior to that of across-the-board wage increases or increased training stipends.

The final major managerial constraint on organizational effectiveness is the availability and utilization of relevant data. Data-based decision-making requires that administrators be willing to use data (rather than be dependent on anecdotal or solely intuitive processes) and that data be available, accurate, and timely. For most ministries these preconditions for data-based decision-making cannot yet be met.

The task for government is three-fold. First, there needs to be an increase in the collection and assimilation of data relevant to the policy issues of each ministry. This will require organizational restructuring to give greater status to the research and planning function, establishing priority assignments for personnel to staff these programs, and the

provision of a staff development program to produce and retain capable personnel. Second, government must acquire the appropriate level of informational technology to support the data utilization process. Care should be taken not to overinvest in equipment which is subject to rapid obsolescence. Microcomputers offer the greatest cost-effectiveness for most data collection and processing activities. Investments in main-frame computers should be rationalized through interministerial networking and time-sharing arrangements.

The third task of government will be the most challenging: to require data-based rationales for project and program development and implementation. While data can never replace the experience and perceptions of an able administrator, they can make explicit the criteria used in reaching decisions and allow for the detailed examination of projected changes. The alteration of administrative attitudes toward the use of data will not come until the quantity and quality of data are improved and administrators can be assured of its timely availability.

3.2.2 Management Issues Specific to the Ministry of Education*

As the major institution responsible for implementation of government's education and training policy, the MOE deserves special attention in any examination of the management capacity for human resource development. Part 1 of Statute 78 (1974) established the following responsibilities for the MOE:

1. To suggest and implement educational policies which assist the nation in achieving its goals related to social, economic, and cultural development;

*While the discussion of the MOE management issues is based on a variety of personal discussions and documentary sources, special credit is directed toward the May, 1983 publication, "Administrative Structure of the Pre-College Educational System in the YAR." This report was prepared as part of the joint Yemen-USAID Basic Education Development Project.

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2. To develop plans, programs, and projects which are necessary to implement these educational policies;

3. To determine the means of spreading education throughout the nation at a minimum cost, taking into consideration the desired emphasis on religious and vocational education as well as on scientific research;

4. To provide equitable educational services in all regions in order to give all citizens the same opportunity to join different educational programs;

5. To draft the decrees, bylaws, and procedures necessary for achieving the educational goals in a unified manner throughout the nation;

6. To design the curricula for different educational programs, taking into consideration: the desirable integration of the curricula of different levels of study of every program, and the human resource skills required for social and economic development;

7. To insure that a balanced mix of subjects be taught so that students have the necessary knowledge at the end of their academic programs;

8. To select the textbooks for different educational levels and programs and to provide schools with these books and other instructional materials in a timely manner;

9. To determine the number and qualifications of the teaching and administrative staff needed for different educational levels and programs and to develop and implement plans which will secure these personnel and allocate them among schools;

10. To strengthen the relationship between the educational institutions and the communities they serve so that these institutions can serve their communities effectively;

11. To contact other ministries, agencies and organizations to secure information about their manpower needs and to coordinate them with their educational plans;

12. To determine the number, type and location of new schools and to adopt the means to get citizens to finance the building of these new schools fully or partially;

13. To cooperate with other Arab countries in support of educational programs and to exchange the establishment of Cultural Centers;

14. To strengthen the relationships with foreign countries in order: to benefit from their educational and scientific experiences, to develop scholarly exchange programs, and to identify academic institutions in which Yemenis can study abroad;

15. To estimate the costs related to different educational and cultural projects and to prepare the budgets to be submitted for them, and;

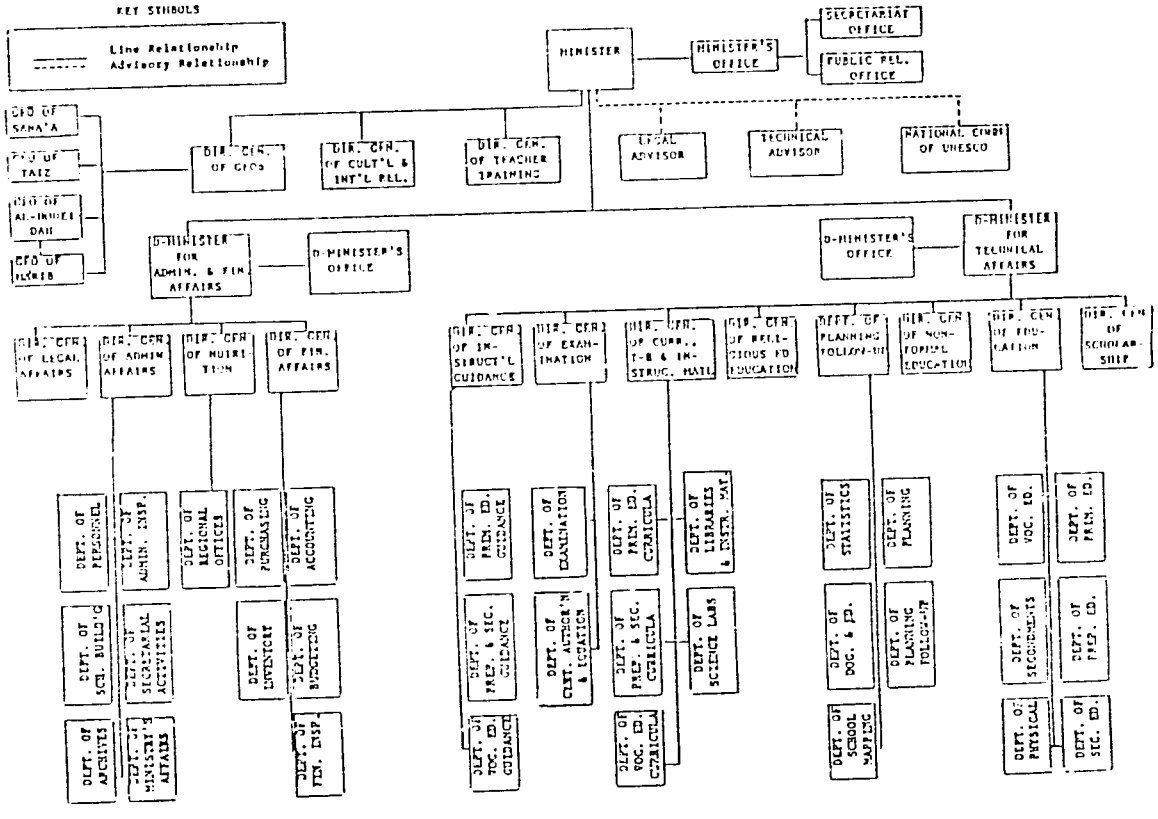
16. To cooperate with regional and international agencies (including those of the United Nations) in order to benefit from their experiences and expertise, and to obtain the necessary support for development and expansion of education in the YAR.

Part II of the same statute established the organizational structure of the MOE. As indicated in Figure 3.1, the structure involved two deputy-ministers (one for administrative and financial affairs and one for technical affairs) and 15 directors-general (three of whom reported directly to the minister). In 1976, before the original structure could be implemented fully, personnel shortages at the senior level and problems of internal redundancy in areas of responsibility led to a reorganization of the ministry. With assistance from UNESCO consultants, a new structure was designed that took account of the problem of scarce administrative skills.

The number of directors-general was reduced from 15 to seven and only one deputy-minister was retained. Figure 3.2 depicts the present organizational structure that has evolved from the 1976 reform. In addition to the directors-general for inspection and for legal affairs, who report directly to the minister, five directors-general (for finance and administrative affairs, teacher training, technical affairs, general education, and cultural relations) are responsible to the Deputy-Minister. In addition, the heads of each of the eleven Governorate Education Offices (GEO's) are accorded status that is formally equivalent to that of a

Figure 3-1

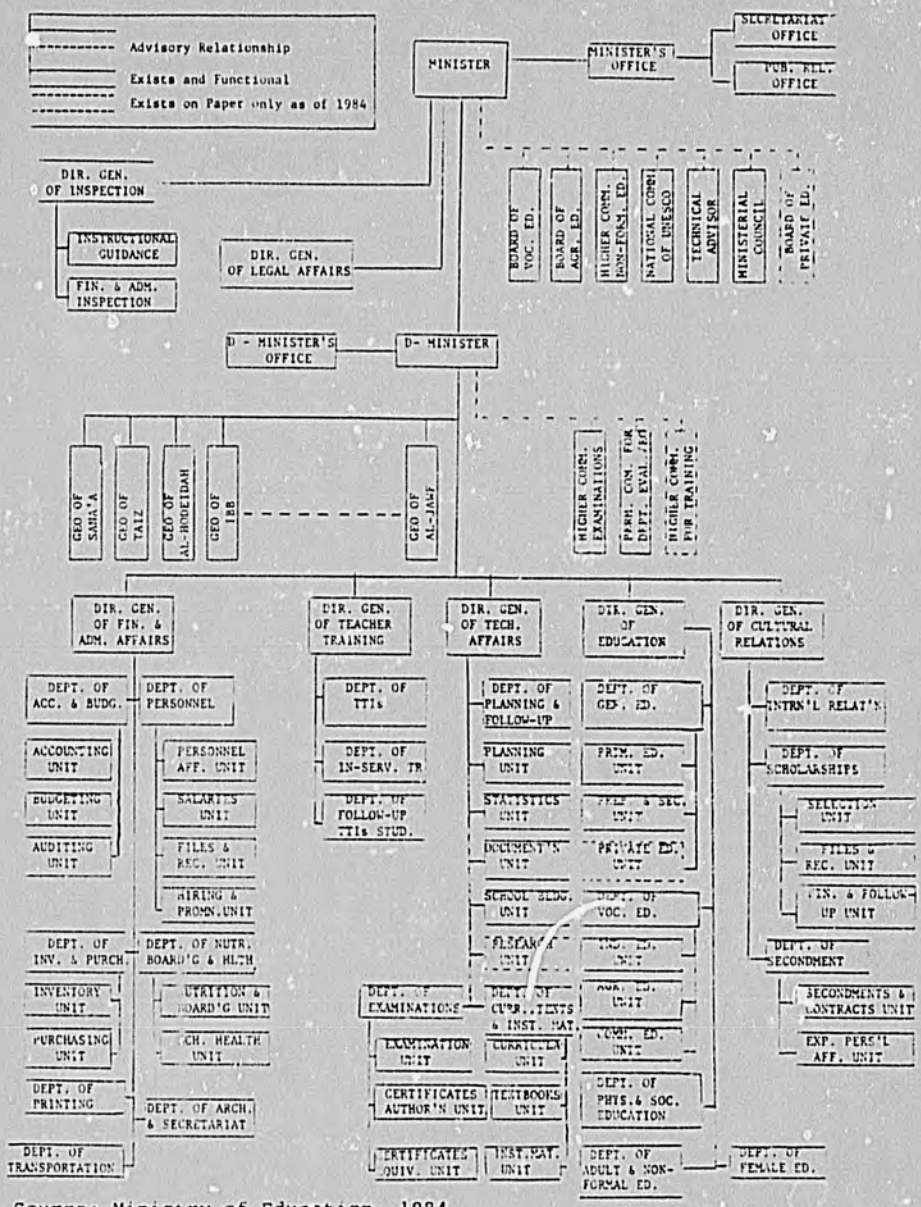
THE FIRST ORGANIZATIONAL STRUCTURE OF THE MOE (1984)



Source: Ministry of Education, 1984.

Figure 3.2

THE PRESENT ORGANIZATIONAL STRUCTURE OF THE MOE (1984)



Source: Ministry of Education, 1984.

director-general. Thus, the present system has resulted in no real saving in the demand for senior personnel. It has resulted, however, in a greater structural emphasis on regional as opposed to central ministerial concerns. Differences of opinion exist as to whether this structural emphasis has been manifested as a policy emphasis within the ministry.

The difference in roles of the central directors-general is indicated by their participation on the Ministerial Council, the major policy-making body of the MOE. Chaired by the Minister, the Council also includes participation by the Deputy-Minister and by the Minister's technical advisor.

The major programmatic effect of the present administrative structure has been to reduce the formal status given to such concerns as nutrition guidance, examinations, curriculum and instructional materials, religious education, planning, nonformal education, and scholarships. In most cases these matters can be handled quite efficiently as subordinate departments. The main areas of concern are curriculum and instructional materials, planning, and nonformal education. Curriculum and instructional materials as well as planning are now departments under the Director-General of Technical Affairs. Nonformal education is the responsibility of the Department of Adult and Nonformal Education under the Director-General of Education. The issue is whether these critical areas of education will receive appropriate personnel, financial support, and policy attention within the present structure.

The present MOE administrative system has a more vertical structure than was the case prior to the 1976 reform. This is especially so for central ministry functions. While justified in terms of the availability of administrative personnel, the advantages of the system are, at least in part, offset by the increased burden for decision-making by a limited number of individuals. Without greater delegation of autonomy to the department level, the decision-making bottlenecks in the present system may become as severe as under the original arrangement.

Among the possible suggestions for improvement of management conditions in the MOE, two deserve special attention. First, government should study the advisability of forming a Supreme Council for Education. This body, made up of representatives from government and the private sector, would meet once a year to review MOE policy and to advise the senior officials on potential options to current policies. A second suggestion is to consider the addition of a Vice Minister to the MOE. The Vice Minister would participate in technical educational matters but also could assist the Minister with policy matters and official responsibilities and could represent the MOE when the Minister was absent from the MOE. This change in structure would allow the Deputy Minister to concentrate more on the internal operations of the ministry and to act as a more permanent representative of the organizational perspectives of ministry personnel (much as the Permanent Secretary of a ministry does under the British administrative system).

The most obvious case of administrative burden in the MOE is that of the education general directorate. This director-general has responsibility for general education (primary, preparatory, and secondary education) as well as for the three vocational education department units (industrial, agricultural, and commercial education), physical and social education, adult/nonformal education, and the Department of Female Education. The number and variety of decisions that arise from these responsibilities are combined with the need to coordinate school programs with the individual GEO's. The result is a substantial administrative burden attached to the primary delivery agency for schooling services.

At the level of the GEO's, the main area of responsibilitiy is implementation of those policies and procedures established by the central MOE. In addition, GEO staff are responsible for informing the central MOE offices of special problems and needs as they arise in a particular jurisdiction. In theory, each

GEO is supposed to have an operating administrative unit in each of the following 12 areas:

1. general education
2. nonformal and vocational education
3. examinations
4. extracurricular activities
5. instructional materials
6. nutrition
7. guidance
8. financial/administrative inspection
9. statistics and planning
10. personnel
11. accounting and budgeting
12. purchasing

In fact, the administrative structures of the GEO's vary depending on the size of the governorate and the historical assignment of personnel. In all but the largest GEO's (Sana'a, Taiz, Hodeidah, and Ibb) it is common for individual staff to have multiple responsibilities among the 12 areas mentioned above.

This situation has created a special problem in terms of the statistics and planning function. This activity rarely has received a priority emphasis and quality control is a serious concern. Another problem area is in terms of administrative and financial inspections. The difficulties in this area relate to quantity and training of personnel, transport, and followup. As to the last, school guidance advisors (formerly called inspectors) have recently been granted stronger sanctions to apply if inadequacies are identified as a result of school visits.

Within some GEO's, educational centers (EC's) exist as an intermediate delivery agency between the GEO and the individual school. Problems of staffing - number and prerequisite training - are even more serious at this level than for the operations of most GEO's. Many of the EC staff have only a preparatory school diploma and few have had any further formal training for their jobs.

As has been noted throughout this discussion, the management problem in the MOE is only partially one of

structure. Ultimately, able staff can make almost any reasonable structure work with relative efficiency. The problem of MOE staffing is suggested by the figures in Table 3.4. The expansion of the educational system since 1977/78 has been accomplished mainly through the utilization of expatriate personnel. In fact, from 1977/78 to 1980/81 there was an absolute decrease in the number of Yemeni primary school teachers, as staff left the MOE (or government employment, entirely) for better opportunities elsewhere. While the absolute numbers of Yemeni teachers at all levels have begun to increase, the rate of supply has not been proportional to the rate of increase in demand except at the preparatory and secondary education levels. And even in those schools, the absolute number of expatriates has continued to increase.

In terms of central MOE personnel, the proportion of expatriate workers was estimated by the SFYP to remain at slightly less than 18 percent through 1985/86. Actual levels are now expected to be slightly lower. However, the MOE still is faced with the long-term problem of administering a school system predominantly staffed by foreign teachers. The difficulty and expense this might pose for implementation of qualitative improvements in schooling is a major barrier to educational development other than in purely quantitative terms.

A final issue (which, however, is not unique to the MOE) is the need to upgrade the statistical and analytical skills of those central ministry personnel responsible for data collection and utilization. Computerization of these tasks will assist in this area only if it is preceded by a careful selection of computer equipment and facilities suited to specific MOE needs and accompanied by training in computer operations, data analysis, and educational planning skills. Some of this training may have to take place outside Yemen but much of it can be conducted in Yemen on a short-course or on-the-job training basis.

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TABLE 3.4

YEMENIS AND EXPATRIATES WORKING FOR THE MOE
1977/78 - 1985/86

Job Type	1977/78			1980/81			1985/86		
	No. of Yem.	No of Exp.	% of Exp.	No. of Yem.	No. of Exp.	of Exp.	No. of Yem.	No. of Exp.	% of Exp.
Primary Ed.									
Teachers	5,957	1,011	14.5%	2,496	7,330	74.6%	4,090	18,953	82.3%
Administrators	N.A.	-	-	2,133	-	-	2,355	-	-
Labor	N.A.	-	-	696	-	-	768	-	-
Sub-Total	N.A.	1,011	N.A.	5,325	7,330	57.9%	7,213	18,953	72.4%
Prep. & Sec. Ed[1]									
Teachers	-	1,161	100.0%	135	1,388	93.3%	1,090	3,585	76.7%
Administrators	N.A.	-	-	592	-	-	652	-	-
Labor	N.A.	-	-	370	-	-	407	-	-
Sub-Total	N.A.	1,161	N.A.	1,097	1,888	63.3%	2,149	3,585	62.5%
MOE Personnel	N.A.	N.A.	N.A.	459	97	17.4%	566	122	17.7%
Grand Total	N.A.	N.A.	N.A.	6,881	9,315	57.5%	9,928	22,660	69.5%

Source: Second Five Year Educational Plan, MOE, 1982.

[1]Preparatory and Secondary Education figures do not include those of the TTI's and Vocational Education.

3.3 GOALS AND STRATEGIES

The SFYP states as an objective within the government services sector the following: "Improving the quality, context, and level of education at all levels, taking into consideration the requirements of the society; linking education content with the needs of society." Within the sector, subobjectives are stated for public administration as follows:

1. Strengthening, reorganizing, and developing public administration in a scientific and practical manner;

2. Adopting the most up-to-date planning methods and modern techniques of control, evaluation, and data collection;

3. Developing administrative personnel through training and upgrading of their skills in order to improve the efficiency of all civil servants; and

4. Increasing government revenues and rationalizing government expenditures.

The SFYP cites seven strategies that are to be enacted to accomplish these goals:

1. Review of the organizational and administrative structure to provide adequate services to the citizens;

2. Introducing the system of job classification and specifications;

3. Upgrading the capacities and qualifications of civil servants;

4. Strengthening the administrative training institutions;

5. Completing the establishment of planning, follow-up units, and statistics in all government agencies and institutions and implementation of the computer project;

6. Upgrading the tax-collecting services, and improving the tax structure to ensure the greatest possible returns to the Treasury; and,

7. Improving the budgetary system, the fiscal control and the methods of public accountancy and auditing.

Fiscal constraints and manpower limitations have kept these strategies from being implemented fully. However, the Ministry for Civil Service and Administrative Reform has underway the beginnings of a system-wide job classification process, and individual ministries are reviewing plans for internal reorganization.

The greatest shortfalls in the strategies for public administration improvement envisioned in the 5FYP are in the areas of planning, follow-up, and statistics. These areas will be strengthened in each unit as budgetary resources and appropriately trained manpower permit. The government's commitment to this particular strategy extends beyond the 5FYP and this activity is expected to receive a higher priority in the future.

The strengthening of the administrative training institutions has concentrated upon three main entities: NIPA, the Institute of Banking, and the Faculty of Commerce of Sana'a University. In the next section these institutions will be reviewed in terms of their program structure, curriculum, staffing, and enrollments.

3.4 INSTITUTIONS AND PROGRAMS

3.4.1 The National Institute of Public Administration (NIPA)

3.4.1.1: Institutional Development

NIPA was founded in 1963 by government decree as the Institute of Public Administration and Secretarial Work. Mandated by the Prime Minister to serve both the public and private sectors, the institution operated at a very modest level until it was reorganized under the auspices of the Civil Service Agency in 1970-1971. Under this new organization the charter was modified to restrict training to civil servants. In turn, the government agreed to provide incentives for each participant in the training programs. Initially, this amounted to YR 30 per month and an increase in pay (equal to one yearly

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increment) upon successful completion of the training requirements.

In 1973 the Institute became a "national" organization and was reorganized under a Board of Trustees consisting of five ministers, the Dean, and the Deputy Dean of the Institute. The Chairman of the Board was the Minister of Development who also served as chairman of the Central Planning Organization. In 1974 NIPA enlarged its responsibility to include public enterprises (parastatals) and authority was given for postsecondary and postgraduate degree programs. In that same year, branches of NIPA were established in Hodeidah and Taiz and the Dean was elevated to a rank equivalent to that of a Minister. Beginning in 1975 a UNDP project was initiated; under the project senior staff members received overseas training in a variety of administrative disciplines. In 1978, the current organizational structure of NIPA was developed with the establishment of four divisions: Training, Higher Studies, Research and Consultancy, and Financial and Administrative Affairs. Figure 3.3 presents the current organizational arrangement under which NIPA operates.

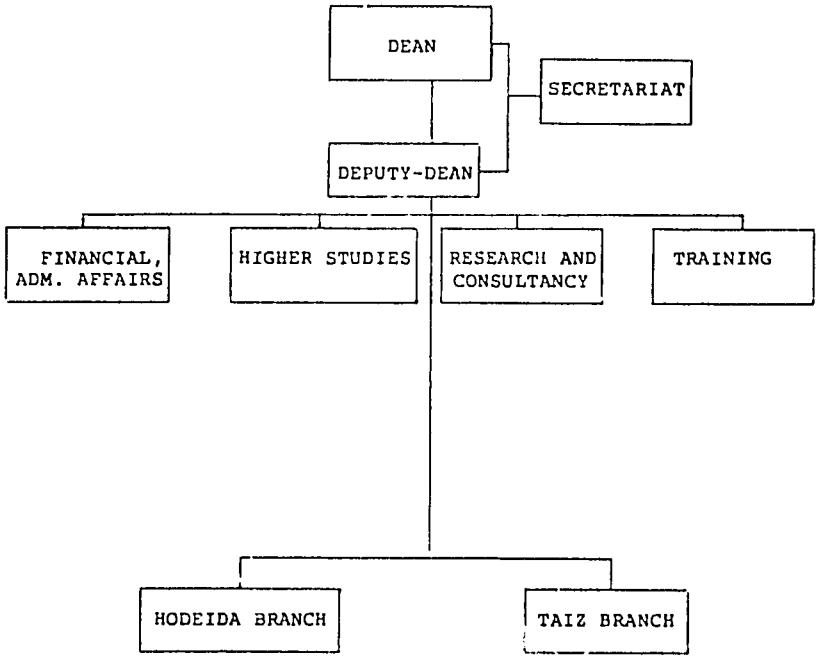
3.4.1.2 Instructional Program

The Training Division operates four major sections:

1. Training in public administration,
2. Training in accounting and finance,
3. Office and office management skills, and
4. Languages (English and French)

The public administration training covers the areas of office management, organization and methods, and personnel management. The accounting/finance section emphasizes uniform system accounting for government, public companies, cooperatives, and the community development system. In addition to the formal classroom courses the NIPA program includes a roundtable program (of one to four weeks) on topics specific to one or more ministries and specialist programs of

FIGURE 3.3
ORGANIZATIONAL CHART OF THE
NATIONAL INSTITUTE OF PUBLIC ADMINISTRATION



one to three months on special skill areas such as statistics or planning techniques.

NIPA surveys ministries to identify potential topics for seminars and roundtable programs. It is common for NIPA to use senior staff from a ministry in the training of junior staff. In addition, an attempt is made to use available reports and papers from the ministries as part of the instructional materials of the programs.

Four to six courses are offered each year in office management but the typing/secretarial courses (for both Arabic and English) are among the most popular of NIPA's offerings. Equally popular are the English and French language courses which are offered in twelve-week sessions four times a year.

From 1973 to 1981 NIPA offered a variety of training courses for MOE staff. The topics covered included school management, general administration, teacher skills, educational planning, and statistics. In recent years the relationship with the MOE has not been as close. Attempts are underway by the NIPA administration to remedy this problem

The Higher Studies program of NIPA offers both postsecondary and postgraduate courses. The two-year postsecondary program was established in 1981. Students meet course requirements similar to those of Sana'a University but also take advantage of work in typing, filing, and bookkeeping. Of approximately 100 students in the most recent cohort, all but 15 were employed by government agencies. The remainder were private students. There have been 115 graduates of the program to date and each has received a postsecondary diploma.

The postgraduate program offers diplomas in three specializations: public administration, business administration, and accounting/auditing. The public administration program is offered to all students with a baccalaureate degree while the business administration program draws from graduates of the Faculty of Commerce and Economics at Sana'a University. The accounting/auditing program recruits

students from practicing accountants within the public and private sectors. American University has assisted NIPA in the development of the postgraduate program as well as acting as coordinator for NIPA staff who are engaged in advanced training in the United States.

The Division of Research and Consultancy is divided into divisions for research, consultancies, and seminars. The last are special programs, normally of one to two weeks' duration, offered for staff at the director-general level. A special activity of NIPA is the Performance Improvement Programs (PIP). Figure 3.4 indicates the activities planned under PIP in 1983.

The long-term training programs at NIPA are offered in the late afternoon to early evening (3 p.m.-8 p.m.). Short-term training courses are offered at either morning or afternoon sessions. All courses take place in the NIPA centers at Sana'a, Taiz, and Hodeidah.

3.4.1.3 Staffing

The staff of NIPA-Sana'a consists of 52 full-time and part-time staff. All 30 of the full-time staff are Yemeni; ten of the 22 part-time staff are expatriates. NIPA-Sana'a depends heavily on staff from Sana'a University for its postsecondary and postgraduate programs and on the ministries for the training programs. Visiting professors supplement the 52 regular staff of the institute and the Peace Corps program has provided English language instructors to NIPA.
Taiz and Hodeidah have their own instructional personnel, although at times an individual may travel from Sana'a to offer a particular course. All staff in these two centers are full-time. Four of the eight instructors in Taiz and five of the nine in Hodeidah are Yemenis.

At all three campuses the resident staff have baccalaureates or advanced degrees. Staff have received training in a variety of nations including Syria, Iraq, Egypt, Lebanon, the Soviet Union, and the United States. In 1982 seven professional staff were engaged in long-term training and

FIGURE 3.4

PERFORMANCE IMPROVEMENT PROGRAMS

NIPA, 1983

Activity	Agencies and Participants	Duration
I. Training Conferences		
1. Planning for performance Improvement in public enterprises	Chief executives and managing directors of public enterprises	Three days
2. Planning performance Improvement in Service agencies	Deputy ministers and general managers	Three days
II. Workshops		
1. PIP. Workshop in a public enterprise	A target enterprise	One month
2. PIP. Workshop in a government agency	A target enterprise	One month
III. Research		
1. Survey of economic management and training needs in public enterprises	Public enterprises census	Two months
IV. Training of Trainers		
1. Skill profile analysis and curriculum design administrative exercise	NIPA	Four weeks
2. Planning and Implementation of self study for academic and training institutions; administrative exercise	NIPA and University of Sana'a	Four weeks

eleven in short-term training. Among the administrative staff (nonuniversity graduates), 12 of 28 were continuing their studies.

3.4.1.4 Enrollments and Outcomes

Table 3.5 presents data on NIPA activities, enrollments, and graduates for 1982 and 1983. The NIPA data are available in terms of seven major activities: seminars, short courses, higher studies (postsecondary and postgraduate programs), public administration, accounting, office management, and foreign languages. Enrollment data is not available by sex of student or by ministerial affiliation. The seminars and short courses, as discussed earlier, are on topics selected by NIPA staff in collaboration with the leadership of the ministries and parastatal organizations. Other activities follow a set program from year to year.

The number of individual programs offered varies from activity to activity between the two years. In terms of participation, the foreign language courses are by far the most popular. Foreign language enrollments represent 59.6 percent of total enrollments in 1982 and 56.2 percent in 1983. The largest increase between 1982 and 1983 was in the seminar program. The number of seminar programs tripled from six to 18 and enrollments increased almost 275 percent.

Because of their brevity and the lack of examination requirements, the seminars and short courses have almost no attrition problems. The lowest ratio of graduates to enrollments is in the higher studies program. As noted earlier, these are new programs and the data in Table 3.5 is not sufficient to indicate an internal efficiency problem. However, instructors in these programs are concerned about this issue and NIPA intends to collect cohort data on graduation rates and the average time required to complete the programs. Attrition in the language programs represents approximately 25 percent of original enrollments. Instructors suggest that the overcrowding in the first weeks of the courses poses an instructional problem for them.

TABLE 3.5

NIPA ACTIVITIES AND ENROLLMENTS
1982/83

Activity	1982			1983		
	Number of Programs	Enrollments	Graduates	Number of Programs	Enrollments	Graduates
Seminars	6	167	167	18	626	626
Short Courses	10	207	175	8	137	137
Higher Studies	4	314	41	6	439	119
Public Administration	2	78	78	3	95	26
Accounting	4	123	109	1	60	24
Office Management	9	224	158	9	227	50
Foreign Language (English/French)	9	1643	1242	9	2018	1516

Source: National Institute of Public Administration, 1984.

The Research and Consultancy Program remains constrained by both supply and demand factors. The staff's ability to conduct such activities is restricted by the absence of personnel for training and the resulting increased instructional and administrative burden for the remaining senior staff. The demand for NIPA's research/consultancy services is limited by some ministries' reluctance to involve "outside" personnel in the study of their internal issues and in other ministries by a lack of awareness of these services. It would be precipitous for NIPA to expand this area at the present time; the best long-term policy is to pursue a pattern of limited but high-quality projects until staffing levels and experience justify an expansion.

3.4.1.5. Financing and Student Incentives

All courses at NIPA are offered free of charge to all students. Both civil servants and independent students benefit from this policy. Instructional materials are provided to students as required by each instructor. The institute maintains typing laboratories for both English and Arabic and has modern language laboratories for both the English and French instructional programs.

Substantial incentives are provided to government students participating in NIPA programs. Students in the postsecondary, postgraduate, and long-term training programs receive a monthly transportation allowance of YR 200-300 in addition to their regular salary. Upon successful completion of their programs, the graduates receive an additional annual pay increment and are given priority consideration for promotion or further training oportunities. Short-term trainees receive no allowances but often receive a one-time salary increment of up to YR 300 upon successful completion of training.

Table 3.6 presents detail on NIPA costs, for instruction and for the research and field studies activity. In addition to total cost per activity, instructional costs are presented per program, per student, and per graduate. The last is not a

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TABLE 3.6

NIPA ACTIVITY COSTS
1982/83

Activity	1982 Total Costs (YR 000)	1982 Per Program	1982 Per Student	1982 Per Graduate	1983 Total Costs (YR 000)	1983 Per Program	1983 Per Student	1983 Per Graduate
Seminars	1,151	191,833	6,892	6,892	1,864	103,555	2,977	2,977
Short Courses	1,055	105,500	5,096	6,029	1,177	147,125	8,591	8,591
Higher Studies	1,663	415,750	5,296	40,561	1,790	298,333	4,172	15,042
Public Administration	958	479,000	12,282	12,282	825	275,000	8,684	31,731
Accounting	647	161,750	5,260	5,936	581	581,000	9,683	24,208
Office Management	955	106,111	4,263	6,044	819	91,000	3,607	16,380
Foreign Languages	614	68,227	373	494	739	82,111	366	487
Research and Field Studies	539	--	--	--	475	--	--	--

Source: National Institute of Public Administration, 1984.

true cycle cost since only current year graduation data are available. The NIPA total costs for all activities increased from YR 7,582,000 in 1982 to YR 8,270,000 in 1983.

The two most costly activities are the seminars and higher studies programs. These two programs combined represented 37.1 percent of total costs in 1982 and 44.2 percent in 1983. In contrast, the enrollments in these programs represented 13.6 percent and 29.4 percent of all enrollments in the respective years.

Combining the cost data with the information in Table 3.3 has allowed for the calculation of costs per program, per student, and per graduate. These calculations reveal that the most expensive program in terms of unit (per student) cost was the public administration program in 1982 and the accounting program in 1983. The language courses are, by a large margin, the least expensive program offered by NIPA.

The figures in Table 3.6 do not include general administrative overhead, interest and depreciation on facilities, or the increased salary obligations of government that result from the training. The differences in per graduate versus per student cost are difficult to interpret given the lack of cohort data on program attrition and the newness of several of the programs. While the data, therefore, do not suggest immediate needs for reform, they do indicate a need for NIPA to assess and justify the large variations in costs across the programs.

3.4.1.6 Donor Assistance

From 1965 to 1969 NIPA was provided short-term technical assistance by the United Nations. In 1973, with CPO approval, a two-year U.N. project was initiated to assist in the areas of basic training development and staff upgrading. In 1979 the United Nations Development Program (UNDP), under a cost-sharing arrangement with the Netherlands, began a project which had the dual objectives of institution building and program development.

Under the latter activity NIPA was assisted in design of its two-year diploma and its postgraduate programs in Public Administration. The technical assistance portion of the project was delayed until after 1981 by the need to obtain specific government authorization for the new initiatives.

Since 1979 the Federal Republic of Germany has provided assistance in the area of research. The assistance has taken the form of the provision of specialists to work in Sana'a and a program of research seminars in Sana'a and in Germany. Under the World Bank Third Education Project the Institute received funds for the construction of the Taiz and Hodeidah branches of NIPA as well as for ten person-years of technical assistance and fellowships for 12 staff members to engage in master's-level programs.

NIPA also has received assistance from a variety of Arab nations through the Arab Organization of Administrative Sciences and from Egypt through the National Institute of Management Development. Instructional personnel for the language programs have been provided by agencies of the United States, the United Kingdom, and France.

3.4.2 Institute of Banking Studies (IBS)

The IBS differs from NIPA in terms of size, the specificity of its training, and the relatively brief tenure of its program. The IBS was formed in 1980 through the efforts of the Central Bank of Yemen in cooperation with all public and private banking institutions in the YAR. The private organizations involved include all foreign banks chartered to operate within the country.

Participation in IBS training programs is limited to employees of its sponsoring banks. Students work full-time while attending the courses. IBS participants must have a secondary school diploma and two years of banking experience. The courses are free with the budget of the institute financed from assessments of the banking community. Forty percent of the total budget is contributed by the Central Bank. The budget for 1985 is estimated to be approximately YR 670,000.

The institute surveys the banking community to determine the types of training courses desired. The responses often vary among the types of organizations (Central Bank, development credit banks, and private banks). The most common courses are in bookkeeping, maintenance of exchange accounts, loan management, Arabic/English banking vocabulary, and general management. The courses are held in the late afternoon (4 to 6 p.m.) four to five days a week and vary in duration from six to twelve weeks. In addition to the training programs the institute offers special seminars on topics critical to the banking system. Participants in the training programs must complete examinations but seminar participants are not subject to evaluation.

Figure 3.5 indicates the present organizational structure of the IBS. The Board of Trustees is chaired by the Central Bank representative and includes members from the following constituencies:

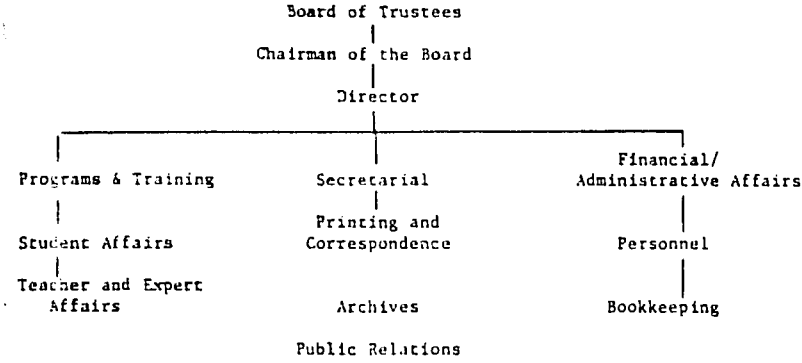
- Yemeni-owned banks
- Commercial banks (including foreign)
- Specialist banks
- Faculty of Commerce and Economics, Sana'a University
- Ministry of Education

Other than the small administrative staff, all IBS personnel are part-time. Instructors for the courses are drawn from the Faculty of Commerce and Economics or from the banks themselves. These instructors receive a fee of YR 150 to YR 200 per hour for eight to ten hours of instruction per week. Within a given year the IBS may employ eight to 12 different instructors. Instructors have responsibility for design of their own courses. Only lectures are used and no textbooks are provided. Some instructors distribute short papers or information sheets on their topics.

The participants in the courses receive a transportation allowance of YR 500-YR 600 per month but have no assurance of additional pay or promotion upon completion of training. The IBS plans to convene a special seminar to discuss the issue of

FIGURE 3.5

ORGANIZATIONAL CHART OF THE
INSTITUTE OF BANKING STUDIES



Source: Institute of Banking Studies, 1984.

appropriate training incentives. Because of the present lack of immediate rewards (and the competition of the course times with the normal period for qat sessions) attrition has been high. Courses which start with 30 students often finish with no more than 18. In aggregate, the enrollment levels for IBS courses have been static in recent years and this also is a matter of concern.

IBS operates with no direct subsidy from government and has not received any donor assistance. Areas of need for the institute are programming assistance, course development, equipment, instructional materials, and stronger student incentives.

3.4.3 Faculty of Commerce and Economics (FCE)

Details of the FCE program are provided in Chapter 8, Higher Education. Several points about the program are relevant to the present discussion of management capacity. FCE graduates are one of the potential sources for new administrative talent in the nation. While the overall quality of the FCE is a point of debate, the best graduates are sought by the civil service, the public corporations, and, increasingly, will be recruited by private sector firms.

Some civil service administrators feel the best FCE graduates will be lost after a short period of time to non-civil service employment. There are multiple reasons why this might occur but the most probable appear to be the improved salaries and working conditions outside the civil service, and the increasingly limited opportunities for promotion within it. The one strong advantage in civil service employment in recent years has been the availability of fellowships for foreign study.

Even this advantage, however, poses problems since the graduates, upon return to the YAR, may leave civil service employment after their period of service obligation is over. This problem was discussed earlier in terms of the general manpower problem of the civil service but has dramatic,

immediate, and negative implications for the improvement of the government's management capacity.

There needs to be a greater attempt to utilize the skills of FCE personnel for research and consultancy activities for government. This already exists on a small scale but should be expanded either through direct contracts or via NIPA's research and consultancy division.

Because of the fiscal limitations which restrict the government's attempts to improve direct incentives, it is likely the civil service will not increase its ability to retain the best management staff. The implication for FCE is that the number of graduates and the minimum standard for graduation should both be increased. This is a challenging task but is a critical one to improve the supply of able administrators.

If the government is to improve its utilization of graduates of FCE there must be an explicit recognition that an administrative cadre can exist without prerequisite field experience in the ministry's subject area. For example, the MOE needs to utilize administrators regardless of their experience in the teaching profession. Such experience is of great value but some compromise needs to be reached between the value of formal administrative training and the value of field experience.

3.5 SUMMARY ANALYSIS AND RECOMMENDATIONS

In this section the management programs of NIPA will be reviewed in terms of the five criteria of external efficiency, internal efficiency, access and equity, administration and supervision, and costs and financing. Following this review some major options for management policy and practice will be presented.

3.5.1 External Efficiency

Because of the lack of tracer studies of graduates of NIPA programs it is impossible to speak definitively in terms of

their effectiveness relative to subsequent education or employment. However, the programs are held in high regard by those individuals who have had most contact with NIPA graduates. It is a special problem for NIPA that the greatest skepticism toward its training programs exists among the ministries which have made least use of the Institute.

The strongest support within government agencies for NIPA is for the lower level typing and administrative support skills. Some ministerial personnel questioned the need for NIPA to have expanded its program to the postsecondary and postgraduate level. Certainly, there is a strong view that NIPA graduates from the postsecondary diploma programs are not equivalent to Sana'a University students at a similar stage. Even some NIPA faculty feel that it would be unwise to encourage most NIPA postsecondary graduates to think in terms of further baccalaureate training at the University.

However, it is possible to justify the advanced training programs at NIPA if they are viewed as alternative and terminal programs for midcareer civil servants. The summary issue is whether the higher learning programs cause a reallocation of human and financial resources away from the other training activities. This is an issue of which the leadership of NIPA is aware and appropriate safeguards exist to prevent one program from infringing unduly on the other. Certainly, increased staffing resources would reduce greatly any concerns in this regard.

3.5.2 Internal Efficiency

At present NIPA is making efficient use of staff and facilities. The ratios of students to teachers appear appropriate with the exception of the language courses and the postgraduate courses. In the language courses there often are too many students for the faculty to deal with effectively. This is especially true in the early weeks of the courses. In the postgraduate program the ratios of students to teachers are excessively low even for this advanced level of training.

Increased recruitment of students in the future would resolve this current underutilization of senior personnel.

3.5.3 Access and Equity

Without detailed enrollment breakdowns it is not possible to document differential rates of particiation by sex, ministry, or location. The establishment of branches of NIPA in Taiz and Hodeidah has advanced greatly the equality of regional access to the programs. It is reported that female participation is greatest in the typing and related secretarial programs. However, no formal barriers to female partipication exist in any of the NIPA course offerings.

The absence of tuition assures that no one will be barred from participation because of lack of funding. In fact, the absence of tuition has created some problems in terms of initial oversubscription for certain courses. This is a serious issue in the language courses where large numbers of students register and then abandon their studies after only a few weeks.

3.5.4 Administration and Supervision

NIPA has benefitted greatly in the last decade from the high quality of its senior leadership. The only major unresolved management issues are those of advising/counseling and of internal reorganization. There is a great need to maintain and review data on both student/trainee characteristics and the subsequent education and employment experiences of graduates. Tracer studies of selected graduate cohorts of various programs should be an ongoing responsibility of the Institute. These studies could be conducted by the Research and Consultancy department in cooperation with the MCSAR's training department.

The need for internal reorganization stems from the increasing division between NIPA's responsibility for training of ministerial support staff and its new obligations for higher studies. It is necessary to consider whether the present

departmental structure is efficient in balancing the competing needs of these two programs or whether separate assistant deans are required for the training program and for the higher studies/research and consultancy activities.

3.5.5 Costs and Financing

At present the program costs of NIPA are supported either by government funds or by donor contributions. The envisioned expansion of NIPA programs and the need for maintenance or quality upgrading of present activities suggest that NIPA will need to place an even heavier burden on donor resources than before. Fortunately, NIPA's reputation among donors is a good one and the main task will be to convince the support agencies of the centrality of NIPA's role in the continuing development of civil service personnel.

The possibility of private fees is an alternative that should be considered for NIPA's nongovernment students. While not yet a popular option, a minimal fee system might be instituted with charges that are sufficiently low so as to not bar the serious but economically disadvantaged student, but are high enough to discourage the individuals who do not have a sincere commitment to learning. Serious discussion and study of the underlying issues to a fee system will be a prerequisite to any policy action in this regard and the establishment of fees should be a separate consideration from the issue of NIPA's degree of autonomy.

3.5.6 Recommendations for Policy and Practice

The options for policy and practice stated here are presented as alternatives to the status quo. Their consideration or eventual implementation may be considered individually or in any combination. The major goal of this exercise is to identify areas of reform and development where government objectives can be attained with an increased efficiency in the use of Yemeni and donor resources.

Recommendation 1: Implement the National Training Program in All Ministries.

The single greatest need in the area of government management is for each ministry to design and implement a long-term staffing and staff development plan. The MCSAR has been made responsible for overall design of the program and should provide assistance, as needed and requested, to each of the ministerial personnel departments. As this program continues, the staff development activities should specify the amounts and types of training required, the priorities for training, the location for each type of training, and the financing and trainee incentives required.

Recommendation 2: A Management Study of the Major Education and Human Resource Agencies.

The Department of Training of the MCSAR, in cooperation with selected staff from the Education Research and Development Center and the Faculty of Commerce and Economics, should conduct a detailed administrative review of the Ministry of Education, and Sana'a University. The objective of this exercise should be to identify major bottlenecks in the information and decision-making systems and to suggest remedial reforms. Special effort should be directed to the identification of structural inefficiencies in the distribution of workloads across general directorates and departments. Recommendations should be made for more efficient coordination of the work of the central MOE, the GEO's, and the Education Centers. The specific suggestions of the value of establishing a Supreme Council on Education and adding a Vice Minister to the MOE should be considered.

Recommendation 3: Middle-Management Training Program for the MOE.

A special training program should be designed for the next generation of senior MOE officials. The directors of departments and the heads of subdepartment units should be the primary targets for this training program. A major component of this training should involve the facilitation of delegation of authority and responsibility. The training should be based

on case studies drawn from the MOE's own experiences. Where possible, senior ministry staff should be called on to assist in the design of the training program, the selection of the trainees, and the actual conduct of the training.

4.0 PRIMARY EDUCATION

4.1 STATUS

4.1.1 Historical Setting

While Yemen is one of the world's oldest centers of civilization, the Yemen Arab Republic (YAR) is one of the world's newer nations. Following the departure of Ottoman influence in 1918, the Hamid al-Din dynasty ruled Yemen until the 1962 revolution. During the reign of Yahya Ibn Mohammed al-Din (ending in 1948), Yemen maintained a policy of isolation from external affairs. Internally, the nation operated with little formal infrastructure. What government functions did exist were under the total personal direction of the Imam.

Prior to 1962, rural Yemen received few, if any, services from the central government. The system of Zakat and the conscription of young men for temporary service with the Imam were the main contacts that the villages had with the central authorities. A major unifying force was the religion of Islam and the system of Islamic judges who served as arbitrators between Koranic law and local tradition.

The policy of external isolation and internal autonomy had a major influence on the educational development of Yemen. Prior to the decade of the 1940's, most education was religiously oriented with literacy perceived as having greatest value in terms of allowing access to religious writings, Islamic law, and traditional Arabic literature.

In 1941, a program of compulsory education for children between the ages of seven and 17 was introduced. However, the Imam had neither the resources to provide sufficient schools and teachers nor the authority to enforce attendance. By the early 1950's it was estimated that only 50,000 students were attending school and predominantly at the primary level. Schools existed almost exclusively for males and only in the major cities. Prior to the 1962 revolution rural education remained almost unchanged from the conditions of fifty years before.

The period of civil war from 1962 to 1970 slowed the introduction of educational reforms by the republican government. Since 1970 the progress of the educational system of the YAR has been dramatic. Assisted by its sister Arab nations and by bilateral and miltilateral aid from both Western and Eastern nations, the government has worked to develop a modern educational system responsive to the rapidly emerging social and economic needs of the YAR.

Table 4.1 presents the enrollments, by grade, in primary education since 1974/75 and for the earlier years of 1967/70 and 1962/63. The YAR has followed the pattern of the Arab League Cultural Pact of 1957 and implemented a six-year primary education system (followed by a three-year preparatory or intermediate system and a further three-year secondary education system). Through the 1960's, the primary education system was characterized by low levels of attendance, high attrition rates, and an urban and male domination in terms of access. The table depicts the rapid expansion in primary education that followed the national reconciliation in 1970. From 1969/70 to 1974/75 the number of primary schools were increased by 280 percent and the number of classrooms by 370 percent. Total enrollments more than tripled. Of greatest importance was the proportional increase in Grade Six students. This indicated that the aggregate expansion had been attained without sacrificing aggregate retention.

Unfortunately, this last achievement was made possible in part because of the low levels of retention that already existed. Even for the Grade One cohort of 1974/75, only 16,486 (17 percent) were in Grade Six in 1979/80 (and this figure certainly includes some Grade Six repeaters from earlier cohorts). The 1982/83 Grade Six cohorts, however, represents 38 percent of the original 1977/78 Grade One cohort of 91,804 students. This issue of retention (and the related one of grade repetition) is the subject of a continuing detailed longitudinal study by the Educational Research and Development Center (ERDC). As Table 4.1 points out, the dramatic increase in schools and classrooms has continued to the present. The average number of

TABLE 4.1

PRIMARY SCHOOL ENROLLMENTS, BY GRADE

1962/63 - 1982/83

YEAR	ONE	TWO	THREE	FOUR	FIVE	SIX	TOTAL ENROLLMENTS	Number of Schools	Number of Classrooms
1962/63	31,082	15,579	8,973	4,580	899	232	61,335	919	N/A
1969/70	29,054	14,886	12,395	6,304	3,990	2,978	72,107	700	1,851
1974/75	96,512	56,402	35,184	20,971	13,041	9,474	232,784	1,952	6,823
1975/76	105,846	58,932	35,120	23,399	14,070	10,699	252,116	2,137	7,484
1976/77	84,461	47,571	35,292	23,426	15,235	11,772	220,159	1,937	6,196
1977/78	91,804	57,784	41,729	28,081	18,184	13,704	251,286	1,604	7,052
1978/79	97,288	58,847	40,837	25,596	16,014	13,385	251,967	1,711	7,275
1979/80	140,215	70,494	49,640	33,279	25,128	16,486	335,249	2,543	9,650
1980/81	140,381	96,381	65,232	43,756	27,640	20,863	414,273	2,984	12,205
1981/82	182,565	129,845	87,887	58,499	37,682	26,417	522,896	3,711	15,419
1982/83	178,075	144,425	115,428	79,112	50,613	34,529	602,212	4,169	18,945

Source: Ministry of Education, Educational Statistics, 1984.

classrooms per school has remained between 4 and 4.5 reflecting the substantial existence of incomplete schools. Incomplete schools are a common phenomenon for a country of the YAR's level of educational development. Also, dependence on foreign teachers is not a characteristic unique to Yemen, although the recent level of dependence is unusual. The National Committment to Yemenization of the teaching force is designed to change this condition.

Table 4.2 presents the numbers of Yemeni and non-Yemeni teachers in primary education since 1970/71. The number of Yemeni teachers did not begin to fall dramatically behind the general increase in teachers until 1977/78. Two factors have combined since that year to create a dependence on foreign personnel such that over 80 percent of the primary teaching force are now expatriates. The first factor was the absolute decline in the number of Yemeni teachers (many of whom were recruited only for one year or who were released for Army service). A decline occurred each year from 1976/77 to 1981/82. The improved employment opportunities outside teaching in the YAR and elsewhere on the Arabian peninsula also contributed to the decline in the absolute number of Yemeni teachers from 6,209 to 1,513.

During the same time period the demand for teachers increased dramatically. In 1976/77 there were 220,159 students in 1,537 schools. By 1981/82 there were 522,996 students in 3,711 schools. Even with the average student-teacher ratio increasing from approximately 32:1 to approximately 45:1, the demand for additional teachers was enormous. Between 1976/77 and 1981/82, the total number of teachers increased by 4,716 and replacement demand for the lost Yemeni teachers equalled 5,138. Thus, a net increase in foreign staff of 9,854 had to be achieved in a period of only five years. This increase was made possible only by the secondment of teachers from donor nations and the provision of financial support to allow for the employment of foreign teachers on individual contracts.

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TABLE 4.2

YEMENI AND NON-YEMENI TEACHERS IN PRIMARY EDUCATION

1970/71 - 1982/83

Year	Number of Yemeni Teachers	Number of Non-Yemeni Teachers	Total Teachers	Percent Non-Yemeni
1970/71	1726	54	1780	3%
1971/72	3099	47	3146	1.5
1972/73	4053	200	3253	4.7
1973/74	4651	274	4925	5.6
1974/75	5552	221	5773	4.0
1975/76	6209	314	6523	4.8
1976/77	6651	333	6984	4.8
1977/78	5957	1011	6968	14.5
1978/79	3785	2085	5870	35.5
1979/80	2656	4111	6767	60.8
1980/81	2496	7330	9826	74.6
1981/82	1513	10187	11700	87.1
1982/83	2016	11149	13165	84.8

Source: Ministry of Education, Educational Statistics, 1984.

Less quantifiable developments have occurred in the YAR primary educational system since the early 1970's. The restructuring of the Ministry of Education (MOE) and the programs to develop a national curriculum and to distribute the appropriate textbooks and support materials are perhaps the most noteworthy. However, the effect of the present rapid economic and social changes on the educational system does not allow the government or the people adequate time to enjoy the substantial progress of the last fifteen years. All Yemeni can take a justifiable pride in the accomplishments of the education system; however, the new demands on the system force attention to be directed to the tasks which remain. In the sections that follow, the necessary emphasis on the job that remains to be done should be interpreted in the context of the government's and the people's proven ability to accomplish much in a limited period of time.

4.1.2 National Goals and Strategies

The Second Five Year Plan (SFYP), 1982-86, notes that the country is "...facing a crucial scarcity of both trained manpower and skilled and unskilled labor." Noting that "The existing system of education ... is unable to meet, in the near future, the need for qualified and skilled manpower..." the SFYP has set out a series of goals and strategies for the education system. The Plan recognizes the critical role of primary education as the basis upon which all other education and training programs must depend.

The first two general objectives of the SFYP relate to primary education. The first objective calls for satisfying the Yemeni citizen's basis needs (of which literacy and education for children are major components). The second speaks specifically to "Improving the skills of citizens and developing methods and contents of education." The specific SFYP objectives relevant to primary education are the following:

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1. Providing all citizens with educational opportunities both in the cities and the rural areas;

2. Qualitative and quantitative development of educational facilities at all levels;

3. Improving the quality, context, and level of education at all levels and linking education content with the needs of the society and the labor market; and

4. Improving the quality of teachers and introducing the necessary incentives to attract more national staff.

The primary strategies being pursued are the continued construction of new schools and the expansion of the output of the teacher training institutions (TTI's). The MOE has placed a priority on the needs of primary education. Incentives at the three and five-year TTI's have been increased to facilitate the recruitment of more teacher-trainees. The MOE is engaged in the development of syllabi for all primary education subjects. This effort has been constrained by development, production, and distribution problems but remains a priority activity of the ministry.

Investments in primary education projects during the SFYP were projected at YR 921.9 million or 40.4 percent of the total for the education sector. Excluding Sana'a University investments, the primary education projects were scheduled to represent 59.7 percent of all pre-University investments. Thirty-five percent of the primary education project costs were to come from domestic sources. Another YR 11.2 million was to be expended on capital projects at the TTI's.

The Central Planning Organization (CPO) currently is conducting an evaluation of the rate of implementation of SFYP projects. Although capital projects have been constrained by a variety of external and management difficulties, it is expected that the evaluation will show a relatively high rate of implementation in the education sector and especially for the primary education subsector. It also is anticipated that the SFYP goals and strategies will be continued into the next national planning cycle. Although fiscal constraints will limit

continued construction activities and manpower conditions will continue to delay the rate of Yemenization of the teaching service, these two activities will continue as priority programs within government's overall development strategy.

4.1.3 Organizational Structure

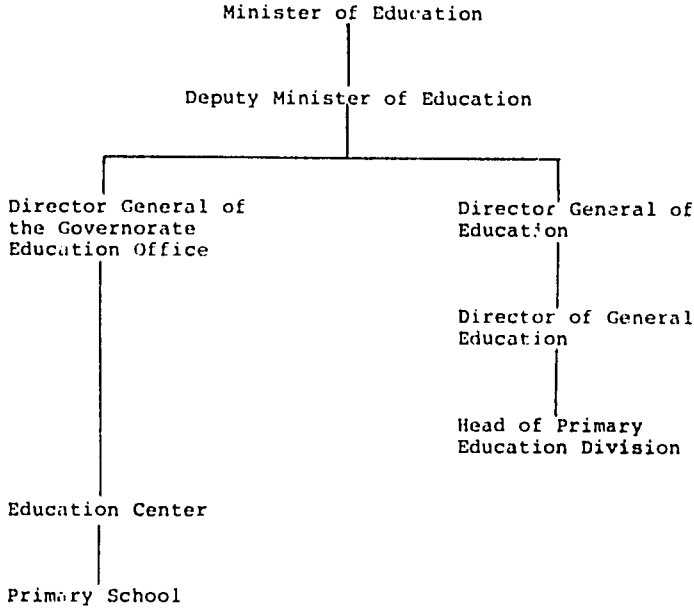
The discussion of management capacity in Chapter 3.0 dealt with the general organizational framework for the Ministry of Education. The basic line of authority for primary education is as depicted in Figure 4.1. Authority for primary education is divided between the MOE, Sana'a offices that have a principal planning and coordination responsibility and the parallel offices in the Governorate Education Offices (GEO's) that have implementation responsibilities.

Among the programs reserved for the central MOE authority are the following: curriculum design, design and administration of national examinations, provision of textbooks and instructional materials, school location, inspection, finance, and design of statistical formats. The Local Councils for Cooperative Development (LCCD's), and their predecessors, the Local Development Authorities, have played a role in educational finance. In the late 1970's there was a plan for an equal, tripartite sharing of educational costs among parents, the LCCD's, and the MOE. In recent years this plan has been restructured to assure the MOE of the proper location, design, and quality of construction of any LCCD supported schools.

School location decisions have not been fully under the control of the MOE because some local philanthropists have built schools without prior MOE approval. In some cases the MOE has learned of a new school's existence only when the village request for teachers and textbooks was received.

At present the MOE is working to improve coordination between the MOE and the individual GEO's and between the GEO's and the schools. One strategy being pursued is to provide more and better trained staff to the GEO's. Again, fiscal and manpower constraints are the major barriers to the rate of progress in

FIGURE 4.1
ORGANIZATIONAL STRUCTURE FOR PRIMARY EDUCATION



Source: Ministry of Education: Educational Statistics, 1984.

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this activity. The attention of ministry and GEO staff is dominated, at present, by the quantitative demands of the system. The ministry continues to strive to achieve the required qualitative enhancement in instructional programs while meeting the three-fold impact of an increasing age cohort, increasing participation rates, and increased retention in the primary cycle.

4.1.4 Programmatic Concerns

4.1.4.1 Student Enrollments and Characteristics

As noted earlier, the aggregate pattern of enrollment growth in the YAR has been dramatic over the last decade. Table 4.3 provides detail on the 1982/83 primary education enrollments by governorate, by grade, and by sex of student. Almost one-half (49.6 percent) of all enrollments are in the Sana'a and Taiz governorates. The estimated population for these two governorates is approximately 37 percent of the total for the YAR so that there is a degree of relative advantage in educational access indicated in terms of enrollments for these two regions. The Hodeidah governorate, in contrast, has only 10 percent of the total primary students but contains an estimated 17 percent of the population. Because data are not available on a rural/urban basis and because all of the governorates contain substantial rural populations, it is difficult to document the degree of the urban concentration of primary education. The government's success in regionalization of primary education is indicated by the fact that the percentage distribution for population and the percentage distribution of enrollments, with the exception of the Hodeidah governorate, do not vary dramatically. The total population distribution undoubtedly underestimates the proportion of the primary school age cohort in the more rural areas, but even this factor is not enough to offset the conclusion that the YAR has achieved a great deal in equalization of aggregate access among the governorates.

A bias in enrollments toward the governorate of Taiz is revealed if one studies sixth grade enrollments. At that grade

TABLE 4.3

PRIMARY SCHOOL ENROLLMENTS, BY GOVERNORATE
1982/83

GOVERNORATE/ SEX OF STUDENT	GRADE LEVEL ONE	TWO	THREE	FOUR	FIVE	SIX	TOTAL
Sana'a - Male	37610	30198	24548	17915	11152	7090	128,513
Female	8511	6439	4634	2574	1724	1439	25,321
Taiz - Male	26114	22954	21683	18265	14715	11707	115,438
Female	10037	6941	5104	3353	2346	1822	29,603
Hodeidah-Male	15680	13325	8956	5718	3904	2706	50,289
Female	3326	2430	1663	1113	816	561	9,909
Ibb - Male	26764	22323	17687	11687	6288	3698	88,447
Female	5147	3553	1910	879	422	273	12,184
Dhamar - Male	16007	13175	9493	5185	2975	1719	48,554
Female	1499	1083	740	255	95	56	3,728
Hajjah - Male	9720	8369	6004	3338	1813	917	30,161
Female	794	538	265	123	64	27	1,811
Beidah - Male	5076	3670	3520	2701	1342	897	17,206
Female	998	680	483	194	94	71	2,520
Sa'ada - Male	3591	2739	2869	1635	904	499	12,257
Female	165	144	94	64	14	8	489
Mahweet- Male	3838	3998	3964	2664	1230	625	16,319
Female	543	314	213	103	42	27	1,242
Ma'rib - Male	1761	881	849	765	490	351	5,097
Female	146	52	50	11	8	3	270
Al-Jawf- Male	667	598	621	550	174	33	2,643
Female	81	51	58	20	1	-	211
TOTAL - Male	146,828	122,230	100,214	70,423	44,987	30,242	514,924
Female	31,247	22,225	15,214	8,689	5,626	4,287	87,288

Source: Ministry of Education, Educational Statistics, 1984.

level, Sana'a has 24.7 percent of national enrollments compared to 25.5 percent for the full primary cycle. However, Taiz has 39.2 percent of sixth grade students compared to only 24.1 percent of total primary enrollments (and approximately 19 percent of the total population). All other governorates (except Ma'rib with 0.9 percent) have lower sixth grade proportions than proportions of all primary students. These statistics reflect certain social and educational advantages that have existed in the past in the Taiz area. As more schools, and more complete schools, develop, other regions of the YAR will more closely approximate retention levels achieved in Taiz.

As noted in the discussion of the historical context of primary education, female participation in formal education is relatively recent innovation in the YAR. The highest rates of female participation (females as a percent of total enrollments) are in Taiz (20.4 percent), Sana'a (18.9), Hodeidah (16.5), and Beidah (12.8). The lowest rates are in Sa'ada (3.8 percent), Ma'rib (5.0), and Hajjah (5.7). For sixth grade enrollments alone, the highest rates are in Hodeidah (17.2 percent), Sana'a (16.9) and Taiz (13.5) while the lowest rates are al-Jawf (none), Ma'rib (0.8), and Sa'ada (1.6).

Tables 4.4 and 4.5 offer some insights into the determinants of these enrollment patterns. Table 4.4 indicates the distribution, by governorate, of enrollments in male-only, female-only, and coeducational schools. While female-only schools remain insufficient, they are to be found disproportionately in the governorates other than Sana'a and Taiz. It is interesting to note that the success in female retention to sixth grade in the Hodeidah Governorate is correlated with (and perhaps caused by) the significantly higher level of availability locally of female-only schools.

Table 4.4 also indicates that the areas of Sana'a, Taiz, and Ibb have a greater number of coeducational schools related female-only schools. The opposite is true for such governorates as Ma'rib and Sa'ada.

TABLE 4.4
SCHOOL AND CLASSROOM DISTRIBUTION

BY GOVERNORATE AND SEX

	Male		Female		Coeducational	
	Schools	Classes	Schools	Classes	Schools	Classes
Sana'a	481	1832	5	20	679	3610
Taiz	82	469	5	31	470	2898
Hodeidah	264	1015	21	149	55	420
Ibb	193	748	4	33	363	1745
Dhamar	296	1039	2	11	156	685
Hajjah	276	890	1	9	110	501
Beidah	99	427	3	13	56	306
Sa'ada	148	541	4	17	33	144
Mahweet	88	295	--	--	117	522
Ma'rib	76	275	--	--	21	96
Al-Jawf	27	83	--	--	34	121
TOTAL	2030	7614	45	283	2094	11048

Male Enrollment:	196,660	--	318,264
Female Enrollment:	--	12,111	75,177

Source: Ministry of Education, Educational Statistics, 1984.

Returning to the issue of aggregate access, Table 4.5 indicates the number of incomplete schools by type and higher grade available. Because it is the normal pattern to open new schools one grade level at a time, many of these schools are in the process of adding a new grade level each year. However, some schools have been constrained in this regard by both the unavailability of teachers and the space limitations of present facilities.

It is surprising to note that the greatest degree of incompleteness is among boys' schools and the lowest level of incompleteness among girls' schools. Because incompleteness of schools is also related to the dispersion of the population in the governorates, the figures cited above for Ma'rib or Sa'ada do not necessarily reflect future patterns of enrollments in these areas as more schools are constructed and existing incomplete schools are completed.

The issue of attrition in primary education already has been dealt with in terms of statistical detail in the manpower and cycle cost discussions of Chapter 2.0. The aforementioned ERDC research project is a noteworthy contribution to the understanding of the determinants of attrition and repetition as well. In a survey of teachers and educational officials the ERDC study identified ten causes of attrition most frequently cited by the study's respondents. These causes were:

1. Parental ignorance about the benefits of completing primary education;
2. Parental indifference to school affairs;
3. Early marriage - especially for female students;
4. Distance from home to school;
5. Cultural traditions against female participation;
6. Lack of hygiene, nutrition, and health care;
7. Crowded classrooms;
8. Truancy and absenteeism to assist the family economically;

TABLE 4.5

COMPLETE AND INCOMPLETE PRIMARY SCHOOLS, 1982/83

BY TYPE AND HIGHEST GRADE OFFERED

TYPE OF SCHOOL	Schools, by Highest Grade Presently Offered						
	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade	(Complete School)
Boys' Schools:							
Number	183	281	434	338	336	358	
Enrollment	11707	19232	31772	34231	30965	68753	
% of Total Enrollment	6.0%	9.8	16.2	17.4	15.7	35.0	
Girls' Schools:							
Number	7	7	5	2	3	21	
Enrollment	410	500	390	86	573	10152	
% of Total Enrollment	3.4%	4.1	3.2	0.7	4.7	83.8	
Coeducational Schools:							
Number	51	131	296	383	377	856	
Enrollment	3400	10798	29173	41968	47052	261050	
% of Total Enrollment	0.9%	2.7	7.4	10.7	12.0	66.4	
All Schools:							
Number	241	419	735	723	716	1235	
Enrollment	15517	30530	61335	76285	78590	339955	
% of Total Enrollment	2.6%	5.1	10.2	12.7	13.1	56.5	

Source: Ministry of Education, Educational Statistics, 1984.

9. High student-teacher ratios in Grade One;

10. No provision for preprimary education.

The ERDC study provides useful detail on the scale and nature of the drop-out phenomenon and offers some indications for remedial policies and procedures. However, the challenge to government is both how to absorb new students and retain present students within the physical, fiscal, and manpower constraints to be faced in the next decade.

4.1.4.2 Teachers

One of the most discussed areas of primary education is the teacher situation. As noted earlier, the rapid expansion of primary education over the last decade occurred at a time when the absolute number of Yemeni teachers was declining for the reasons cited previously. In this section, in addition to the issue of Yemenization of the teaching force, the issues of teacher utilizaton, sex distribution, governorate distribution, and qualifications of teachers will be reviewed.

Table 4.6 presents detail, by governorate, on the distribution of Yemeni and non-Yemeni teachers. Teacher utilization statistics are presented for each governorate in terms of teachers per class, teachers per school, and the ratio of students per teacher. Care should be taken in the interpretation of these last three statistical averages since great variations in actual levels occur from school to school and even within schools, from grade to grade. For example, a 40:1 student-teacher ratio may appear to indicate efficient teacher utilization until one observes that the ratio may be 125:1 in Grade One but only 10:1 in Grade Six.

The highest proportional concentrations of Yemeni teachers occur in Hodeidah, Taiz, Dhamar, and Hajjah but with only Hodeidah (25.6 percent) having a teaching force of more than one-fourth Yemeni teachers. The greatest proportional concentration of foreign teachers occurs in al-Jawf (100.0 percent), Ma'rib (96.5), and Sa'ada (94.4); these are the

TABLE 4.6

DISTRIBUTION OF PRIMARY EDUCATION TEACHERS

BY GOVERNORATE AND NATIONALITY

Governorate	Number of Teachers: Yemeni	Number of Teachers: Non-Yemeni	Number of Teachers: Total	Percent Yemeni Teachers	Teachers per Class	Teachers per School	Ratio of Students to Teachers
SANA'A	456	3,103	3,557	12.8%	.65	3.1	43.2
TAIZ	592	2,376	2,968	19.9%	.87	5.3	48.9
HODEIDAH	328	951	1,279	25.6%	.91	3.8	47.1
IBB	247	1,596	1,843	13.4%	.73	3.3	54.6
DHAMAR	176	916	1,092	16.1%	.63	2.4	47.9
HAJJAH	116	705	821	14.1%	.59	2.1	38.9
BEIDAH	39	459	498	7.8%	.67	3.2	39.6
SA'ADA	22	370	392	5.6%	.56	2.1	32.5
MAHWEET	35	373	408	8.6%	.49	2.0	43.0
MA'RIB	7	193	200	3.5%	.54	2.1	26.8
AL-JAWF	-	107	107	-	.53	1.8	26.7
TOTAL	2,016	11,149	13,165	15.3%	.70	3.2	45.7

Source: Ministry of Education, Educational Statistics, 1984 and original calculations.

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governorates with the smallest absolute number of teachers, as well. Of the 2,016 Yemeni teachers in primary education in 1982/83, 1,046 or 51.9 percent were in the Sana'a or Taiz governorates.

The ratio of teachers per class in primary education averages less than 1.0 because of multiclass teaching responsibilities in a single subject area at upper grades. Those governorates with the greatest proportion of small schools (al-Jawf, Sa'ada, Ma'rib, Mahweet, and Hajjah) have the lowest ratios of teachers per class.

The number of teachers per school averages 3.2 nationally with Taiz (5.3) having the highest rate and al-Jawf (1.8) the lowest. The ratio of students per teacher, however, is smallest for al-Jawf (26.7:1), Ma'rib (26.8:1), and Sa'ada (32.5:1), and largest for Ibb (54.6:1), Taiz (48.9:1), and Dhamar (47.9). Both of these patterns - teachers per school and students per teacher - are the result of school location and teacher assignment practices. It would appear that government has done a noteworthy job of assigning teachers to the more remote governorates in such a way that small class sizes help offset the disadvantages of the small school size. In general, all schools are to have standardized sizes (approximately 45:1 in primary education) but larger class sizes are found in certain urban areas. It is reported that, for the 1984/85 academic year, class sizes have increased dramatically in the Sana'a governorate relative to the data for 1983/84.

Table 4.7 presents additional information on primary education teachers with the number of male and female teachers by Yemeni or non-Yemeni origin and a detailed breakdown of non-Yemeni teachers by nationality. As with the case of female enrollments, female teachers are concentrated in the Sana'a, Taiz, and Hodeidah governorates. Hodeidah's aforementioned success in the retention of female students to Grade Six may be related to the high proportion (39.0 percent) of its Yemeni teaching staff who are women. Only 6.9 percent of the non-Yemeni teaching staff are women as opposed to 23.7 percent of the Yemeni

TABLE 4.7

PRIMARY EDUCATION TEACHERS BY GOVERNORATE, 1982/83

BY SEX AND NATIONALITY

	YEMENI TEACHERS			NON-YEMENI TEACHERS							
	MALE	FEMALE	TOTAL	MALE	FEMALE	EGYPTIAN	SUDANESE	SYRIAN	SAUDI	OTHER	TOTAL
SANA'A	335	119	454	2,781	322	2,553	246	222	32	50	3,103
TAIZ	401	191	592	2,198	178	1,813	351	156	48	8	2,376
HODEIDAH	200	128	328	888	63	638	285	15	13	--	951
IBB	219	28	247	1,523	73	1,288	200	94	9	5	1,596
DHAMAR	174	2	176	884	32	785	86	41	1	3	916
HAJJAH	111	5	116	674	31	573	112	16	4	0	705
BEIDAH	35	4	39	423	36	334	94	31	0	0	459
SA'ADA	22	--	22	354	16	319	31	19	1	0	370
MAHWEET	35	--	35	365	8	228	132	2	0	2	373
MA'RIB	7	--	7	185	8	150	41	1	0	1	193
AL-JAWF	--	--	--	103	4	92	13	2	0	0	107
TOTAL	1,539	477	2,016	10,378	771	8,773	1,591	599	108	69	11,149

Source: Ministry of Education, Educational Statistics, 1984.

teachers. However, the only female teachers in the governorates of Sa'ada, Mahweet, Ma'rib,and al-Jawf are non-Yemenis. Overwhelmingly, the non-Yemeni teaching force is dominated by Egyptians. They represent 78.7 percent of all foreign teachers and there is no governorate where they do not represent a majority of the foreign teachers and outnumber the total of the Yemeni teachers. Sudanese (14.3 percent) and Syrian (5.4 percent) citizens represent the next two largest groups of foreign primary education teachers. Of all women teachers 38.2 percent are Yemeni while only 12.9 percent of all male teachers are Yemeni.

Table 4.8 presents the contract status and qualifications for Yemeni primary education teachers. Basically, Yemeni teachers are on either permanent status or are contract teachers whose services are available for a fixed period of all Yemeni teachers and 93.9 percent of all Yemeni women teachers.

Teacher qualifications are divided into six categories: experienced (older teachers whose status is determined by their career experience rather than by formal qualifications), primary graduates, preparatory graduates, secondary graduates, and graduates of the primary teacher training institutes. Current MOE practice is to accept no primary or preparatory graduates without teacher training as teachers. The TTI graduates are indicated in the table as either (1) graduates of the now discontinued three-year postprimary TTI program or (2) graduates of the three-year postpreparatory program.

The largest group by qualification are the 503 teachers with postpreparatory TTI training. They represent 28.8 percent of all permanent teachers and 25.0 percent of all Yemeni teachers. The next largest category is the experienced teacher group with 432 teachers, 24.8 percent of all permanent teachers. The total of teachers with education - academic or teacher training - beyond the preparatory level is 784 or 45.0 percent of the total of permanent teachers. The problem of teacher supply is related, in part, to the shortage of aggregate student supply in the postpreparatory system, high opportunity costs (in terms of

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TABLE 4.8
YEMENI PRIMARY EDUCATION TEACHERS, BY CONTRACT STATUS AND QUALIFICATION
1982/83

	Permanent Teachers								Contract Teachers	
	Sex		Qualifications							
Governorate	Male	Female	Experi-enced	Primary	Prepara-tory	Second-ary	PTTI(A)*	PTTI(B)*	Male	Female
Sana'a	264	113	137	33	31	--	28	148	71	6
Taiz	337	181	42	67	85	10	32	282	64	10
Hodeidah	173	126	65	43	21	105	39	26	27	2
Ibb	172	19	41	39	41	1	34	35	47	9
Dhamar	162	--	44	68	34	--	11	5	12	2
Hajjah	111	5	59	21	14	10	9	3	--	--
Beidah	27	4	21	5	4	--	--	1	8	--
Sa'ada	21	--	12	5	2	--	1	1	1	--
Mahweet	22	--	10	7	3	--	--	2	13	--
Ma'rib	7	--	1	--	5	1	--	--	--	--
Al-Jawf	--	--	--	--	--	--	--	--	--	--
TOTAL	1296	448	432	288	240	127	154	503	243	29

*Note: PTTI (A) refers to the now discontinued three-year postprimary teacher training institutes.
PTTI (B) refers to the three-year postpreparatory institutes.

Source: Ministry of Education, Education Statistics, 1984.

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employment or additional education) faced by school-leavers (especially the male school-leavers) and the former lack of sufficient incentives to encourage individuals to become and remain teachers. The greatest probability for success in production and retention of primary school teachers appears to be among women and this is a policy option that needs to be considered because Yemenization will continue as a goal of the MOE.

4.1.4.3 Curriculum

Primary education in the Yemen Arab Republic refers to a period of general instruction during which the indivudual acquires basic information and develops the intellectual and social skills considered necessary for successful functioning as a member of the society regardless of later professional or occupational selection. This concept of primary education is consistent with the announced goal of universal primary education as part of the nation's basic strategy for manpower development. By increasing the number of individual members of the society with basic intellectual skills, the pool of human resources from which persons may be selected for further technical or professional training is enlarged. To accomplish this it is important that the success rate for completion of the program be high and that individuals entering the program do so with high probability of completing the program satisfactorily. While substantial progress has been made in increasing the number of students enrolling in Grade One, the important long-term goal is to increase the probability of successful completion through Grade Six.

Prior to the beginning of Yemenization of the curriculum in the late 1960's, almost all of the curriculum was derived by borrowing from other countries, especially Egypt. Textbooks, study guides, and other instructional materials were obtained externally, together with plans for integrating these materials in a program of instruction. Expatriate teachers were recruited to fill shortages in personnel needed for utilization of the

instructional materials. In the discussion of historical background above, a clear description of the resulting domination of primary school teaching staff by non-Yemeni teachers was presented.

The policy of Yemenization of the curriculum has led to the establishment within the MOE of a special directorate, under the Director General of Technical Affairs, responsible for overseeing curriculum development. The responsibilities of this unit include the adoption of new text materials, implementation of the curriculum, and evaluation of student performance. This policy and its implementation represent a substantial part of the intensive effort to produce new materials that will be more consistent with the goals and objectives of the educational system in Yemen and more responsive to the special needs of the student population of the YAR.

The ERDC has taken the lead in developing a research program related to curriculum issues. In addition to the study of attrition and repetition at the primary level (and its implications for curriculum) the Center also has conducted a comparative study of curriculum between the YAR and the People's Democratic Republic of Yemen and an analysis of a proposed curriculum for the YAR. Table 4.9 presents the present planned curriculum for primary education in terms of the hours per week allocated, at each grade level, to the subject areas of Islamic education, Arabic language, social studies, science, mathematics, art education, and physical education. Islamic education and Arabic language instruction dominate the time allocation at all levels; they represent 58.6 percent of class time in Grade One and 50.0 percent in Grade Six.

The only intergrade variations in the pattern of time allocation are: (1) the addition of social studies in Grade Three and an increase in its time allocation from two to four hours in Grade Five, and (2) the increase in the time for art education for two to three hours at Grades Five and Six. The pattern in Table 4.9 is the national standard which is being implemented at the classroom level.

TABLE 4.9

CURRICULUM FOR PRIMARY EDUCATION

HOURS PER WEEK

	Grade One	Grade Two	Grade Three	Grade Four	Grade Five	Grade Six
Islamic Education	8	8	8	8	8	8
Arabic	9	9	9	9	9	9
Social Studies	-	-	2	2	4	4
Science	3	3	3	3	3	3
Mathematics	5	5	5	5	5	5
Art Education	2	2	2	2	3	3
Physical Education	2	2	2	2	2	2
TOTAL HOURS	29	29	31	31	34	34

Source: Ministry of Education, Department of Curriculum, 1984.

It is important that the objectives of the educational policy become clearer in the minds of the teachers and the other implementators of this policy.

The primary school program is designed on the model of the multisubject, single classroom teacher at the first three grades and for subject specialization at the higher grades. Because of the variation in enrollments among the grades, it is common in all but the largest schools to have unitary classrooms or at least multisubject teaching in the upper grades.

An issue that separates the curriculum standard from classroom practice is that of variable attendance. Dramatic fluctuations of attendance take place over the school year. In aggregate this is related to periods of planting or harvesting. Individually, it varies according to family requirements for the school's services at home, on the farm or in the family enterprise. As a result teachers face a changing classroom population; this imposes limits in terms of the total hours of student contact in a given year and places demands on the teacher for periodic remedial instruction for which the present curriculum standard could make an improved concession. Special problems exist for the expatriates in such areas as Arabic language (where pronunciation and phrasing may differ from Yemen standards) and in social studies (where foreign teachers may be unfamiliar with the history and social institutions of Yemen).

A special role relative to the support of the continued implementation of the primary education curriculum is played by the Instructional Materials Production Center (IMPC). The IMPC administratively is a semi-autonomous agency related to the MOE. The IMPC provides an opportunity for in-service training of teachers in the preparation of visual and/or audio-visual materials that can be used as supplementary instructional resources. Preparation and use of two or three-dimensional visual materials may be important means for further Yemenization of the curriculum and instructional practices. These materials enable the instructor to produce items that assist and facilitate transmission of information in terms of locally familiar references.

A second curricular function of the IMPC is production of supplementary audio-visual materials designed on the basis of specifications provided by the MOE's Curriculum Department. Such materials constitute a growing resource to teachers at the primary school level. A third function of the IMPC, but one that is not developed fully, is the transmission of instructional materials to students who would otherwise be denied access to those materials. The use of audio-visual materials by two mobile units has been initiated in certain mountain areas where access to the normal materials is otherwise limited.

Production of printed materials such as textbooks and syllabi has been improved by the upgrading of the printing facilities in Sana'a. Distribution facilities, however, are not adequate, and materials from Sana'a may reach schools in the governorates as much as three or four months late. If new textbooks are delayed, the teacher may try to use a textbook from the previous year. The lack of textbooks is an especially difficult problem at the primary school level where students have not developed the skills required to work from transcribed notes.

4.1.4.4 Evaluation

Because of personnel limitations, national examinations at all primary grade levels are not possible and are reserved for certifying the students' completion of the primary school program. Much primary education curriculum evaluation, therefore, proceeds on measurement only of the performance of those students who complete Grade Six.

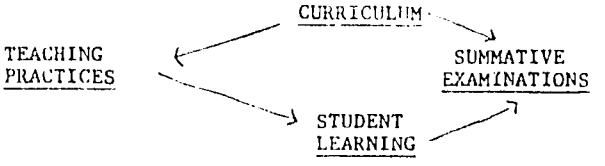
The highest authority for the examinations is the Deputy Minister. He chairs the High Commission on Examinations; the directors-general serve as members of the Commission and the Department of Examinations acts as the Commissioner's secretariate. The Commission decides all policy and general issues related to the examinations. However, the responsibility to administer the examinations is delegated to the General Directorate of Technical Affairs. Financial responsibility for the conduct of the examinations is coordinated by the General Directorate of Financial and Administrative Affairs.

Selection of questions is done so as to maintain confidentiality and the members of the Commission are sent to represent the MOE in the governorates. These members have the authority to deal with problems of administration of the examinations at the governorate level.

Table 4.10 presents the examination results for primary school-leavers for the years 1970/71 to 1983/84. Normally, more students register for the examination than are enrolled in Grade Six because previous unsuccessful candidates are not required to repeat Grade Six in order to retake the examination. The number of registrants has doubled since 1980/81, reflecting the substantial primary education enrollment increases in recent years.

Success rates on the examinations have fluctuated from the mid-40 percent range to the mid-and upper-70 percent range. The examination is criterion-rather than norm-referenced and students must make a certain absolute score to be eligible for preparatory education. The slight drop in scores in the two most recent years are not surprising and may result from the increased democratization of the primary education system as well as increased grading standards.

Any interpretation of the primary examination results must involve care because of the importance of the linkages among the curriculum, teaching practices, student learning, and the examination system. For any single cycle of curriculum implementation, the appropriate relationships among these activities may be depicted as follows:



In this simplified and idealized system, the national curriculum determines both teaching practices (including use of

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TABLE 4.10
HISTORICAL RESULTS OF THE PRIMARY
NATIONAL CERTIFICATE EXAMINATION
1970/71 - 1983/84

Year	Students registered for exam	Percent passed
1970/71	4,012	65.1%
1971/72	4,447	79.1
1972/73	5,627	57.8
1973/74	8,477	68.5
1974/75	10,778	75.0
1975/76	12,415	77.4
1976/77	15,267	52.6
1977/78	17,235	43.3
1978/79	18,766	45.3
1979/80	19,986	53.5
1980/81	20,174	74.0
1981/82	29,433	71.5
1982/83	40,134	65.0
1983/84	N.A.	65.0

Source: Ministry of Education, Educational Statistics, 1984.

textbooks and materials) and the structure and content of the examinations. The examination results are a measure of the national curriculum only to the extent that teaching practices and student learning are congruent to the activities envisioned by the authors of the curriculum. In subsequent cycles of curriculum implementation the results of the summative evaluations may be used to inform the revision of the curriculum.

As noted earlier, the Yemenization of the national curriculum has improved the classroom behavior of teachers and students for primary education. Reorienting the educational system toward instructional objectives and promoting their classroom use has been the most direct alternative for improving the academic performance of primary school students. Only after this process is complete will failure on the examination be indicative of student failure rather than inadequacies of the home, the teacher, the curriculum, or the management system.

4.1.4.5 Facilities and Equipment

The quality and mode of construction of primary schools varies within the nation by availability of local materials, the age of the buildings, and the source of funds for construction. In the last two decades primary schools have been built by the central government, Local Councils for Cooperative Development (LCD's) private donors, and bilateral and multilateral assistance agencies. Before 1980, a formula existed for tripartite sharing of facilities costs among parents, the LCCD's, and the MOE, but this system did not allow for adequate control by the MOE of the design, location, and quality of new schools. A major government concern has been the lack of standardization of facilities in terms of minimal quality and space requirements. Under the new facilities system the LCCD's have the responsibility to build schools in the locations and to the standards set by the MOE and regulated by the ministry; implementation unit. The new facilities system is expected to produce better schools at a lower initial and maintenance costs.

Table 4.11 presents a summary of facilities characteristics

TABLE 4.11
SUMMARY OF FACILITIES CHARACTERISTICS
FOR PRIMARY EDUCATION
1982/83

Facilities Characteristic	Number	Percent	Per School
Total number of schools	4,169	100.0%	--
Overall condition:			
Good	1,736	41.6%	--
Needs repair	1,114	26.7	--
Poor	1,289	30.9	--
Building material:			
Stone	2,497	59.9%	--
Cement	258	6.2	--
Brick	276	6.6	--
Wood	162	3.9	--
Other	976	23.4	--
Special facilities:			
Study rooms	12,104	--	2.90
Administrative offices	1,755	--	.42
Bathrooms	2,449	--	.59
Storage rooms	1,077	--	.26
Laboratories	209	--	.50
Electricity:			
Available	634	15.2%	--
Not available	3,535	84.8	--
Water:			
Available	425	10.2%	--
Not available	3,744	89.8	--

Source: Ministry of Education, Educational Statistics, 1984

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of the primary school buildings for 1982/83. Of the 4,169 schools in existence that year, 1,289 (30.9 percent) were in poor condition and another 1,114 (26.7 percent) needed some repair work. Stone has been the most common building material but because of increased costs it has been necessary in recent years to resort to other alternative building materials.

The table indicates the relative scarcity in most schools of special-use rooms or even of administrative office space. The data on availability of electricity and water indicate that these services are rare even for many urban primary schools.

The lack of excess capacity in existing primary schools is a major constraint on expanding primary enrollments. Continued expansion will require concomitant facilities and recurrent (primarily salary and materials) costs or else will be financed by reduced educational performance, as classrooms and buildings become even more overcrowded.

Equipment is not a major issue at the primary level because the curriculum is not oriented toward equipment requirements. For demonstration purposes, teachers are encouraged to use locally-available materials whenever possible. A lack of desks is a problem, however, in many of the less urban schools.

4.1.4.6 Costs, Financing, and Donor Support

As noted earlier, primary schooling facilities are financed cooperatively by the Central Government, the LCCD's, and the private community. However, the Central Government bears primary responsibility for recurrent costs. Recurrent costs (including donor support) for the academic year 1982/83 were estimated at YR 736,243,790 or YR 1,222 per pupil. This per-pupil expenditure is about 150 percent higher than other countries at similar stages of development.

The high unit cost is a function of the salaries of seconded teachers, which reflect incentives for out-of-country service, the high regional wage rates, and the level of formal qualifications. Approximately nine percent of the primary teaching force in 1982/83 consisted of seconded foreign nations

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whose salaries were paid in whole or part, directly by donors. The Kingdom of Saudi Arabia leads in this respect but the United Arab Emirates Qatar and Kuwait also makes a significant contribution. As a consequence of this support the MOE has full financial liability only for the salaries of Yemeni and contracted teachers. Table 4.12 provides a comparison of the salaries of seconded, Yemeni, and contracted teachers. The figures shown there indicate that the MOE has had to approximate donor salary schedules to attract Yemeni nationals into teaching.

Other donor support for recurrent costs include the GTZ's major contribution to textbook production and UNICEF's support and provision of inservice training for teachers. Unfortunately, the data on donor contributions is rarely provided by level. The information that exists has been summarized in Chapter 2.0.

Major support for capital construction has come from Kuwait and the Kingdom of Saudi Arabia. Kuwait has built and equipped 42 primary or primary/preparatory schools and Saudi Arabia has provided grants to the MOE for a total of 12 primary schools.

Although education at all levels is free in the YAR, parents contribute to non-tuition costs. Expected parental obligations in 1984/85 for a primary school child are as follows:

	Yearly Cost (Yemeni Rials)	
Exam fee	5.0	(one-time charge of YR30)
Enrollment fee	2.5	(one-time charge of YR15)
School uniforms	120.0	(2 sets required @ YR60)
Student activities	5.5	
Total	133.0	

However, many parents do not pay these full costs (especially for uniforms) and the MOE estimates the parental share of all costs at only one percent. In addition to the above fees, parents sometimes are asked for additional funds if such are needed. Parents also may purchase school materials due to the late arrival or inadequate supply of those provided by the MOE.

4.1.4.7 The Scientific Institutes and the Schools for Koranic Instruction

Two educational systems exist in parallel to the academic

TABLE 4.12

COMPARISON OF SALARIES OF YEMENI AND NON-YEMENI TEACHERS
1982/83

Item	Yemeni	Seconded	Contracted
	Yemeni Rials		
Base salary	18,600	26,640	17,415
Three years' experience	2,880	2,700	—
Graduate allowance	4,800	—	—
Teacher allowance	3,720	—	—
Rural allowance (30%)*	5,580	—	—
Housing allowance	--	9,000	—
Total	35,580	38,340	17,415

*Typical rural allowance.

Assumptions: Primary school teacher with four years' experience working in a "very rural" community. All teachers are graduates of a Teacher Training Institute or equivalent.

Source: USAID/Yemen/EMU. "Educational Sector Study - Report #3, "Educational Finances," 1982, Table 25.

primary education system: the scientific institutes and the schools for Koranic Instruction. Both provide a religiously-oriented education with a greater emphasis on Islam and Arabic studies than exists in the general primary system. Although these schools are not part of the scope of work for this assessment, some attention will be given to them here and in Chapter 5.0 because of their role in providing general education skills and the fact that students may transfer from these programs to the general academic programs at particular stages.

Table 4.13 indicates the distribution of enrollments among the 396 scientific institutes in 1982/83. The schools are located in all governorates but administratively are organized around the four largest governorates of Sana'a, Taiz, Hodeidah, and Ibb. Over one-half of the schools are operated under the administrative control of Sana'a.

Of the total enrollments, 81.5 percent are male. The distribution of total enrollments by governorate is: Sana'a, 36.3 percent; Taiz, 17.2 percent; Hodeidah, 19.2 percent; and Ibb, 25.3 percent. The grade level enrollments are significantly smaller at the higher grades and female enrollments decline from 27.3 percent of the total in Grade One to 7.0 percent of Grade Six. The scientific institutions suffer from two forms of attrition: students who leave school and those who transfer to the regular academic schools.

The total enrollments of 51,038 in primary scientific institutes compares with 60[illegible],[illegible]12 in the regular primary system. Primary scientific enrollments as a percent of all primary enrollments, by grade, are as follows:

Grade One:	8.3%
Grade Two:	7.6%
Grade Three:	7.3%
Grade Four:	8.0%
Grade Five:	7.1%
Grade Six:	8.2%
Total	7.8%

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TABLE 4.13

ENROLLMENTS IN PRIMARY SCIENTIFIC INSTITUTES

1982/83

ADMINISTRATIVE GOVERNORATE		Number of Schools	Number of Classrooms	GRADE LEVEL ONE	TWO	THREE	FOUR	FIVE	SIX	TOTAL ENROLLMENT
SANA'S	Total	204	739	5901	4618	3495	2649	1799	1099	19561
	% Male			67.8%	77.2%	82.6%	86.1%	89.3%	89.7%	78.6%
TAIZ:	Total	61	237	2885	2115	1652	1228	225	649	8754
	% Male			75.8%	81.2%	87.8%	90.2%	93.6%	96.9%	82.6%
HODLIDAH:	Total	74	321	3528	1984	1613	1248	786	637	9796
	% Male			70.5%	80.0%	76.0%	88.5%	95.2%	97.0%	79.7%
IBB:	Total	57	314	3877	3222	2358	1722	1068	680	12927
	% Male			79.8%	86.3%	88.0%	95.1%	93.5%	90.7%	86.7%
YAR:	Total	396	1611	16191	11939	9118	6847	3878	3065	51038
	% Male			72.7%	80.8%	83.8%	90.3%	90.1%	93.0%	81.5%

SOURCE: Ministry of Education, Educational Statistics, 1984.

This indicates that the existance of the scientific institutes does remove a significant burden of enrollments from the other primary schools. Of special interest is the fact that the scientific institutes actually have a higher proportion of female students than do the standard primary schools.

Table 4.14 presents the enrollments for schools for Koranic instruction in the same four governorate administrative bases as for the scientific institutes; schools exist in all governorates. These schools teach the Koran to those students who also are participating in the normal academic programs. The students study in the evening. The schools have a special curriculum that assists the student in understanding the Koran through rote memorization and individual and group recitation. Yemeni parents evaluate their childrens' reading ability in part by how well the children can read the Koran.

Teachers of these schools are both Yemenis and non-Yemenis. They are recruited from the regular academic schools and the scientific institutions. Administratively, these schools fall under the Directorate of Scientific Institutes.

Two special characteristics of Koranic education are that it may begin at the age of only three or four years and that it is attended by students who also attend the regular primary schools. Thus, enrollments by year do not indicate the relative ages of students in a very direct manner.

Given the important role of the scientific institutes and the schools of Koranic instruction, a detailed study of the teachers, facilities, and financing of both systems would be justified. This should be considered a priority follow-up exercise to this assessment of the educational sector.

4.2 ANALYSIS

In this analysis section the discussion will draw on the data and discussion contained in the status section. Since that discussion was both descriptive and analytical, the main purpose here is to summarize the analysis in terms of needs, plans, and constraints and in terms of the five summary issues of external

TABLE 4.14

ENROLLMENTS AT SCHOOLS FOR KORANIC INSTRUCTION

ADMINISTRATIVE GOVERNORATE	NUMBER OF SCHOOLS	ENROLLMENTS BY YEAR						
		ONE	TWO	THREE	FOUR	FIVE	SIX	TOTAL
SANA'A	40	1,600	803	353	73	17	-	2,846
TAIZ	21	1,199	690	325	21	-	-	2,235
HODEIDAH	87	3,417	885	337	132	13	-	4,784
IBB	13	552	245	-	-	-	-	797
TOTAL	161	6,768	2,623	1,015	226	30	-	10,662

Source: Ministry of Education, Educational Statistics, 1984.

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efficiency, internal efficiency, access and equity, administration and supervision, and costs and financing.

4.2.1 Needs

The most basic need in the area of primary education is for the present educational system to continue to be responsive to the nation's emerging economic and social requirements by creating opportunities for all children to attain basic skills. This must be done without imposing an excessive fiscal burden on the central government. As shown in Chapter 2.0, the simple expansion of the present system, with no qualitative improvements, will burden the government severely over the next decade if continuing improvements in efficiency are not introduced.

Two long-term needs for the primary education system are for Yemenization of the teaching force and for greater female participation in primary education as both teachers and students. Government has made great strides at reducing regional and size of place inequalities in access to primary education and these achievements should be maintained.

Finally, there are two major curricular issues. First, the present system of detailed instructional materials needs to be expanded to provide daily instructional programs and to assist the teacher in evaluation, remediation, and enrichment activities. Second, the curriculum of the later primary grades should be modified to provide the practical skills (appropriate to local and regional needs) for those students for whom primary education is a final, rather than preliminary, educational experience.

4.2.2 Plans

Major plans that exist relative to primary education are those for school construction, teacher production, and review of the curriculum. The ERDC has begun a coordinated school mapping study with the MOE. This survey will serve as a basis for new school location decisions based on enrollment demand, population

concentration, topographic geography, and available transportation. While new school construction will continue under the SFYP, it is probable that a considerable shortfall will occur relative to the projected number of new classrooms.

The second major plans are for the increased production of new Yemeni teachers for primary schools. These activities are covered in detail in Chapter 7.0. They are relevant here because of the financial, cultural, and pedagogical implications of the Yemenization of the teaching force.

Finally, the MOE, in cooperation with the ERDC, is expected to continue its study of curricular programs for primary education. This activity is still at a preliminary stage and will advance depending on the priority assigned to it by government and by the donor community.

4.2.3 Constraints

The three major constraints on the increased efficiency of primary education in the YAR are fiscal, manpower, and managerial in nature. Because no significant excess capacity exists in the primary education system in terms of facilities or teachers, expansion will bring with it concomitant pressures on budget resources. Increasingly, primary education will have to compete for government funds with other education and training programs (especially Sana'a University), and with other social and economic priorities of the nation.

Manpower constraints affect the primary education system most dramatically in terms of the available supply of teachers. Less obvious but equally important are the shortages of trained personnel available to the central MOE and individual GEO units. This manpower constraint is, in fact, the primary cause of the management capacity problems faced by the MOE. In addition to personnel, the management problem has its origin in Yemen's administrative traditions, the centralization of responsibility, and the constraints on the ability of administrators to delegate authority. An example of this form of constraint is the small number of personnel who can be assigned increased responsibility.

4.2.4 Summary Issues

4.2.4.1 External Efficiency

Because of the lack of labor force surveys or school-leaver tracer studies, little factual detail is known of the employment value of primary education for those students who end their formal education at the primary level. The academic orientation of the curriculum, to the extent it promotes literacy and numeracy, has direct economic value. However, there is little in the curriculum except selected reading assignments, designed to be relevant for the home economics, family trade, or agricultural pursuits of the primary school-leaver. It would be appropriate in the later primary years to add practical courses relevant to the needs of the different localities and regions.

No study exists which relates success on the national primary school examination to success in the preparatory school program. Since both primary and preparatory education have an explicit academic orientation, it may be assumed that primary education's greatest external efficiency exists in preparing the student for further education rather than for immediate employment. This is a common situation throughout the world, of course.

4.2.4.2 Internal Efficiency

Given the desired product of an academically-oriented program of instruction with an emphasis on literacy and numeracy, the internal efficiency of the primary system is defined in terms of how well this product is achieved. The major internal efficiency problems in primary education are (1) high attrition/repetition rates and (2) the need for continued improvement in instructional materials and practices.

The high attrition and repetition rates mean that it requires a large number of student years of instruction to produce a single graduate from primary education. Given that it is graduates and not students that are the goal of the system, this high student-year expense represents inefficient operation of the system. Because education serves screening and access opportunity roles in addition to its instructional role, some

attrition and repetition is justified. In the present system, however, the overcrowding at early grades forces out students before they have a chance to show whether they can benefit from education.

A second factor affecting the wastage rates in primary education is the removal of female students from school before the end of the primary cycle. The resources expended in educating these students is either wasted or underutilized depending upon the permanency of the skills they take with them when they leave school.

The second major internal efficiency issue has to do with maintaining and continuing improvements in instructional quality. In the YAR, the primary classroom is teacher-and textbook-oriented. Some teachers may not be aware of the national education policy or of the official curriculum. Also, textbooks may not be available in schools on time, and some may not reach the school at all.

An additional factor is that the teaching methodology is one designed for a student/teacher ratio of 40 to 50 students to each teacher. The reality in some urban classrooms is that, in Grades One and Two, the ratios may be more than double this level while in Grades Five and Six the ratio is substantially smaller. Thus, teachers are unable to conduct appropriate instruction in early grades and are underutilized in the upper grades.

4.2.4.3 Access and Equity

One of government's marked successes in primary education has been the regionalization of primary education acce . Given the YAR's level of economic and educational development, a substantial dissemination of schools among the governorates and between urban and rural areas has occurred. While much remains to be done to promote access in more remote areas, a strong foundation has been established for regional equity.

The most dramatic access/equity problem is that of females. Without impinging on the cultural issues that restrict female participation, there are two main adjustments that could be made

to promote the participation of females whose parents wish them to continue their education. The first is the priority recruitment of female teachers. Parents show a reduced reluctance to allow their daughters to continue in school when female teachers are available.

A second factor is the availability of female-only schools or female-only classes in the coeducational schools. Between the ages of ten and twelve, female students are likely to begin to be removed from school if separate instruction is not available for them. The data presented earlier suggests that while coeducational instruction is utilized by female students in early grades, that by Grade Four or Five, retention of female students is highly correlated with the availability of female-only schools. To solve the retention problem (as well as to allow for the production of greater numbers of female teachers in the future), there should be a priority established for the construction of classrooms for female use.

4.2.4.4 Administration and Supervision

The most important issues of administration within the MOE were discussed in the Management Capacity chapter, (3.0). In summary, the points most relevant to primary education are (1) the need for increased school-level administrative training to improve teacher guidance and support; (2) prompt distribution of syllabi, textbooks, and support materials; (3) improved communication between the central MOE's offices and those of separate GEO's; and (4) more efficient role for the Department of Instructional Guidance.

4.2.4.5 Costs and Financing

The relatively high costs of primary education are the result of the use of expatriate teachers and the level of required qualifications. These conditions pose an immediately critical financial burden. At present this burden is partly reduced because of the proportion of donor support to the government that is used to meet the salary obligations. These salary burdens also pose a problem for the future. Expatriate contract

teachers, who increasingly are a responsibility solely of government, will continue to increase in absolute numbers even if Yemenization reduces the proportion of foreign teachers. Also, the expansion of enrollments will result in an increased teacher wage bill in aggregate. Even if the donors maintain their current levels of support there is no reason to believe they will increase their support to match these new demands.

A second cost/financing issue was raised earlier in the discussion of facilities. There is a need to maintain, and perhaps to expand, the cooperative financing scheme wherein parents, the LCCD's and government combine to finance school construction. Under the present system, government control over school facilities and instructional content may be maintained without curbing the expansion of primary education needed for social and economic development and demanded by parents and students.

Another policy alternative is for government to explore the private educational alternative in those areas where individual resources make this choice feasible. The nature of private education appropriate for the YAR would permit the maintenance of government standards and control over curriculum content.

4.3 MAJOR RECOMMENDATIONS

4.3.1 Programmatic Concerns

Recommendation 1: To extend the dissemination of the primary education curriculum in a format sufficiently detailed to allow for further enhancement fo the existing teaching system. The implementation of this option would assist primary education in three main ways. First, it would add additional detail to the coverage of topics and assure an even greater congruence between the content of the national curriculum and instruction at the classroom level. (In addition, it would promote congruence between instruction and examination content.)

Second, the improvements in the instructional system would allow for the use of teachers with little preservice teacher

training or experience at the same time it enhances the instructional capability of qualified teachers. The third benefit of the curricular improvement option is derived from the second. Substantial fiscal benefits would result from promoting the expansion of the number of teachers without undue increases in training costs and increasing the effectiveness of teachers with the existing level of formal qualifications. These fiscal considerations are critical ones, given the recurrent cost-burdens posed by the anticipated level of expansion in primary education over the next decade.

Recommendation 2: Improve school mapping so as to increase the efficient planning of new school locations. The mapping exercise should include the collection of demographic and transportation access data so as to assure that new schools will be utilized efficiently. A priority should be placed on schools which enhance rural and female participation, as these groups offer the greatest gains in enrollment and their increased participation would promote government's national objectives. It is important to consider the cultural preference for female-only classes and schools in the design of the school mapping/location study. The mapping exercise presently being implemented by the LRDC should incorporate the concepts noted here.

Recommendation 3: If the expansion of primary education is to be conducted in line with national needs and community desires, there must be an expansion of the current cost-sharing arrangement among government, the LCCD's, and the parents and community. This cost-sharing arrangement cannot involve any abregation of the MOE's ultimate responsibility for curriculum content, facility quality specifications, and teacher recruitment and assignment. New school construction should be partly dependent on the local community's ability to mobilize its own resources in line with incentives established by the MOE. No area will be denied schooling because of a lack of cost-sharing, but schools should be supported at the level the individual, the community (whether through the LCCD or another organization), and government can afford.

4.3.2 Summary Issues

Recommendation 1: To increase both internal and external efficiency, there is no need to change the present emphasis on Islamic education, literacy, numeracy, and practical instruction. However, there is a need to show the students the applicability of these subjects in there local community. Instruction should support both continued educational attainment and the relevance of primary education for immediate postprimary employment. This reform must be accompanied by greater information on and support for the training and employment options that exist in the community and region. Unfortunately, expatriate teachers come from a different instructional tradition; in addition, they also are less likely to be informed concerning the training and employment opportunities that exist in Yemen. Therefore, the MOE will have to assist in the development of appropriate counseling materials.

Recommendation 2: To improve access and equity, school expansion and new school construction should be targeted on those areas where the greatest demand for education remains unsatisfied. Regionalization needs to be continued but with a corollary priority on remote areas and increased access among females.

Recommendation 3: The major short-term improvement that could be accomplished in the area of administration and supervision would be the upgrading of the Department of School Guidance to a major source of instructional support. This might require training resources to prepare the staff for their expanded duties and transportation resources to allow them to visit schools on a more regular basis. The guidance advisors should continue to operate from the GEO's or, where operational, the Education Centers, so as to maximize their proximity to their school clients. There will be an increasing need for more guidance advisors as the primary education system continues its rapid expansion.

Recommendation 4: In the area of costs and financing, the major option available (in addition to the co-financing

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arrangement discussed above) is the greater use of private sector resources. There are two areas where this could be accomplished. The first is in textbook and instructional materials distribution. This has been a major area of bottleneck for the primary education instructional system. While government may wish to continue its subsidy of production and even to establish maximum prices, the efficient private sector in the YAR has a major advantage in the distribution of materials to the various towns and villages of the nation.

A more dramatic step would be for government to encourage the expansion of private schools. The appropriate form of privatization for the YAR at this time would require continued MOE control over curriculum and teacher qualifications, but these would exist as minimum rather than maximum requirements. To the extent that a part of the school-age cohort is absorbed by private education, government resources would be freed for qualitative and quantitative expansion of the public system.

4.3.3 Recommendations for Further Analysis

The above recommendations will require a set of analytical exercises prior to their implementation. The most important are the continued process to improve the curriculum, the dissemination of detailed teaching support materials, and the conduct of a school mapping project involving demographic and transportation determinants.

There also exists a need to build on the success of the ERDC study of primary education attrition and repetition. The most effective next step is a sample study of the students that graduate from primary school (or drop out after achieving literacy or numeracy) and do not continue their formal education. The detailed information from this study should be combined with a national inventory of postprimary education training and employment opportunities. The combined findings will serve as a superior basis for MOE planning for the primary education subsector as well as for the development of improved counseling information for all primary education students.

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5.0 PREPARATORY AND SECONDARY EDUCATION

5.1 STATUS

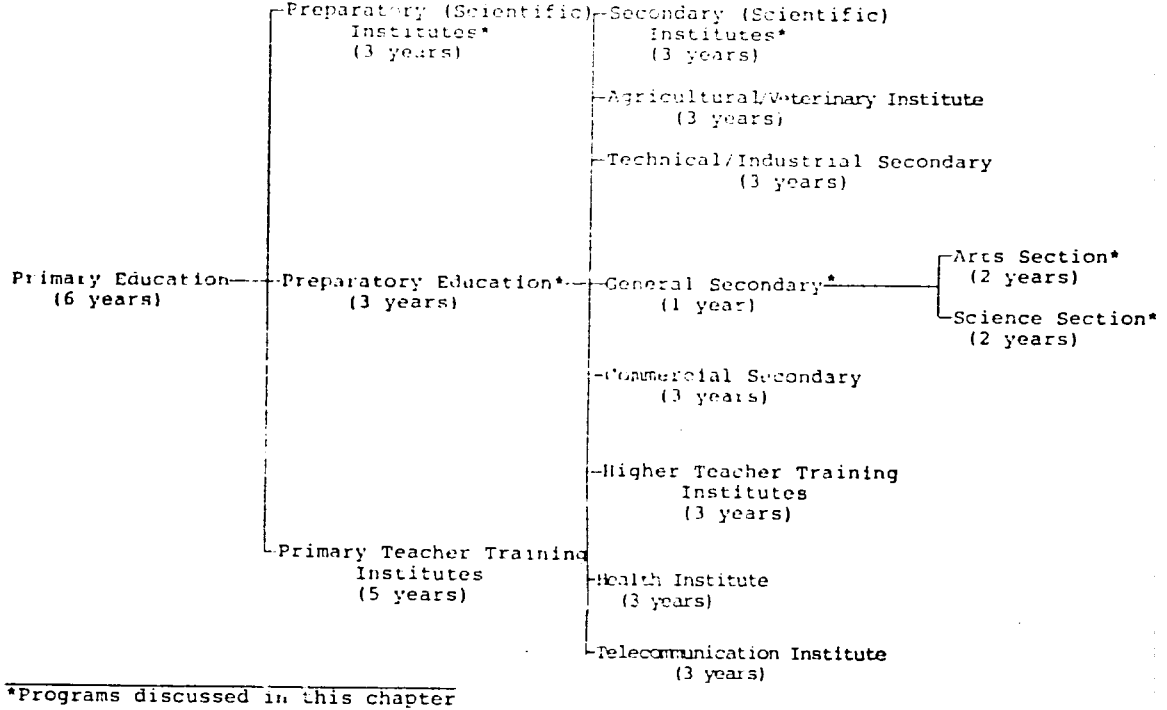
5.1.1 Historical Setting

The formal education system in the YAR between the primary and higher education levels is a complex one. The first three years of postprimary education is called the preparatory or intermediate stage and the subsequent three years are the secondary stage. Figure 5.1 summarizes the preparatory and secondary stages as they exist at present. Religious scientific institutes exist at the preparatory and secondary levels (as they did for primary education) as a parallel system of formal instruction. The five-year primary teacher training institutes exist both as separate institutions and as attachments (physically and in terms of staff and curriculum) to preparatory/secondary institutions. Although classified as separate programs, it is not unusual for preparatory and secondary classes to operate in the same building or at the same location.

These postprimary programs are even newer to Yemen than are the primary programs discussed in the preceding chapter. By the end of 1949 there were only two postprimary schools in Sana'a; Taiz and Hodeidah had one secondary school each. Education beyond the primary level simply did not exist elsewhere in Yemen at that time.

In this chapter consideration will be reserved for the academic (arts and science) streams of secondary education, and some attention will be given to the scientific institutes. The technical-industrial secondary schools and the commercial secondary schools are discussed in Chapter 6.0 and the teacher training institutions are covered in Chapter 7.0. The agricultural secondary schools were not included within the scope of work for the assessment because recent reports have dealt with these programs in some detail.

FIGURE 5.1
POST PRIMARY EDUCATION OPTIONS IN THE YEMEN ARAB REPUBLIC



*Programs discussed in this chapter

Source: Ministry of Education, Educational Statistics, 1984.

Table 5.1 presents the historical development of preparatory and secondary education in terms of the physical growth (numbers of schools and classrooms) and the level of enrollments by grade level. The years covered are 1962/63, 1969/70, and 1974/75 to 1982/83. In 1962/63 there were only three preparatory schools with 17 classrooms; enrollments totalled 730 with 63 percent of this total in the first grade level (Year Seven). No statistics are available for secondary schools for the 1962/63 academic year.

By 1969/70 there were 20 preparatory schools with 84 classrooms and 3,118 students (with over 50 percent of the students, however, still in the first level). In the same year four secondary schools were operating with 939 students attending in 23 classrooms. The level of preparatory enrollments has increased each year since 1974/75 with the exception of 1978/79. These enrollment increases were achieved even though the number of preparatory schools decreased from 134 in 1975/76 to 97 in 1976/77. This decline in school numbers is attributed to three factors: (1) the premature opening of preparatory schools in earlier years in areas where sufficient enrollment could not be maintained; (2) consolidation of small preparatory schools; and (3) the conversion of some classrooms of preparatory schools to use as primary classrooms to meet the increasing demand at that level. The decline in number of classrooms was less dramatic in 1976/77 and since that time both numbers of schools and classrooms have increased each year.

As preparatory schools were opened in less urban areas the average school size declined from 243 students in 1962/63 to 119 in 1975/76. This pattern of decline was offset temporarily in 1976/77 when average enrollments per school increased to 177 because of consolidations and closing of the smallest schools. Average enrollments peaked at 204 in 1977/78 and have declined since to a range between 100 and 105 students per school in the four most recent years. As always, these averages disguise the bimodal pattern of enrollments with the small number of very

TABLE 5.1
PREPARATORY AND SECONDARY ENROLLMENTS, BY GRADE
1962/63 - 1982/83

	Preparatory Schools						Secondary Schools					
			Enrollments						Enrollments			
Year	Number of Schools	Number of Class-rooms	1st Year	2nd Year	3rd Year	Total	Number of Schools	Number of Class-rooms	1st Year	2nd Year	3rd Year	Total
1962/63	3	17	457	182	91	730	--	--	--	--	--	--
1969/70	70	84	1579	876	663	3118	4	23	406	266	267	939
1974/75	98	372	5159	3814	3190	12163	25	113	1805	1454	1091	4350
1975/76	134	498	6816	4859	4244	15919	27	159	2601	1872	1577	6050
1976/77	97	421	7510	5631	4535	17676	24	174	2883	2297	2017	7197
1977/78	104	470	7993	7012	6258	21263	30	186	2904	2729	2340	7973
1978/79	135	558	6965	6133	5754	18852	37	195	3017	2011	2137	7165
1979/80	197	655	8342	5970	6452	20764	55	249	2742	3040	2437	8219
1980/81	246	835	10838	7245	6954	25037	68	305	3981	2550	3364	9895
1981/82	314	976	15429	9740	7359	32528	94	363	5058	3685	3088	11831
1982/83	420	1302	20332	13325	9645	43302	117	407	5070	3576	3338	11984

Source: Ministry of Education, Educational Statistics, 1984.

large schools offsetting the large number of schools with low enrollments.

Until 1980, secondary education in the YAR followed a more gradual and consistent pattern of growth. However, in the three years from mid-1980 to mid-1983 more new secondary schools (62) were opened than had existed in the history of the nation. These new schools have fewer classrooms and the lower enrollment levels are indicated by the aggregate decline from 149 students per school in 1979/80 to an average of 102 students in 1982/83. This pattern is an inevitable result of government's attempts to extend schooling into the more rural locations in the nation.

Preparatory education is not seen by most students as a terminal level of education. The first-year class of secondary school as a percentage of the previous year's third-year preparatory class serves as a useful indicator of progression rates between the levels. (The statistic is not exact because of possible repetition in each of the two grade levels). For the last five cohorts in Table 5.1 the following progression rates may be obtained:

1977/78 - 1978/79:	.482
1978/79 - 1979/80:	.477
1979/80 - 1980/81:	.617
1980/81 - 1981/82:	.727
1981/82 - 1982/83:	.689

Keeping in mind the multiple other alternatives in postpreparatory education, these figures also indicate the high preference students manifest for continuing their education in the academic stream. The major barriers to even larger numbers of academic secondary students are the preparatory leaving exam and the lack of some classes in academic secondary education in certain remote areas, due to the insufficient number of students; and as the number of secondary students increases in remote areas it becomes more probable that classrooms will be available.

Table 5.2 reviews the historical development of the teaching force for preparatory and secondary education. The

TABLE 5.2

HISTORICAL DEVELOPMENT OF TEACHERS IN PREPARATORY AND SECONDARY EDUCATION, 1970/71-1982/83

YEAR	Preparatory Education					Secondary Education				
	Yemeni Teachers	Non-Yemeni Teachers	Total	Percent Yemeni	Student Teacher Ratio	Yemeni Teachers	Non-Yemeni Teachers	Total	Percent Yemeni	Student Teacher Ratio
1970/71	46	95	141	32.6%	25:1	-	60	60	- %	21:1
1971/72	44	293	337	13.1%	17:1	14	113	127	11.0%	32:1
1972/73	62	288	350	17.7%	21:1	-	145	145	-	16:1
1973/74	62	417	479	12.9%	20:1	12	269	281	4.3%	11:1
1974/75	-	543	543	-	22:1	-	233	233	-	19:1
1975/76	39	671	710	5.5%	22:1	12	320	332	3.6%	18:1
1976/77	-	713	713	-	25:1	-	341	341	-	21:1
1977/78	-	670	670	-	31:1	-	383	383	-	21:1
1978/79	64	730	794	8.1%	24:1	22	507	529	4.2%	14:1
1979/80	119	942	1061	11.2%	20:1	28	587	615	4.6%	14:1
1980/81	105	1302	1407	7.5%	18:1	30	586	616	4.9%	16:1
1981/82	79	1560	1639	4.8%	20:1	32	775	807	4.0%	15:1
1982/83	157	2224	2381	6.6%	18:1	63	988	1051	6.0%	11:1

SOURCE: Ministry of Education, Educational Statistics, 1984.

figures indicate an even more dramatic dependence on foreign teachers than was the case for primary education. The Faculty of Education does not graduate a big enough number of teachers to meet the demands of preparatory and secondary education. The insufficient number of graduates who join the teaching career decreases even further given the fact that many of these graduates are hired by the MOE for administrative jobs. Perhaps most disturbing is the indication of the difficulty of retaining the Yemeni teachers once they are employed. The normally high opportunity costs for the teachers are accentuated because the formal educational requirements for teaching at this level are for a university degree or equivalent. A Yemeni with this level of qualifications normally can do much better financially outside the teaching profession.

The percentage of Yemeni teachers at the preparatory level has been especially variable. This reflects the interaction of aggregate teacher demand and the relative availability of Yemeni and non-Yemeni staff. In recent years the rate has remained below ten percent for Yemeni teachers relative to the total number of teachers. The secondary pattern has fluctuated around five percent. The doubling in the number of Yemeni teachers in 1982/83 was offset almost totally by the aggregate increase in the number of teachers required. The discussion of teacher demand and supply in Chapter 2.0 suggests that the Yemenization of the preparatory/secondary teaching force, while not as serious a problem as for primary education, will remain a problem for the next two decades unless major policy reforms are made related to training and formal qualification requirements.

5.1.2 National Goals and Strategies

The SFYP goals related to the pre-University educational system were cited in Chapter 4.0. The specific objectives seen for preparatory and secondary education reflect a possible conflict between individual and social goals. Individual

behavior suggests that most postprimary students view the preparatory and secondary system as a transition to higher education either at Sana'a University or abroad. While government recognizes the need for highly-trained manpower with baccalaureate or diploma training, it also understands that the greatest shortfall in manpower demand versus supply is likely to occur at the middle levels of educational attainment (between postprimary and university).

At present, the information available about incentives do ot provide enough encouragement to channel sufficient numbers of students into the nonacademic streams of secondary education. In addition, there is a need for greater counseling and employment assistance so that students who end their formal education at the preparatory or secondary level may identify appropriate jobs and training opportunities. Finally, government must review its own salary structure that provides a relatively low rate of return for terminal secondary education and substantial returns for university education.

5.1.3 Organizational Structure

Preparatory education and secondary education are directed from a separate departmental unit within the General Directorate of Education. The organizational structure is similar to that for primary education with implementation of programs and data collection and related activities delegated to the Governorate Education Offices. Problems of coordination are reduced relative to primary education because of the smaller number of schools and the schools' concentration in more accessible areas.

The major management problem in addition to the assignment of teachers is the support and supervision of instruction. The instructional syllabi, textbooks, and support materials have been consistently late in arriving at the schools. An improved delivery system is a prerequisite for greater instructional effectiveness at the preparatory and secondary level.

A related issue is the role of the guidance advisors and inspectors. The number of schools on one hand, and the staffing and transportation inadequacies on the other, combine to prevent the advisors and inspectors from accomplishing their goal of becoming instructional resource persons to the teachers of the preparatory and secondary system.

5.1.4 Programmatic Concerns

5.1.4.1 Student Enrollments and Characteristics

Table 5.3 presents detail on preparatory and secondary enrollments in 1982/83. Information is provided by governorate, sex of student, and grade level. The enrollments in the second and third year of academic secondary education are further detailed by arts or science specialization.

Of the 43,302 preparatory students in 1982/83, 87.7 percent were males. Of the 37,966 males, 27.1 percent were in the Sana'a governorate and 24.9 percent in Taiz. When the enrollments of Ibb and Hodeidah are added to the two largest governorates, one finds that 83.4 percent of all male students and 96.5 percent of all female students at the preparatory level are in school in one of these governorates.

Hodeidah and Taiz governorates have a higher percentage of national female enrollments than of male enrollments at the preparatory level; this reflects the similar pattern identified for primary education enrollments. These governorates have not only had greater success in retaining female students to the preparatory entry level, but also maintain their advantage through the preparatory cycle.

The concentration of schools in the four largest governorates is even greater at the secondary level. Sana'a and Taiz have 71.0 percent of all male enrollments and 78.7 percent of all female enrollments (but with Sana'a now surpassing Taiz with the two governorates having 58.8 percent and 19.9 percent of female enrollments respectively). When Ibb and Hodeidah are added, the four governorates are seen to have

TABLE 5.3
PREPARATORY AND SECONDARY ENROLLMENTS, BY GOVERNORATE
1982/83

Governorate		Preparatory				Secondary					
		1st Year	2nd Year	3rd Year	Total	1st Year	2nd Year Arts	2nd Year Science	3rd Year Arts	3rd Year Science	Total
Sana'a	- Male	4784	3185	2330	10299	1527	956	256	740	441	3920
	Female	707	579	390	1676	301	159	103	127	128	818
Taiz	- Male	7128	4517	3602	15247	1695	882	237	539	244	3597
	Female	1106	764	479	2349	115	52	39	40	31	277
Hodeidah	- Male	1894	1180	916	3990	582	275	88	326	134	1405
	Female	311	313	175	799	80	33	11	35	41	200
Ibb	- Male	1963	1301	864	4128	435	123	151	122	120	951
	Female	146	93	85	324	33	4	14	5	14	70
Dhamar	- Male	718	505	314	1537	94	30	17	50	34	225
	Female	29	31	16	76	6	7	--	--	8	21
Hajjah	- Male	362	221	147	730	73	35	22	33	42	205
	Female	12	12	6	30	1	--	--	--	1	2
Beidah	- Male	433	265	129	827	59	34	--	28	--	121
	Female	31	15	10	56	--	3	--	--	--	3
Sa'ada	- Male	235	122	71	428	26	14	--	11	--	51
	Female	20	--	--	20	--	--	--	--	--	--
Mahweet	- Male	298	130	47	475	23	17	--	32	--	72
	Female	1	--	--	1	--	--	--	--	--	--
Ma'rib	- Male	151	91	63	305	20	14	--	12	--	46
	Female	3	1	1	5	--	--	--	--	--	--
Al-Jawf	- Male	--	--	--	--	--	--	--	--	--	--
	Female	--	--	--	--	--	--	--	--	--	--
TOTAL	- Male	17966	11,517	8483	37,966	4534	2380	771	1893	1015	10593
	Female	2366	1808	1162	5336	536	258	167	207	223	1391

Source: Ministry of Education, Educational Statistics, 1984.

93.3 percent of all male enrollments and 98.1 percent of total female enrollments.

Male enrollments in secondary education represent 88.4 percent of the total 10,593 students at this level in 1982/83. This is approximately equal to the proportion of males at the preparatory level that year. Female students, once in postprimary education, appear to have similar retention rates to those for males. This is especially so in the largest governorates.

The secondary science program alternative exists in only six of the eleven governorates (Sana'a, Taiz, Hodeidah, Ibb, Dhamar, and Hajjah). No preparatory or secondary education exists for the sparsely-settled al-Jawf governorate in 1982-83. With the exception of Ibb and Hajjah, the science program enrollments significantly out number those in the arts programs. There is a greater proportional representation of female students in the arts program than in total secondary enrollments.

Tables 5.4 and 5.5 present the distribution of schools and classrooms by governorate and by type (male/female/coeducational) for the preparatory and secondary educational levels respectively. In Table 5.4, it may be seen that the majority of schools are male-only schools. In 1982-83 four governorates (Hajjah, Mahweet, Ma'rib, and al-Jawf) have no female-only schools and Dhamar, Beidah, and Sa'ada have only one each. Unlike the case for primary education, however, the large majority of females (75.9 percent) are in female-only rather than coeducational schools. Male students constitute 90.3 percent of the students in the coeducational institutions. The distribution of total preparatory enrollments by type of school is as follows: male-only, 60.1 percent; female-only, 9.4 percent; and coeducational, 30.5 percent.

Table 5.5 represents enrollment data for secondary education, again by governorate and type of school. Seventy-seven of the 117 secondary schools are for males only.

TABLE 5.4
PREPARATORY SCHOOL AND CLASSROOM DISTRIBUTION
BY GOVERNORATE
1982 - 1983

Governorate	Male		Female		Coeducational	
	Schools	Classes	Schools	Classes	Schools	Classes
Sana'a	61	210	6	29	22	80
Taiz	63	256	5	35	81	233
Hodeidah	17	69	6	24	7	34
Ibb	20	43	2	5	15	41
Dhamar	28	77	1	3	1	3
Hajjah	8	16	—	—	7	23
Beidah	9	23	1	3	3	15
Sa'ada	12	25	1	1	1	3
Mahweet	14	25	—	--	1	3
Ma'rib	6	18	—	--	2	5
Al-Jawf	--	--	--	--	--	--
TOTAL	258	762	22	100	140	440
Male Enrollment:	26,030		--		11,936	
Female Enrollment:	—		4,050		1,286	

Source: Ministry of Education, Educational Statistics, 1984.

TABLE 5.5
SECONDARY SCHOOL AND CLASSROOM DISTRIBUTION
BY GOVERNORATE
1982 - 1983

	Male		Female		Coeducational	
Governorate	Schools	Classes	Schools	Classes	Schools	Classes
Sana'a	19	96	2	19	2	10
Taiz	27	76	4	20	16	41
Hodeidah	10	45	1	8	2	3
Ibb	6	10	1	2	5	18
Dhamar	3	9	1	3	1	3
Hajjah	3	7	--	--	3	11
Beidah	2	5	--	--	2	3
Sa'ada	2	4	--	--	--	--
Mahweet	1	3	--	--	--	--
Ma'rib	4	11	--	--	--	--
Al-Lawi	--	--	--	--	--	--
	77	266	9	52	31	89

Male Enrollment:	8,808	—	1,785
Female Enrollment	—	1,271	120

Source: Ministry of Education, Educational Statistics, 1984.

These schools have 73.5 percent of total enrollments with 10.6 percent in female-only schools and 15.9 percent in coeducational schools. Males make up 88.4 percent of total enrollments. Again, female enrollments are concentrated in the female-only schools. Female students make up only 6.3 percent of all enrollments in the coeducational secondary schools. No female enrollments exist in Sa'ada, Mahweet, Ma'rib, or al-Jawf (the last having no preparatory or secondary enrollments at all in 1982-83).

The future trend for enrollments is toward greater numbers of rural and female students. The growth in these presently underrepresented populations, however, will be constrained by lack of facilities and teachers and by competing demands for increased attendance by male and urban populations.

5.1.4.2 Teachers

Table 5.6 presents a summary of teacher distribution in the preparatory and secondary educational systems for 1982/83. Teachers are presented in terms of sex, nationality, educational level in which they teach, and by governorate.

There were in the 1982/83 school year only 157 Yemeni preparatory education teachers and 63 Yemeni teachers in secondary education. Excluding al-Jawf, three governorates (Dhamar, Mahweet, and Ma'rib) had no Yemeni teachers at either level. Beidah and Sa'ada had only one Yemeni teacher each. Over one-half of all Yemeni teachers at the preparatory and secondary level were located in the single governorate of Taiz.

Only 10.9 percent of the Yemeni teachers were females. All of the female Yemeni teachers were located in either Sana'a (13) or Taiz (11). Of the expatriate teachers, 8.7 percent (193) were women and they taught in seven of the governorates. The largest proportion of female teachers were in Sana'a where they constituted 18.6 and 17.5 percent of the preparatory and secondary teaching staffs respectively.

The preponderance of expatriate teachers were Egyptians; they represented 87.1 percent of all expatriate teachers at the

TABLE 5.6
PREPARATORY AND SECONDARY EDUCATION TEACHERS, BY GOVERNORATE 1982/83
BY SEX AND NATIONALITY
1982 - 1983

Governorate		Yemeni Teachers			Non-Yemeni Teachers							
		Male	Female	Total	Male	Female	Egyptian	Sudanese	Syrian	Saudi	Other	Total
Sana'a	- Preparatory	34	7	41	478	109	475	33	23	11	45	587
	- Secondary	9	6	15	255	54	274	5	13	2	15	309
Taiz	- Preparatory	73	10	83	830	51	786	38	19	9	29	881
	- Secondary	31	1	32	287	2	264	7	4	4	10	289
Hodeidah	- Preparatory	15	--	15	180	18	165	12	2	11	8	198
	- Secondary	4	--	4	102	5	101	3	1	1	1	107
Ibb	- Preparatory	10	--	10	181	9	175	9	4	--	2	190
	- Secondary	6	--	6	102	--	98	4	--	--	--	102
Dhamar	- Preparatory	--	--	--	107	1	107	1	--	--	--	108
	- Secondary	--	--	--	52	2	54	--	--	--	--	54
Hajjah	- Preparatory	6	--	6	70	1	68	2	--	--	1	71
	- Secondary	6	--	6	43	1	44	--	--	--	--	44
Beidah	- Preparatory	1	--	1	61	4	55	7	1	--	2	65
	- Secondary	--	--	--	36	--	35	--	1	--	--	36
Sa'ada	- Preparatory	1	--	1	39	--	34	2	2	--	1	39
	- Secondary	--	--	--	20	--	19	--	--	--	1	20
Mahweet	- Preparatory	--	--	--	39	--	36	3	--	--	--	39
	- Secondary	--	--	--	7	--	6	1	--	--	--	7
Ma'rib	- Preparatory	--	--	--	46	--	35	3	7	--	1	46
	- Secondary	--	--	--	20	--	18	2	--	--	--	20
Al-Jawf	- Preparatory	--	--	--	--	--	--	--	--	--	--	--
	- Secondary	--	--	--	--	--	--	--	--	--	--	--
TOTAL	- Preparatory	140	17	157	2031	193	1935	110	58	31	89	2224
	- Secondary	56	7	63	924	64	913	22	19	7	27	988

Source: Ministry of Education, Educational Statistics, 1983.

preparatory level and 81.3 percent of all teachers, Yemeni and non-Yemeni. At the secondary level, Egyptian staff were 92.4 percent of all expatriate teachers and 86.9 percent of all teachers.

At the preparatory level, 136 of the Yemeni teachers (86.6 percent) were university degree holders. Of the total 157 Yemeni teachers, 147 were permanent and ten were contract teachers. The majority of expatriate teachers had university or equivalent training. The total expatriate teaching force at the preparatory level consisted of 1,887 seconded teachers and 337 contract teachers. At the secondary education level, 45 of the Yemeni teachers (71.4 percent) had university degrees. Fifty-eight of the 63 Yemeni teachers were permanent and the rest were contract teachers. Eight hundred ninety of the expatriate staff of 988 were seconded teachers and the remainder were on contract with the YAR.

Table 5.7 presents some summary statistics indicative of teacher utilization at the preparatory and secondary level. Teachers at preparatory or secondary schools who do not have a full schedule would be assigned also at a primary school to complete his/her schedule. One must remember that the variety in actual teaching situations within and among the governorates means that one must interpret these averages with even greater care than is required normally.

The teachers-per-class statistic is remarkably consistent among the governorates at the preparatory level. It varies only between 1.4 and 2.2; the ratio of teachers to classes exceeds 1.0 because of subject matter specialization in the preparatory schools. This statistic is more dramatic in secondary education where it varies among the governorates from 2.8 to 5.0. Of course, subject specialization is more common at the secondary level and schools in the more rural governorates are not able to use all subject specialists efficiently. This is not an administrative issue; rather it is an inherent expense of regionalizing education into the less populated areas.

TABLE 5.7
TEACHER UTILIZATION IN PREPARATORY AND SECONDARY SCHOOLS
BY GOVERNORATE

Governorate	Preparatory Education			Secondary Education		
	Teachers per class	Teachers per school	Student: teacher ratio	Teachers per class	Teachers per school	Student: teacher ratio
Sana'a	2.0	7.1	19.1	2.6	14.1	14.6
Taiz	1.8	5.7	18.3	2.3	6.8	12.1
Hodeidah	1.7	7.1	22.5	2.0	8.5	14.5
Ibb	2.2	5.4	22.3	3.6	9.0	9.5
Dhamar	1.3	3.6	14.9	3.6	10.8	4.6
Hajjah	2.0	5.1	9.9	2.8	8.3	4.1
Beidah	1.6	5.1	13.4	4.5	9.0	3.4
Sa'ada	1.4	2.9	11.2	5.0	10.0	2.6
Mahweet	1.4	2.6	12.2	2.3	7.0	10.3
Ma'rib	2.0	5.8	6.7	1.8	5.0	2.3
Al-Jawf	--	--	--	--	--	--
TOTAL	1.8	5.7	18.2	2.6	9.0	11.4

Source: Ministry of Education, Educational Statistics, 1984.

A similar pattern is found in the teachers-per-school statistic. This varies from 2.6 to 7.1 in preparatory education and from 5.0 to 14.1 in secondary education. The most useful statistic of the three presented in Table 5.7, however, is the student/teacher ratio. For preparatory education the ratio varies from 6.7 students per teacher in Ma'rib to 22.5 students per teacher in Hodeidah. The national average is 18.2. For secondary education, the ratio varies from 2.3 students per teacher in Ma'rib to 14.6 students per teacher in Sana'a. The national average is 11.4 students per teacher.

These data indicate that, unlike the case for primary education, a substantial excess capacity exists in preparatory and secondary education. Although not explicit in Table 5.7, this capacity exists in all governorates but not in the major cities. In those urban areas, facilities and teachers are much closer to full utilization. Thus, the preparatory and secondary schools can absorb increases in rural enrollments (in the environs of existing schools) at less expense than they can absorb further increases in urban enrollments.

5.1.4.3 Curriculum

In the academic stream, students follow a common program of studies through preparatory education and for the first year of secondary education. The program emphasis remains on Islamic education, Arabic, and mathematics with English language studies beginning at the first grade of the preparatory stage.

Table 5.8 presents the design for the secondary education curriculum in terms of the hours per week spent on each subject. A standard six courses a day (each course of 45 minutes), and a six day-week-program is assumed, although this cannot be achieved in all schools with double shifts. Daily instruction will take place in all major subject areas. Subject areas such as art and physical education will not be offered if time does not permit. Schools with double shifts assign the mornings to secondary education given its importance.

TABLE 5.8

GENERAL SECONDARY CURRICULUM
1983/84

COURSES	COMMON	SCIENTIFIC STREAM		ARTS STREAM	
	1st Year	2nd Year	3rd Year	2nd Year	3rd Year
Islamic Education	6	5	4	6	6
Arabic	6	5	5	8	8
English	6	6	6	6	7
History	2	-	-	3	3
Geology	2	-	-	4	4
Sociology	-	-	-	-	5
Social Studies	1	-	-	-	-
Social Science	-	-	-	1	-
Economics	-	-	-	2	-
Mathematics	5	7	8	3	-
Physics	2	3	3	-	-
Chemistry	2	3	3	-	-
Biology and Botany	2	3	3	-	-
Art (Painting)	1	2	2	2	2
Physical Education	1	2	2	1	1
Total Hours	36	36	36	36	36

Source: Ministry of Education, Curriculum Department

In the second year of secondary education, students are assigned to the arts or science stream based upon teacher evaluations of their skills and their own interests.

The science stream requires extra work in the areas of mathematics and is the only program in which physics, chemistry, biology, and botany are offered. The arts stream requires an additional emphasis on Islamic education, Arabic, and English. Only students in the arts program take courses in history, geology, sociology, social science, and economics in their final two years of study.

The advantage of the separate curricula for science and arts is that it allows greater specialization at the secondary education level. A cost of the program is that the future options of students are restricted as soon as the assignments are made at the second year of secondary education. The policy decision that led to this curricular structure is one that should be reviewed periodically to assure that it remains in the best interests of society, the schools, and the students.

5.1.4.4 Evaluation

As with primary education, the High Commission on Exams is in charge of the national examinations, these are given at the end of both the preparatory and secondary stages of education. All other examinations are set by individual teachers at the classroom level. School headmasters coordinate examinations when more than one teacher conducts the same course.

Table 5.9 indicates the number of students that registered for the examinations and the percent who passed for the years 1970/71 to 1983/84. Separate scores are given for the students from the science and arts streams of secondary education.

Success rates have declined at the preparatory level each of the last three years and this represents a restraint on the expansion of the academic and nonacademic secondary alternatives. At the secondary level, pass rates from 1981/82 to 1983/84 have declined from 72.2 percent to 39.0 percent for

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TABLE 5.9

NATIONAL CERTIFICATE TEST RESULTS, PREPARATORY AND SECONDARY

1970/71-1983/84

Year	Preparatory		Secondary (Science)		Secondary (Arts)	
	Students Registered	Percent Passed	Students Registered	Percent Passed	Students Registered	Percent Passed
1970/71	962	62.1	311	74.0	167	73.5
1971/72	1,603	69.1	501	61.1	395	54.4
1972/73	1,941	81.4	631	73.5	357	71.7
1973/74	2,993	71.9	683	70.9	578	72.8
1974/75	3,601	77.5	996	79.2	772	74.6
1975/76	5,043	67.7	1,289	88.3	1,028	75.3
1976/77	6,561	42.3	1,787	57.2	1,547	37.0
1977/78	8,276	54.1	2,452	64.4	1,959	46.2
1978/79	7,171	41.3	2,569	48.5	2,270	35.8
1979/80	7,797	49.4	2,378	58.4	1,515	52.6
1980/81	7,132	79.0	2,132	43.0	1,395	89.0
1981/82	8,957	68.0	2,003	72.2	1,217	75.7
1982/83	9,270	74.5	2,543	79.6	1,623	80.9
1983/84	11,518	68.3	3,139	59.6	1,724	48.6

Source: Ministry of Education, 1984.

the science students and from 75.7 percent to 29.0 percent for the arts students.

Five major reasons have been advanced for these declines. The first is that the examinations have been altered in content and that the skill emphasis on the examinations has not yet been matched by the skill emphasis within classroom instruction. A second factor mentioned is that the past democratization of preparatory and secondary education has meant that the average quality of student intake has declined. A third factor, and this appears especially relevant for the 1983/84 cohort, is that the MOE has imposed stricter grading practices in the evaluation of students' examination responses. The fourth factor is the crowdedness of some preparatory classes specifically in the major cities. Finally, the fifth factor is that instructional quality and student effort both may have declined and, as a result, learning has suffered.

The state of information does not allow a weighing of these five concomitant determinants and there is no basis for excluding any of the four as possible explanations. However, the problem is sufficiently serious that some remedial steps should be taken immediately.

As discussed in the preceding chapter, student evaluation is effective only when both classroom instruction and the examination originate in the same curriculum. While the MOE has developed sequenced instructional objectives for much of the preparatory/secondary program, not all teachers have yet adapted their teaching appropriately. Rather than "solving" the short-term problem through reducing grading standards, the MOE is committed to a long-term remediation through the upgrading of instruction, in addition to improving the systems of teacher recruitment and retention, better distribution of books, and improvement of teacher/student ratio in urban areas. As part of this upgrading, care must continue to be taken to ensure that what is taught in the classroom and what is covered in the examinations have a common and detailed source.

An issue of serious concern is the total centralization of the national exams. Both the content of the exams, (the choice of questions relevant to each topic at each level) and the process of the implementation of the exams, (the preparation and distribution of sealed envelops) are centralized at the MOE in Sana'a. This issue of fully centralized preparation of exams poses an administrative problem that relates and impacts on the logistics and security/secrecy dimensions; and an educational problem that relates and impacts on the relevance dimension of these exams.

5.1.4.5 Facilities and Equipment

The basic conditions of facilities and the availability of equipment improve as one moves from the primary to the preparatory and from the preparatory to the secondary levels. Table 5.10 presents the summary of facilities characteristics for preparatory education for 1982/1983.

Of the 420 preparatory schools, 349 or 53.1 percent are considered to be in "good" condition. This compares with 41.6 percent for primary schools. Only 16.0 percent of preparatory schools are in poor condition compared to 30.9 percent for primary. The distribution of schools by overall condition is quite similar between the preparatory and secondary schools. It should be noted that many of the preparatory and secondary schools are, in fact, in the same buildings with secondary education offered in the morning and preparatory education in the afternoon.

Although complete data on construction materials are not available for secondary education, the information on preparatory education suggests a significant difference from the primary level. Stone buildings constitute 83.1 percent of all preparatory buildings; for primary education, stone materials were used in only 59.9 percent of the schools.

In terms of special facilities (administrative offices, bathrooms, storage rooms, and laboratories), all are more common in secondary education than in preparatory education.

TABLE 5.10

SUMMARY OF FACILITIES CHARACTERISTICS, PREPARATORY AND SECONDARY EDUCATION

1982/83

FACILITIES CHARACTERISTIC		PREPARATORY			SECONDARY		
		NUMBER	PERCENT	PER SCHOOL	NUMBER	PERCENT	PER SCHOOL
TOTAL NUMBER OF SCHOOLS		420	100.0%	-	117	100.0%	-
OVERALL CONDITION:	Good	223	53.1%	-	59	50.4%	-
	Needs Repair	130	31.0%	-	36	30.8%	-
	Poor	67	16.0%	-	22	18.8%	-
BUILDING MATERIAL:	Stone	349	83.1%	-	N/A	-	-
	Cement	8	1.9%	-	N/A	-	-
	Brick	2	.5%	-	N/A	-	-
	Wood	12	2.9%	-	N/A	-	-
	Other	49	11.7%	-	N/A	-	-
SPECIAL FACILITIES:	Study Rooms	1605	-	3.82	553	-	4.73
	Adm. Office	303	-	.72	102	-	.87
	Bathrooms	554	-	1.32	199	-	1.70
	Storage Rooms	179	-	.43	71	-	.61
	Laboratories	141	-	.34	77	-	.66
ELECTRICITY:	Available	136	32.4%	-	65	55.6%	-
	Not Available	284	67.6%	-	52	44.4%	-
WATER:	Available	119	28.3%	-	55	47.0%	-
	Not Available	301	71.7%	-	62	53.0%	-

SOURCE: Ministry of Education, Education Statistics, 1984.

Preparatory special-use facilities generally are superior to those found in primary schools.

The availability of electricity and water to schools improves as one advances through the education system. The following indicates the proportion of schools with each type of utility by level of education:

	Percent with electricity	Percent with water
Primary	15.2	10.2
Preparatory	32.4	28.3
Secondary	55.6	47.0

5.1.4.6 Costs, Financing, and Donor Support

Preparatory and secondary schooling is financed by government (through the MOE), the LCCD's and the local communities might participate in the costs of some facilities. Recurrent costs are met by the MOE but with some donor support for seconded teachers' salaries. At the preparatory level in 1982/83, recurrent costs were estimated at YR 127,640,247 or YR 2,947 per student. These figures include the salaries paid by some Arab governments.

Although the total recurrent costs of YR 61,035,399 in 1982/83 were lower for the general secondary schools than for the preparatory schools, the per-student cost of YR 5,093 was almost 175 percent higher. The per-student or unit costs at both levels tend to reflect the high wage rates typical of the YAR's more developed neighbors than teacher salaries in countries at levels of economic development similar to the YAR. Other factors contributing to high unit costs are the level of training required for teachers and relatively small class sizes.

In addition to salary support, donor agencies such as the German technical assistance authority, (GTZ) and the British Council, have subsidized recurrent expenditures through the provision of textbooks. The GTZ project has provided the MOE with a printing press and with technical supervision to the press, while the British Council has helped design both curriculum and textbooks at the preparatory grades.

Until 1981, the building and equipping of schools was based on a tripartite financing agreement among the MOE, the LCCD's and the community. In the villages, the MOE and the LCCD's tended to share monetary costs, while the community provided both the land and voluntary labor to assist in construction. In the urban areas, in the past and at present, the recurrent costs, as well as the capital costs of building most of the facilities, have been the responsibility of the MOE.

For the academic year 1982/83, capital expenditures for preparatory and secondary schools equalled YR 39,032,800 and YR 43,459,200, respectively. Kuwait has been the principal donor in terms of capital construction. Since 1971 Kuwait has built and equipped 28 primary-preparatory schools, nine preparatory-secondary schools, and six secondary schools.

Although schooling at all levels is free in the YAR, families contribute by foregoing at least a portion of the child's potential earnings and by paying fees. Foregone earnings for boys at the preparatory/secondary levels may be substantial. Primary graduates can earn up to YR 15,000 per year and preparatory graduates, YR 16,000. Boys (14 and older with no education) who migrate to Saudi Arabia often command salaries of over YR 17,500 per year. These employment opportunities might not remain as attractive in the near future. Even though families contribute by foregoing their child's potential earnings, this does not assist the MOE in meeting its yearly financial obligations in terms of capital and recurrent costs.

While amounts paid by parents vary somewhat by school, average charges for the more standard items for 1984/85 are shown below:

	Preparatory	Secondary
Enrollment fee	8	10
Examination fee	17	25
Certificate fee	38	66
Student activities	8	12
Uniforms	140	140
Insurance	--	14
	211	267

Most parents do not pay the full amounts of the charges to enroll their children in preparatory or secondary education. Uniforms and insurances are not being enforced in all schools, so most parents end up paying basically for the enrollment, examination and certificate fees, and student activities.

The enrollment, examination, and certificate fees are paid only once at the entry grade level; the annual amounts given represent a proration over the three-year period. Uniforms are assumed to be replaced at the beginning and middle of each school year at a cost of YR 70 per time. The MOE will impose, starting in 1985-86, YR 40 in book fees for preparatory classes, and YR 50 for secondary classes.

5.1.4.7 Preparatory and Secondary Scientific Institutes

Just as with primary education, the scientific institutes offer a parallel system of instruction at the preparatory and secondary education levels. The scientific institutes offer the same curriculum as the regular schools and includes a sharia' division not available in the secondary education curriculum. The graduates of the scientific institutes take the same preparatory and secondary certificate examinations as do other students.

Table 5.11 presents enrollment data from the preparatory scientific institutes in 1982/83. In that year 93 institutes existed with the largest number (35) in Sana'a administrative area. In the last few years, more than two-thirds of the students in primary scientific institutes make the transition to preparatory institutes. The total first-year enrollment for 1982/83 was 2,151 of whom 96.6 percent were males. A large part of the attrition from primary to preparatory levels is among the female students. No girl students attend scientific institutes beyond the primary level in Hodeidah and Ibb and, as will be shown, secondary scientific institutes have male students only.

TABLE 5.11

ENROLLMENTS IN PREPARATORY SCIENTIFIC INSTITUTES

1982/83

ADMINISTRATIVE GOVERNORATE	Number of Schools	Number of Classrooms	ENROLLMENTS BY GRADE: First Year Total	First Year %Male	Second Year Total	Second Year %Male	Third Year Total	Third Year %Male	TOTAL Total	TOTAL %Male
SANA'A	35	79	763	91.4%	375	89.0%	217	89.9%	1352	90.2%
TAIZ	19	40	537	98.3%	337	93.5%	198	100.0%	1072	97.1%
HODEIDAH	22	54	548	100.0%	227	100.0%	176	100.0%	176	100.0%
IBB	17	33	306	100.0%	258	100.0%	62	100.0%	626	100.0%
TOTAL	93	206	2151	96.6%	1197	94.3%	653	96.6%	4001	95.1%

SOURCE: Ministry of Education, Educational Statistics, 1984.

TABLE 5.12

ENROLLMENTS IN SECONDARY SCIENTIFIC INSTITUTES
(1982/83)

ADMINISTRATIVE GOVERNORATE	Number of Schools	Number of Classrooms	ENROLLMENTS* BY GRADE			TOTAL
			FIRST YEAR	SECOND YEAR	THIRD YEAR	
SANA'A	10	21	119	28	49	196
TAIZ	5	12	115	40	48	203
HODEIDAH	4	17	163	78	44	285
IBB	2	2	10	11	0	21
TOTAL	21	52	407	157	141	705

*Enrollments consist solely of males.

Source: Ministry of Education, Educational Statistics, 1984

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The 4,001 students in preparatory scientific institutes compare to 43,302 in regular preparatory schools. The greater relative attrition rate of the institutes is indicated by the fact that there is one institute third-year student for every 14.8 regular students while, in total enrollments, there is one scientific institute pupil for every 10.8 students in the regular preparatory system. As with primary education, attrition from the preparatory scientific institutes includes a proportion of students who transfer to the regular school system.

Table 5.12 presents enrollment data for secondary scientific institutes. Only 21 such schools exist in the nation and ten of these are in Sana'a. The increasing tendency of students to opt for the regular academic program is indicated by the fact that only 705 students are registered in the secondary institutes while 11,984 are enrolled in the regular secondary program.

An increase in the relative enrollments at the scientific institutes would have two quantitative advantages to the system. First, it would increase the internal efficiency of the institutes where, at present, teachers and facilities are relatively underutilized. Second, it would reduce the long-term burden on the facilities and teachers of the regular programs.

5.2 ANALYSIS

The analysis of the preparatory and secondary system will, at times, parallel the earlier discussion of primary education. Where this is the case the discussion will refer to the earlier analysis rather than repeating it in detail. In appropriate cases, distinctions which are unique to the preparatory or secondary level will be stressed.

5.2.1. Needs

The major needs of preparatory and secondary education may be summarized within six categories: (1) instructional

materials for teachers; (2) teacher supply; (3) organizational communications; (4) female access; and (5) school and employment counseling. The need for instructional materials for teachers is the same need as discussed for primary education. With teachers from so many diverse backgrounds, even the high level of formal qualifications presently required does not guarantee quality instruction. Provision of instructional materials also will allow greater assurance that school instruction and the national examinations originate from the same source.

The teacher supply issue is primarily one of the Yemenization of the teaching force. This process will be delayed due to the continuous increased need for teachers. The communications issue is basically a management problem. Closer linkages need to be established between the central MOE departments, the GEO's, and the schools. The role of the inspectorate has recently been redefined in terms of an instructional support emphasis and resources provided to allow this role to be fulfilled.

While the regionalization process for preparatory and secondary education continues, an emphasis should be placed on the extension of the arts option to secondary schools that do not as yet have this program. School size rather than location should be the determinant of access to this program. Similarly, an emphasis within the new school construction plans should be on female-only schools or coeducational schools. The greatest potential gains in enrollments exist among females. The availability of a preparatory or secondary school for females also will encourage retention of females in primary education.

Finally, counseling needs to be improved both for within-school and for postschool planning. Students need assistance in making decisions concerning their education and training/employment options. This is an especially critical need for those students deciding not to continue in formal education.

5.2.2 Plans

The new initiatives for preparatory and secondary education included in the SFYP are almost exclusively quantitative. Investments planned amounted to YR 203,308,000 for preparatory and YR 64,638,000 for secondary education. Approximately one-third of these funds were scheduled to come from government financing. The investments concentrate on new school construction and the repair and extension of existing facilities. An additional YR 300 million is allocated to the General Authority for Scientific Institutes. These funds are to cover expenditures at all levels of institute education in addition to teacher training and support for the Authority's central administration facility.

5.2.3 Constraints

As with every level of education, government faces three major types of constraints in regard to preparatory and secondary education: fiscal, manpower, and management. The fiscal constraints have been discussed in Chapter 2.0. Although less severe than in primary education because of the existence of some excess capacity in the present system, by the end of the decade the effect of enrollments on financial requirements will become significant. The manpower constraints are divisible into the general one of a shortage of Yemeni teachers and the specific one of a shortage of modern mathematics teachers of any nationality.

The final form of constraint is that of management capacity. As discussed in Chapter 3.0, the diverse and complex operations of the General Directorate for Education place an inordinate burden on senior staff. Preparatory and secondary education, as one departmental unit within the directorate, cannot receive the degree of individual attention they deserve within the present organizational arrangement.

The lack of personnel, and resources (especially for transportation) limits the role of the department of guidance and inspection in preparatory and secondary education.

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Although, again, the problems are not as severe as for primary education, the management capacity constraint in this regard is real and requires remediation if instructional reform is to take place.

5.2.4 Summary Issues

5.2.4.1 External Efficiency

The external efficiency issue for preparatory and secondary education is defined for most participants in terms of preparation for the next level of formal education. This perhaps is most explicit at the preparatory level where few students consider their schooling as having value other than as a means to gain access to secondary school.

With the recent temporary decline in success rates on the national preparatory and secondary examinations, and the fact that success on these examinations is a prerequisite for continued study, it is obvious that a potential external efficiency problem exists. The nature of and possible remedies to this problem were discussed in the status section on examinations. These examination results point to a corollary external efficiency problem, however. The present examination programs make inadequate no concessions to the student for whom preparatory or secondary education will be the end of their formal studies. The present system should include the availability of information for students on training and employment options they can pursue if they decide to forego further studies, or if their examination scores do not qualify them to continue their education.

These counseling changes, rather than a change in the curriculum, are a cost-effective means of increasing the linkage between schooling at these levels and the labor market. The attitudinal problem among students will take a longer time to alter. For the foreseeable future, anything other than examination success will be viewed by most students and parents as implying that the time spent in formal education has been wasted.

5.2.4.2 Internal Efficiency

For preparatory and secondary education the main indication of inefficient use of resources is the low student-teacher ratios that exist at both levels. In counterpoint, these ratios do suggest that the system has a margin of absorptive capacity for new enrollments. Statistics on facility use are misleading if studied separately for preparatory and secondary education because many buildings are used for one level of education in the morning and for the other level in the afternoon.

The MOE issued a decree in 1985 to improve the low student-teacher ratio in preparatory and secondary classes. Preparatory classes will be assigned a teacher only when students reach 40, for secondary classes the number needs to be 25. Exceptions are made for girls classes to encourage them to continue their education, the number of girls students need not reach 40 or 25 to open a preparatory or secondary class for them.

The substantive internal efficiency problem is the one related to the instructional process. The lack of detailed and appropriate instructional materials for each subject area, when combined with a possible delay in receiving textbooks and materials, means that students may not be receiving the quality or amount of education they require.

The relatively low attrition rate in both preparatory and secondary education indicates a positive efficiency for these levels. Interestingly, the retention rates do not vary dramatically among the male and female students although the latter are, of course, represented in much smaller numbers overall.

5.2.4.3 Access and Equity

Although regionalization of educational opportunity is not as well advanced in preparatory and secondary education as for the primary level, this situation exists because of demographic constraints rather than from a lack of government

commitment. As the population of primary school graduates increases, it will be possible to extend opportunities for preparatory and secondary education into even more areas.

Female participation at the preparatory and secondary level is, of course, restrained by the success of primary education in attracting and retaining female students. Once in the higher levels, female students continue at rates not much below those for males. Increased opportunity for female students at higher levels is mentioned frequently as a positive factor in the decisions girls and their parents make to enter or remain in primary education. Thus, it would be possible to justify initial low female enrollments in preparatory or secondary classes or classes for females because of the positive long-term benefits.

5.2.4.4 Administration and Supervision

These issues already have been dealt with in the status, needs, and constraints discussion. A point made for primary education should be repeated here, however. Improved administration and supervision have meaning in education only instructional detailed materials to assist the teacher in implementing the curriculum exist and reach him/her on time. The improvements in management capacity must be concomitant with the continued implementation of the national curriculum in a form suitable for implementation by teachers in a consistent and positive manner.

5.2.4.5 Costs and Financing

At present the unit or per-student cost issues in regard to preparatory and secondary education relate to the low student-teacher ratios and the salary levels paid to teachers. Because over 90 percent of the teachers at both levels of education are expatriates, the cost problem also has a dimension in terms of the national balance of payments.

Two considerations in regard to the financing of preparatory and secondary education are the capacity to absorb

future enrollments and the means of improving textbook distribution. The capacity issue is a positive one to the extent that the schools can accept increased enrollments, at least in the short run, without incurring major new costs for teachers or facilities.

The textbook distribution problem is one where serious consideration should be given to allowing textbooks to be handled by the private sector. Selection of textbooks and specification of their content would remain an MOE responsibility, of course; government might decide to continue its partial subsidization of textbook costs as well. However, the advanced system of private sector distribution procedures that exist for other products could be extended to textbooks to assure wider and more timely distribution. This opportunity for cooperation between government and the private sector is one that can lower costs to government and enhance educational quality at the classroom level.

5.3 MAJOR RECOMMENDATIONS

5.3.1 Programmatic Concerns

Recommendation 1: To provide a teacher training option for preparatory and secondary students who might then serve as teaching interns upon their graduation from preparatory or secondary school. Preparatory school graduates might intern at the primary level while secondary graduates would teach at the preparatory level. Salary savings should be available since teaching interns would be paid at a lower rate than full teachers. This will assist government in dealing with the fiscal burden posed by the Yemenization of the teaching force over the next decade.

Recommendation 2: To continue to develop instructional materials for the major preparatory and secondary subject areas so as to facilitate enrichment and standardization of instruction. These instructional materials assist the teachers and can minimize the demands on inservice training.

Recommendation 3: To conduct a study about the feasibility of decentralizing the national examinations for the preparatory and secondary classes, and to recommend a system that will facilitate the administrative issues of logistics and security/secrecy and at the same time will continue to ensure the relevance of the exams and their quality.

5.3.2 Summary Issues

Recommendation 1: To facilitate external efficiency, greater concern should be directed to advising and counseling students on options other than only additional formal education. This activity is most needed at the secondary level. The schools should be provided with this counseling information by the central MOE. Achievement of the goals of this program will require enhancement and expansion of the counseling function at both the MOE and school level.

Recommendation 2: To increase female participation, more female-only schools and classes must be made available. This should be a priority concern in the planning of new facilities. If necessary, female-only programs should operate as a separate shift in facilities now reserved for male-only programs.

5.3.3 Recommendations for Further Analysis

No discrete options will be proposed under this heading but two major research needs do exist. First, tracer studies on selected samples of school-leavers should be conducted to determine the relationship of educational achievement to future scholarly or employment success. This information should serve as a partial basis for the expanded counseling role discussed above.

A second major need is for a joint MOE, ERDC, and Faculty of Education research project to monitor emerging needs for teachers, facilities, and equipment in the preparatory and secondary systems. This type of information is a prerequisite for the MOE shifting from a reactive to a proactive posture in regard to the planning of the educational system.

6.0 VOCATIONAL AND TECHNICAL EDUCATION

6.1 STATUS

This chapter examines the vocational and technical education programs offered at the postprimary and secondary levels of the Yemen educational system. The programs discussed include the Vocational Training Centers (VTC's), the Technical Secondary Schools (TSS's), and the Commercial Secondary Programs (CSP's). In their discussion the term vocational and technical education (VTE) shall be used to refer collectively to all three programs. The term "vocational education" will be used to refer to training oriented toward craft skill development whereas "technical education" consists of academic and occupational training for higher order skills. Technical education normally involves training in the integration of a set of individual manipulative and conceptual skills.

The distinction between vocational and technical education is not a clear one. In the YAR, the administrative directorate which oversees all three programs discussed here (plus agricultural education) is the Directorate of Technical Education. The VTC's and TSS's are administered by the Department of Industrial Education; commercial education programs are administered by a separate department. However, for the purposes of this chapter, vocational education refers to the VTC-level skill training, technical education to the TSS programs, and vocational and technical education to the VTC, TSS, and commercial education programs.

6.1.1. Historical Setting

The Government of the Yemen Arab Republic (YAR) has made a commitment to building its own technical skilled labor force and has assigned to the Ministry of Education (MOE) the responsibility to develop and coordinate appropriate training programs in the nation's vocational and technical educations system. These programs have been in operation for less than 15 years - a period shorter than that of the general schooling

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system - and involve less than five percent of the entire school population. Nevertheless, vocational and technical education do play an important role in the Ministry's plans for Yemeni national development.

These concerted efforts to produce a skilled and technically-oriented labor force through the formal school system must be viewed against a background of issues which have been elaborated upon in earlier chapters:

- the declining emphasis on the agricultural base of the economy and attendant labor characteristics;
- long-term dependence on foreign manpower to operate Yemeni industries and services;
- educational training programs that only began operation in the 1960's and which the MOE is continuing to build.
- the outflow of potential skilled workers to higher incomes in the oil-producing states of the region and the West.

While the YAR has always had the capacity to produce an indigenous labor force for the traditional skilled occupations, this capacity has not been seen as a potential base for the development of a modern industrial state. Modern skill training in the form of technical and vocational education has been accepted as a key government contribution to the development of modern industrial capacity. Government has invested in, and encouraged donor participation in, formal skill programs.

As noted earlier, the MOE programs that are the central concern of this chapter are: 1) the Technical Secondary Schools (TSS's) in Sana'a and Taiz, 2) the Commercial Secondary Programs (CSP's) in Sana'a, Taiz, and Hodeidah, and 3) the Vocational Training Centers (VTC's) in Sana'a, Taiz, Hodeidah, and Dhamar. In addition, the training programs and special institutes of other ministries and of the private sector will be discussed briefly.

6.1.2 National Goals and Strategies

National goals for these programs include the acquisition of practical skills lacking in the Yemeni population , the elevation of the status of the manual and technical worker, the upgrading of skills of those already employed in the manual trades, and the application of modern teaching methods to skill training programs. In order to meet these goals the MOE has established a Directorate of Technical Education which supervises commercial education, agricultural education, and industrial education.

The Second Five Year Plan (SFYP) cites several manpower objectives directly related to vocational and technical training. The SFYP emphasizes the expansion of the education base and linking it to the requirements of society and asserts the need to assist students in selecting fields of specialization related to their aptitude and actual market requirements. Specifically, the SFYP recommends establishment of a general authority for vocational training (similar to the existing National Commission for Technical Education) and the design of plans for expanding the vocational training centers to serve local and foreign demand for skilled workers.

The SFYP notes several unique constraints which exist relative to the VTE programs. Unlike academic programs, the VTE training activities normally require substantial equipment and material demand. This has an effect on initial capital costs and on maintenance, replacement, and other recurrent costs. A second factor is the high opportunity costs for most VTE teachers. Because of the high demand for vocational and technical skills in the nation and throughout the region, it is difficult for the MOE to recruit and retain teachers of an appropriate quality.

These two characteristics of vocational and technical education interact to constrain VTE operation and development. VTE programs are more expensive than traditional academic programs to operate and, because of the higher initial costs, are more difficult to implement. Throughout this chapter's

discussion, the fiscal and manpower constraints under which the VTE system operates should be kept in mind. Only if these programs can do a significantly better job of preparing students for their future work or schooling, can the higher operational costs be justified.

6.1.3 Organizational Structure

The technical schools established in the 1960's were under the administrative supervision of the General Education Department of the MOE. As vocational and technical education opportunities increased, this arrangement placed a great deal of responsibility on a single department that already supervised several other branches of the educational system. In 1975, a separate Technical Department was established as one of four departments reporting to the Director General of Education. It is intended that the Director General will be advised in matters of technical education by a National Council for Technical and Vocational Education. However, this body has met only infrequently since its establishment in 1976. Figure 6.1 indicates the general organizational structure within which the formal vocational and technical education system operates.

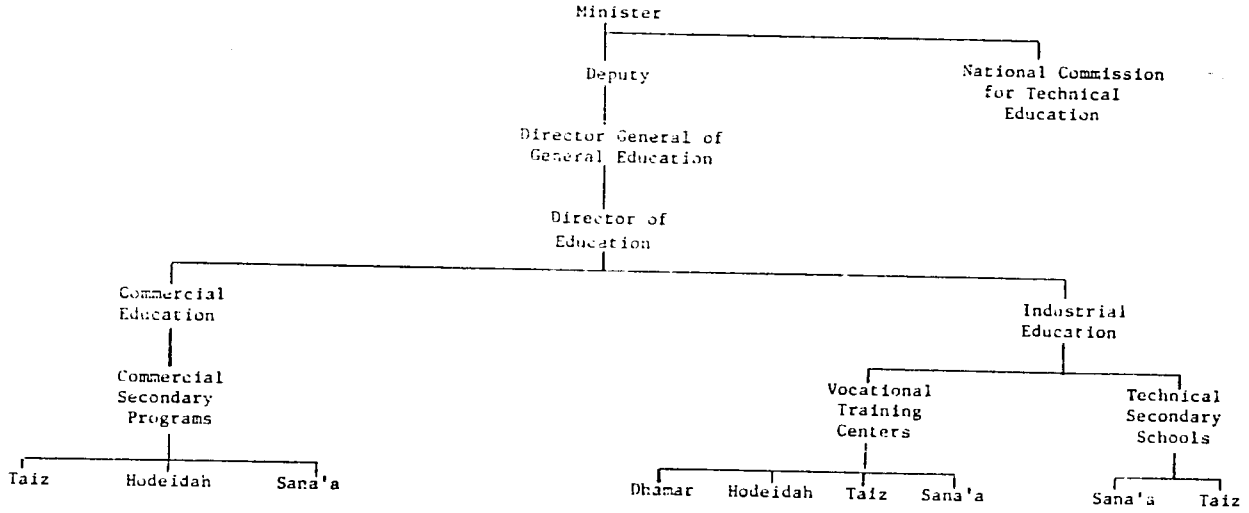
6.1.4 Programmatic Concerns

The Directorate of Technical Education is responsible for approximately 1,800 students in commercial, agricultural, and industrial programs out of a total formal school enrollment in 1982 of approximately 636,000. The percentage breakdown for 1982/83 within Technical Education is as follows: 55.3 percent in technical education (Technical Secondary Schools and Vocational Training Centers), 11.7% in agricultural education, and 33.0 percent in commercial education.

As technical education comprises four different programs [Technical Secondary Schools (TSS's), Agricultural Education, Vocational Training Centers (VTC's) and Commercial Secondary Programs (CSP's)], each one will be described separately and divided into its constituent parts (curriculum, teachers,

FIGURE 6.1

MOE OFFICIAL ORGANIZATION OF VOCATIONAL AND TECHNICAL EDUCATION



etc.). Agricultural education is not a focus of this assessment because of the attention it has received in earlier reports.

6.1.4.1. Vocational Training Centers

6.1.4.1.1. Student Enrollments and Characteristics

The four vocational training centers originally were planned to offer a two-year postpreparatory terminal program. Due to low enrollments, however, it is now possible to enter a VTC at any point after primary school, and thus, there are students who enter not only after sixth grade but also after seventh, eighth, or ninth as well. Official admission requirements include: 1) a 50 percent pass on the primary leaving certificate; 2) that a student be not less than 16 years of age and not more than 18; 3) that the applicant be in good health; and 4) that preference be given to higher preparatory scores if there is a surplus of applicants. The Teacher's Guide to Vocational Training (MOE, 1980) also states that, with the approval of the MOE, rural students with a background in a trade may be given admission and field-of-study preference. Otherwise, students are assigned to fields "...according to their ability..." as determined by an entry aptitude exam.

The MOE 1983/84 statistics state that there were 417 students enrolled in VTC's in 1983/84 (see Table 6.1 for enrollments and areas of study). Enrollments vary widely between the four centers with Sana'a having 207 and Dhamar only 35. This may be attributed partially to the attractiveness of the fields of study offered at each center. Sana'a and Hodeidah have six departments but Dhamar has only three and Taiz only two. Attrition between the two years of study varies from 10 to 33 percent among the centers. VTC instructors attribute this attrition rate to programs not meeting students' initial expectations. Some students leave the program when

TABLE 6.1

VOCATIONAL TRAINING CENTERS

Enrollment By Year and Subject Area, 1983/84

	Class Year	Mechanics	Auto Repair	Electricity	Sanitary Engineering	Metal Work	Building Construction	Carpentry	Class Total	Center Total
SANA'A	1st	25	32	29	11	1	27	16	141	
	2nd	9	14	16	8	-	13	7	67	208
TAIZ	1st	-	-	-	10	-	-	16	26	
	2nd	-	-	-	6	-	-	6	12	38
HODEIDAH	1st	20	22	20	-	9	9	6	86	
	2nd	12	12	11	-	4	8	3	50	136
DHAMAR	1st	-	11	8	-	-	-	-	19	
	2nd	-	7	4	-	5	-	-	16	35
SYSTEM TOTALS	1st	45	65	57	21	10	36	38	272	
	2nd	21	33	31	14	9	21	16	145	417

Source: Ministry of Education, Guide to Technical Education, 1984.

they discover it is not a program that qualifies them for further formal education.

Table 6.2 indicates that, with the exception of the Sana'a VTC, the number of graduates from the centers declined between 1981/82 and 1982/83. These declines may be attributed largely to closure of departments due to lack of students and teaching staff.

Discussions with VTC directors and administrators indicate that students' ages may range between 12 and 25 years. This is contrary to official requirements. The lower ages are the result of Ministry-sponsored exceptions for rural youth with trade backgrounds. The older participants are part-time students who enroll for short courses in skill upgrading offered at the VTC's by other ministries. Thus, the Ministry of Electricity, for example, may use a VTC facility for training some of its employees. This type of use, however, makes up only a small part of total VTC enrollments. For example, since its establishment the VTC in Sana'a has opened its workshops to only about 80 such students .

Only males are considered for admission to the VTC's; the skills offered are associated with traditionally male occupations in Yemen. The location of the four VTC's in large cities (Sana'a, Taiz, Hodeidah and Dhamar) requires that students from outside these locations make their own housing arrangements. No dormitory facilities exist presently, although the Sana'a VTC is about to open a newly-constructed dormitory. Of the four centers, the Sana'a VTC tends to attract the largest proportion of non-area students due to its positive reputation and its location in the national capital. The VTC in Dhamar with only 35 students is extremely underutilized while the Hodeidah VTC, with 162 students, is considered to be at capacity.

6.1.4.1.2. Teachers

The discussion of VTC teaching methods and administrative staff will apply, to some extent, to teaching in

TABLE 6.2

GRADUATES OF VTC'S BY SUBJECT AREAS

1980/81 to 1982/83

	Class Year	Mechanics	Auto Repair	Electricity	Sanitary Engineering	Metal Work	Building Construction	Carpentry	Surveying	Totals
SANA'A	80/81	9	15	16	14	-	19	6	-	79
	81/82	14	10	12	9	-	14	5	-	64
	82/83	18	17	21	7	-	7	6	-	76
TAIZ	80/81	-	-	-	-	-	-	-	-	-
	81/82	19	17	15	-	-	-	14	-	65
	82/83	-	-	-	6	-	11	-	10	27
HODEIDAH	80/81	-	-	-	-	-	-	-	-	-
	81/82	12	7	8	-	-	-	2	-	29
	82/83	10	3	3	-	-	-	1	-	17
DHAMAR	80/81	-	-	-	-	-	-	-	-	-
	81/82	-	7	6	3	-	-	-	-	16
	82/83	-	8	4	-	-	-	-	-	12
YEAR TOTALS	80/81	9	15	16	14	-	19	6	-	79
	81/82	45	41	41	12	-	14	21	-	174
	82/83	28	28	28	13	-	18	7	10	132
		82	84	85	39	-	51	34	10	385

Source: Ministry of Education, Guide to Technical Education, 1984.

the TSS's as well because MOE data on the subject are combined. This joint discussion is also appropriate because, as the VTC's and TSS's are still in their formative stages, policies are still emerging in regard to teacher training and requisite qualifications. At this point teachers for technical training programs are either expatriates or Yemeni alumni of donor teacher training projects.

Table 6.3 specifies the nationalities of technical and vocational program teachers for the 1982/83 academic year. Yemeni teachers at the VTC's are largely graduates of the Sana'a TSS who have had some donor-supported training abroad. The Federal Republic of Germany has made teacher-training the primary focus of its Sana'a VTC project. The top two or three students from each VTC graduating class are offered scholarships to Germany to study industrial skills pedagogy and to take part in workshop internships. The German plan is to train, by the end of the project in 1986, two Yemeni teachers for the first-year class of each Sana'a VTC department; two for the second year, and one workshop leader for a total of 30 trainees). In addition, eleven Yemenis will be trained to teach the "theoretical" subjects that are now almost exclusively taught by expatriates. Thus far, 24 Yemenis have been trained through this German program. However, five of the returnees have been reassigned to the MOE or to other VTC posts. This has occurred when their skills duplicated those already available in the VTC's.

The Sana'a VTC is the oldest institution at that level and the only one able to make an organized effort toward training Yemenis for technical teaching positions. Otherwise the VTC's are staffed by expatriates, particularly Egyptians and Syrians. These staff have been contracted by the YAR government. At the Sana'a VTC, three German professionals remain from the original seven-member technical assistance team.

While efforts are being made to develop pedagological skills in the Yemeni VTC teaching staff, there remains a

TABLE 6.3

NATIONALITIES OF TEACHERS IN TECHNICAL AND VOCATIONAL PROGRAMS, 1982/83

School/Center	Yemeni	Egyptian	Syrian	Iraqi	German	Chinese	Chinese Translators	Russian	Totals
TSS Sana'a	8	-	-	-	-	32	6	-	46
VTC Sana'a	17	11	3	2	7	-	-	-	40
TSS Taiz	15	-	-	-	-	29	21	-	65
VTC Taiz	(Shares staff with TSS)								
VTC Dhamar	2	4	4	4	-	-	-	-	14
VTC Hodeidah	1	5	4	5	-	-	-	5	20
Totals	43	20	11	11	7	61	27	5	185

Source: ALESCO Consultant's Report on Technical Education, 1982.

noticable lack of practical vocational or technical work experience. While the German scholarship program provides three to six months of vocational technical work experience in Germany, this is not a satisfactory substitute for on-the-job experience in a Yemeni industrial or workshop setting. The MOE is implementing plans to establish a "polytechnic" which would have technical teacher training as one of its important functions.

Another continuing problem is that financial rewards are inadequate for Yemenis who teach in the VTC's. In many cases, graduates of the two-year program can command higher wages in the private sector than are presently paid to their Yemeni teachers. Only the Sana'a VTC has been able to retain Yemeni teacher trainees in large numbers.

6.1.4.1.3 Curriculum

In any discussion of a skill training program, the questions of curriculum, evaluation, and facilities are integrally related. As the VTC program is a constituent part of the MOE schooling system, its official curriculum has been established and governed by MOE standards. Table 6.4 outlines the basic program of study for students in the two-year program. This curriculum has been established after some consultation with technical training specialists in the region and it is designed for use at all four centers. No mention is made in the VTC curriculum guide of a relationship between the curriculum and the Yemeni market for skills. Also, due to the lack of appropriate equipment and materials and, in some sections of the country, a lack of teachers with the specific skills needed, the full curriculum has not been implemented at all four centers.

Most observers agree that the Sana'a VTC offers the best training program of the four centers. The Sana'a center's adaptation of the national curriculum and the teaching staff's familiarity with this adaptation are often pointed to as reasons for the Sana'a VTC's success. With German cooperation,

TABLE 6.4

CURRICULUM - VOCATIONAL TRAINING CENTERS

Subject	Number of Hours Per Week	
	Year I	Year II
Religion	3	3
Arabic	3	3
English	2	2
Sociology	2	2
Mathematics	2	2
Industrial Drawing	3	3
Materials Science	1	--
Basics of Electricity or Mechanics	--	1
Technology	--	1
Manual Training*	23	23
	39	40

*Each student has specialty

Source: ALESCO Consultant's Report on Technical Education, 1982.

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a modified modular system of skill training has been developed. This consists of a series of one-page skill diagrams, in Arabic, which are available for every step of the first year of manual training in each special field. A similar series of modules are in preparation for the second-year program. The modular system allows the student to proceed from illustrated step to illustrated step at his own pace but in consultation with an instructor. The modules have been modified from German skill training manuals by Sana'a VTC staff. They are organized in cabinets so that students have ready access to them. The MOE is implementing the Yemini unified curriculum, which draws on this modified modular system, with the assistance of Arab and foreign advisors.

At the Sana'a VTC, as well as at the other centers much instructional use is made of locally-made demonstration boards and models. These are effective displays and give some feeling for manual problems when hands-on materials are not available. In addition, the Sana'a VTC has demonstration boards at individual stations upon which students may practice electrical wiring skills. Some attention is being focused on local market needs in this area with the Sana'a VTC developing a training sequence in automobile electrical wiring (in addition to the already established house-wiring sequence).

At all of the VTC's the official emphasis of the curriculum is on manual training for students with no prior trades background; there is a two-to-one ratio of manual training to academic subject hours. Still, with a school year that is usually shorter than that of general postprimary schools and the added problems of a shortage of materials, and, in some cities, the occasional lack of equipment and qualified teachers, the annual number of hours spent in practical training is less than half of the industrialized world average for students of this level. At the Dhamar VTC it was observed that simple manual projects took much too long for students to complete. Also, no effort is made by the VTC's to use

students' vacation time for on-the-job training, appreaticeships, or industrial internships.

While it has been stated that the MOE influence in skill-training program development has resulted in programs that appear to students as alternative academic tracks, it should be recognized that the academic subjects offered at the VTC's do provide valuable literacy and numeracy skills. These may be as important to the skilled worker as is manual training. Manuals and catalogues are in heavy use in modern industry and VTC students are given some exposure to these written materials. The amount of progress students make in this area is of concern, however, because many students enter the program from primary school as functional illiterates and those who stay through the first year are more exposed to manual training activities than to the academic class work.

6.1.4.1.4 Evaluation

The Teachers Guide to Vocational Training (MOE, 1980) emphasizes student evaluation based on continuous observation of the attainment of skill objectives. Grades are awarded on the basis of these observations and performance on midterm and final examinations. The "Diploma of Vocational Training" is awarded after completion of exams and an additional 12-hour practical examination. Exam results are sent to the MOE. Despite the wide differences in equipment endowments, quality of teaching staffs, and the adherence to curricular objectives among the four centers, they all must conform to a common MOE evaluation policy. The awarding of the diploma ends the MOE-student relationship. There is no guaranteed employment for graduates nor has the ability and success of graduates in the job market been researched even though it appears that VTC graduates readily find employment in different sector's of the economy upon graduation.

6.1.4.1.5 Facilities and Equipment

All four vocational training centers have been

constructed and equipped since 1978. In this area as well as those discussed above, there are considerable differences in the current status of the four centers. The VTC's were completed in a series after having been authorized under the First Five Year Plan. Buildings and equipment were financed by a World Bank loan. There is a direct relationship between the current condition of the various centers and their staffing and student populations.

The Sana'a VTC, with its German-project status and a high proportion of well-trained Yemeni staff, is in the best physical condition of the four. The teacher-student rapport is such that students accept teachers' requests that they clean up the workshop areas themselves; these tasks are reserved for hired laborers in the other centers.

While the original national plan was to offer similar basic skill training in internationally standardized trades at the four centers, materials, teacher, student, and some equipment shortages have resulted in imbalances in the centers' offerings. Thus, while Hodeidah and Sana'a are able to provide training in six trades each, only two are offered to VTC students in Dhamar and Taiz.

Another important problem is that of skill training redundancy. Three of the VTC's have well-equipped carpentry shops and trained instructors. However, this is a trade that is well provided for in the "informal" or small-scale industrial sector. Thus, this activity attracts few VTC students. Also, the equipment in the carpentry shops is of the heavy industrial factory type, while the form of carpentry most in demand in Yemen requires a craftsman with simple mobile equipment. A similar argument of redundancy could also be made for some of the metal-working skills taught in the VTC's. At the other extreme is the VTC tendency to offer some machinery that is too advanced or complex for the level of skills taught. This problem will be further detailed in the TSS discussion below.

Equipping and maintaining industrial trades workshops and supplying them with the needed construction materials (wood, metal, nails, screws, etc.) is a great expense. This is proving to be a major constraint for VTC administrators. All of the directors mention shortages of materials and supplies as major obstacles to the smooth operation of their programs. To some extent efforts are made to recycle materials from nonschool suppliers. Also, the instructors attempt to extend the demonstration life of equipment and materials as long as possible.

Trying to maintain an inventory of machinery that comes from a wide variety of foreign sources (e.g., British, Italian, German) is another important problem. The MOE is now responsible for spare parts purchases and such procurement is proving to be a bottleneck in VTC operations.

6.1.4.1.6 Costs, Financing, and Donor Support

While the VTC's enrollment makes up only a small proportion of the YAR's student population they are a relatively expensive group to support. In addition to the one-time donor investment that has been made in the construction and equipping of the centers, the MOE is now also responsible for VTC student subsidies of YR 150 per month plus YR 350 per year for travel. The MOE also must absorb the operating costs of the newly-constructed dormitory facility at the Sana'a VTC. Based on a total VTC student population of about 500, these subsidies cost the MOE approximately YR 1,075,000 per year. Students pay no fees for their VTC education.

Other recurrent costs also are being absorbed by the government. The only donor assistance to VTC's available at this time is in the form of the German project to train teachers, the three German specialists at the Sana'a VTC, and the three Soviet specialists at the Hodeidah VTC (partially subsidized by the Yemeni government).

6.1.4.2 Technical Secondary Schools

6.1.4.2.1 Student Enrollments and Characteristics

A strong interest in technical education and a "pass" on the mathematics and physics entry examination will assure a preparatory school graduate a place in one of the two Technical Secondary Schools (TSS's) in Sana'a or Taiz. Table 6.5 shows that between 1978/79 and 1982/83 the percentage of preparatory school students entering the TSS's has been erratic. The almost tripling of the numbers of students between 1978/79 and 1979/80 can be accounted for by the opening of the TSS in Taiz that year. These figures reflect the number of students enrolling for the first-year program. Due to the anticipated rewards students hope to gain from university-level study, the retention and progression rate through the three years of study has been excellent.

Table 6.6 on the growth of students in TSS's also reveals some erratic data which partially can be accounted for by the opening of the Taiz school in 1979. There appears to be an upward trend from that point in the number of students choosing the technical secondary option. The TSS program, which was developed in order to train midlevel technicians for the YAR, primarily has attracted students because of the university-preparatory nature of the program. With the establishment of the Faculty of Engineering at Sana'a University and the opening of the Polytechnic, the number of students interested in the Technical Secondary School program is projected to increase. Attrition is almost negligible at this early stage of the TSS's with some departments actually growing in the second or third year, due to transfers from general secondary schools.

As can be seen in Table 6.7, 1983/84 enrollments at the TSS at Taiz were larger than the TSS in Sana'a. National statistics indicate that enrollments for the 1984/85 school year are 428 for Taiz and 250 for Sana'a. The Taiz TSS being more recently equipped, it offers more fields of study than at

TABLE 6.5

ENROLLMENTS IN TECHNICAL SECONDARY EDUCATION
1978/79 to 1982/83

Academic Year	Number of Students Receiving Preparatory Leaving Certificate	Number Attending Technical Secondary School	Percent Attending Technical Secondary School
1978/79	2963	73	2.5%
1979/80	3854	204	5.3%
1980/81	5628	450	8.0%
1981/82	9360	205	3.4%
1982/83	7372	215	2.8%

Source: Ministry of Education, Educational Statistics, 1984.

TABLE 6.6

GROWTH OF STUDENTS IN TECHNICAL SECONDARY SCHOOLS
1971/72 to 1982/83

Academic Year	Number of Students	Percent Change
1971/72	180	
1972/73	250	+38
1973/74	292	+16
1974/75	337	+15
1975/76	348	+ 3
1976/77	291	-16
1977/78	267	- 8
1978/79	267	0
1979/80	356	+33
1980/81	450	+26
1981/92	454	+ 9
1982/83	587	+29

Source: Ministry of Education, Educational Statistics, 1984.

TABLE 6.7

TECHNICAL SECONDARY STUDENTS IN THEIR FIELDS OF STUDY
1983/84

School	Class	Mechanics	Auto Repair	Electricity	Electronics	Building Const.	Civil Const.	Road Const.	Plumbing and Sanitation	Totals	
Sana'a	1st Yr.	-	22	22	-	28	-	20	-	92	
	2nd Yr.	-	21	19	-	19	-	13	-	72	241
	3rd Yr.	-	20	21	-	25	-	11	-	77	
Taiz	1st Yr.	15	21	22	21	20	15	-	19	133	
	2nd Yr.	16	17	17	20	15	20	-	-	105	353
	3rd Yr.	17	19	22	19	22	16	-	-	115	
System Totals	1st Yr.	15	43	44	21	48	15	20	19	225	
	2nd Yr.	16	38	36	20	34	20	13	-	177	594
	3rd Yr.	17	39	43	19	47	16	11	-	192	

Source: Ministry of Education, Guide to Technical Education, 1984.

Sana'a. Table 6.8, "Graduates of Technical Secondary Schools," shows that progress through the system has been good.

With dormitory facilities for all students at Sana'a and for third-year students at Taiz, the two schools are able to attract a national student body. However, the nature of study and the required preparation for entry would probably indicate that urban youths make up the majority of students. As with the VTC's, there are no female students in the TSS programs.

6.1.4.2.2 Teachers

The most significant characteristic of the TSS faculties is the predominance of the Chinese instructional staff. The TSS's have been a long-term project of the People's Republic of China and the last phase of this project has involved the contracting of Chinese technical teachers, translators, and manual workers to the YAR. The project also has involved the training of Yemeni TSS graduates in China to become technical teachers. There are currently 48 Chinese working at the TSS in Taiz: 18 teachers, 18 translators, and 12 "technical workers." The Chinese-Arabic translators are not themselves trained technicians so it has been noted that advanced questions from the Arabic-speaking students or detailed points from the Chinese-speaking teachers are not always communicated effectively.

However, the teachers and translators are very enthusiastic about their work and put long hours into program preparation. In 1982/83 there were also 32 Chinese teachers and six translators at the TSS in Sana'a. Interestingly, the female Chinese translators are the only women involved in technical education in the YAR. However, the cost to the Yemen government and the loss of time due to translation has made the use of translators an unsatisfactory arrangement. The MOE now plans that the next contract with the Chinese will require the use of instructor's with Arabic language fluency.

In both locations there are Chinese maintenance workers employed to keep the workshops clean, among other duties. The

TABLE 6.8

GRADUATES OF TECHNICAL SECONDARY SCHOOLS 1980-1983
BY SUBJECT AREA

School	Year	Mechanics	Auto Repair	Electricity	Electronics	Building Const.	Civil Const.	Road Const.	Total
Sana'a	80/81	-	15	15	-	17	-	12	59
	81/82	-	15	15	-	31	-	-	61
	82/83	-	19	21	-	22	-	12	74
Taiz	80/81	-	-	-	-	-	-	-	-
	81/82	-	-	-	-	-	-	-	-
	82/83	18	14	20	19	[illegible]	18	-	109
System Totals	80/81	-	15	15	-	17	-	12	59
	81/82	-	15	15	-	31	-	-	61
	82/83	18	33	41	19	42	18	12	183

Source: Ministry of Education, Guide to Technical Education, 1984.

contract that employs all Chinese personnel is scheduled to expire in 1985.

The teacher-student ratio has remained about 1:10 for the last five years. The remainder of the teaching positions, for both workshop and classroom studies, are filled by Iraqis, Syrians, and Egyptians. There are currently 58 Yemenis studying technical pedagogy abroad. However, with programs (as in China) that require four years of study, there will not be many new Yemeni teachers available in the short term. Further, not all of these students plan to enter teaching; some plan to enter specialized positions in industry.

Yemenis selected for higher technical pedagogy studies have performed well in their TSS programs. Tables 6.9 and 6.10 present detail on TSS staffing and data on the numbers of technical teachers studying abroad. The Yemenis selected for these overseas training programs are chosen on the basis of their grades, their interests, and, where possible, an indication of their trade aptitude or experience. Also, skilled work experience does not make up any significant part of the pedagological training.

6.1.4.2.3 Curriculum

The technical secondary curriculum is not an extension of the vocational training program and there are no direct linkages between the two programs. Rather, for most of the students in the TSS's, the manual training part of their studies is their first experience in this area.

Table 6.11 shows the TSS curriculum. MOE policy is that the TSS curriculum should emphasize classroom to practical work in a proportion of 60:40 across the three years of study. In addition to the 10 hours per week of practical training each year, the time spent on Industrial Drawing, Technical Science, Chemistry, and Physics are included as part of the 60 percent time allocated to practical work. The books used in the academic and technical "theoretical" areas are standard textbooks from other Arab countries. In the workshop periods,

TABLE 6.9

STAFFING OF VTC'S AND TSS'S

1983/84

School	Administrators	Yemeni Teachers	Yemeni Supervisors	Other Arab Teachers	Non-Arab Teachers	Non-Arab Technicians	Totals
TSS-SANA'A	8	10	-	10	47	39	114
TSS/VTC-TAIZ	7	5	14	15	61	-	102
VTC-SANA'A	6	18	3	14	7	8	56
VTC-HODEIDAH	5	7	-	15	8	-	35
VTC-DHAMAR	4	-	2	12	-	-	18
TOTALS	30	40	19	66	123	47	325

Source: Ministry of Education, Guide to Technical Education, 1984.

TABLE 6.10

YEMEN: TECHNICAL/VOCATIONAL TEACHERS
CURRENTLY IN TRAINING ABROAD

Country of Study	Academic Year	Number
China	1983/84	16
	1984/85	13
USSR	1983/84	7
	1984/85	15
Iraq	1984/85	4
Federal Republic of Germany	1984/85	3
		58

Source: Ministry of Education, 1984.

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TABLE 6.11

CURRICULUM OF TECHNICAL SECONDARY SCHOOLS

Subject	Number of Hours Per Week		
	Year I	Year II	Year III
Religion	3	3	3
Arabic	4	4	4
English	2	2	2
Sociology	2	-	-
Industrial Psychology	1	-	-
Mathematics	4	4	4
Physics	3	3	3
Chemistry	2	2	2
Technical Science	4	7	7
Industrial Drawing	4	4	4
Practical Training*	10	10	10
	39	39	39

*Each student has specialty

Source: ALESCO Report on Technical Education, 1982.

learning takes place principally through demonstration and to a lesser extent through student practice.

6.1.4.2.4 Evaluation

The academic pace set in the Technical Secondary Schools is a competitive one and the students' major goal seems to be to achieve high grades in the scholastic subjects, particularly in the sciences. These courses have the strongest impact on obtaining university admission. As the MOE commits itself to granting university admission to the top three students in each skill department of each TSS annually, students are highly motivated. There are few other advanced training possibilities for TSS students at this point with technical pedagogical training accounting for most of the opportunities. The remaining graduating students receive no other planned support from government. However, they have the opportunity to be hired as teachers or to join the government civil service or the private sector.

It generally is recognized that TSS graduates who enter immediately into technical work need substantial on-the-job training. Therefore, it is not unusual to find only a perfunctory evaluation of students' practical skills. There are annual displays of student work at both schools with the best projects chosen for exhibition. Students are graded on these projects and long hours are spent in perfecting them.

6.1.4.2.5 Facilities and Equipment

As emphasized with the VTC's, facilities, equipment, and curricula are closely linked at the TSS's and vary considerably between the two schools. The Taiz TSS is a newer facility than that in Sana'a which was started 15 years ago. The Sana'a school was built with World Bank funds, but now is staffed with Chinese instructors.

As with the VTC's, there is an important relationship between the condition of the equipment and whether or not there are students and teachers to use it. Thus, one finds

imbalances between workshops and laboratories within and between the two schools. The shortage of materials in some laboratories means that students never really understand the science that is under instruction. In workshops this lack can mean that students may have diagrams or models of mechanical procedures but because of equipment shortages are unable to follow through all of the steps in the procedures.

The Taiz TSS has several equipped laboratories and workshops that are inappropriately advanced for the technical level being taught. There is, for example, a well-equipped foundry which is one of only two in the YAR. It is unused at this time. There is also a thermodynamics lab but no corresponding instructor. In any case, because of its complexity, thermodynamics is not appropriate for TSS-level instruction. Similarly, soil testing and beam testing equipment in a construction lab goes unused because of this mismatch of equipment and teaching skills. Unused delicate equipment (such as for calibration and measurement) in some of the laboratories is in danger of deterioration due to lack of maintenance.

The TSS and VTC in Taiz share one campus and administration and, to some extent, instructors of Arabic, mathematics and religion. However, there are no other facility linkages between the two.

6.1.4.2.6 Costs, Financing, and Donor Support

The presence of the Chinese staff at the Technical Secondary Schools is a large expense for the MOE. Currently, the expatriate teachers and translators are paid US $600 per month. This arrangement is scheduled to end next year, however.

Students at Sana'a are provided room and board and third-year students in Taiz have similar accommodations. There is excess capacity in the dormitory in Sana'a but the Taiz administration feels that that school is at its limit. Students who are ineligible for housing receive YR 150 per

month subsistence allowance and all students receive a YR 350 travel allowance yearly.

Equipment, maintenance, teachers' salaries, and materials costs are all financed by the government. There is no other current assistance to the TSS's at this time, and students pay no fees. TSS administrators feel that they spend too much of their time with financial concerns and procuring recyclable materials for demonstration and student project use.

6.1.4.3 Commercial Secondary Programs

6.1.4.3.1 Student Enrollments and Characteristics

Commercial secondary education is the third division of VTE programs to be considered in this chapter. In the 1983/84 academic year commercial education was offered to 603 students in six schools: Abdul Nasr Secondary School (boys) and Awra Secondary School (girls) in Sana'a; Shab Secondary School (boys) and the Girls' Primary Teacher Training Institute in Taiz; Thawra Secondary School (boys) and the Girls' Teacher Training Institute in Hodeidah. It should be noted that commercial programs are taught as streams within other facilities; there are no separate commercial secondary schools.

The commercial streams enrollments have been increasing steadily since their establishment in 1969 (the first graduating class was in 1971/72). In the 1977/78 school year, classes for girls were added to the commercial offerings; this is the only division of VTE open to female students. Table 6.12 provides details of the growth of enrollments in commercial education. Between 1980 and 1983 enrollments in commercial secondary programs have averaged an 11.75 percent annual growth rate for boys and a 16.8 percent annual growth rate for girls. Part A of Table 6.13 presents enrollment detail by sex of student, location, and year of study. Attrition from the commercial stream is very low as this program, like the TSS, offers students a chance at university

TABLE 6.12
GROWTH IN SECONDARY COMMERCIAL PROGRAMS

School Year	Numbers of Students		Percent of Change	
	Boys	Girls	Boys	Girls
1971/72	60	--	--	--
1972/73	124	--	106.5	--
1973/74	174	--	40.3	--
1974/75	215	--	23.6	--
1975/76	217	--	1.4	--
1976/77	212	--	2.8	--
1977/78	240	17	13.2	100.0%
1978/79	282	78	17.5	325.0
1979/80	313	78	11.0	--
1980/81	360	92	15.0	35.0
1981/82	331	96	7.1	4.3
1982/83	375	123	13.3	28.1

Source: Ministry of Education, Educational Statistics, 1984.

admission. A 70 percent score on the commercial certificate exam will permit a student to enter Sana'a University's Faculty of Commerce and Economics.

Admission to the commercial secondary program is granted by passing the preparatory school leaving exam. There are no further formal requirements other than an expressed interest in commercial studies. As there are no dormitory facilities for commercial students, the enrollees must either be residents of the three towns in which the programs exist or have housing contacts there. The current ratio of boys to girls in the system is approximately 3.2:1.

6.1.4.3.2 Teachers

More than 50 percent of the faculty of the commercial secondary programs are Yemenis. All of the other teachers are expatriate Arabs. The Yemeni teachers are graduates of the Department of Commerce in the Faculty of Education, Sana'a University, and most of them have only recently begun their teaching careers. These new Yemeni teachers helped to double the teacher:student ratio between 1975 and 1982. The staffing of the commercial secondary programs is detailed in part B of Table 6.13.

For all of the commercial programs, the director is also the "host" school's director. These individuals rarely have commercial education training or experience. In several cases, however, the director does have an assistant responsible for commercial studies who has administrative rather than teaching duties. In Taiz the commercial teachers teach at both the boys' school and the girls' school and the girls' program has no special administrator for commercial studies. Teachers in this stream receive the same salaries as those teaching general secondary subjects.

6.1.4.3.3 Curriculum

The commercial secondary curriculum offers a general program in business studies with an emphasis on accounting and

TABLE 6.13

A. STUDENTS IN SECONDARY COMMERCIAL PROGRAMS, 1983/84

School	First Year	Second Year	Third Year	Totals
SANA'A Boys	61	39	21	121
SANA'A Girls	15	15	13	43
TAIZ Boys	55	53	34	142
TAIZ Girls	13	16	31	60
HODEIDAH Boys	72	56	68	196
HODEIDAH Girls	22	15	4	41
TOTALS	238	194	171	603

B. STAFFING OF SECONDARY COMMERCIAL PROGRAMS, 1983/84

School	Administrators	Yemeni Teachers	Yemeni Supervisors	Other Arab Teachers	Non-Arab Teachers	Non-Arab Technical Workers	Totals
SANA'A Boys	-	1	-	2	-	-	3
SANA'A Girls	1	3	-	1	-	-	5
TAIZ Boys	1	2	-	1	-	-	4
TAIZ Girls	1	1	-	2	-	-	4
HODEIDAH Boys	1	3	-	3	-	-	7
HODEIDAH Girls	-	2	-	2	-	-	4
TOTALS	4	12	-	11	-	-	27

Source: Ministry of Education, Guide to Technical Education, 1984.

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communications skills. Rather than growing out of specific Yemeni business needs, however, the curriculum is a generalized one found throughout the Arab world. While there is a shortage of textbooks, those that are used are from countries of the region. The three-year academic program is detailed in Table 6.14.

There is a strong feeling among commercial administrators and faculty that they must adapt their programs to the rapidly changing state of business technology. However, they do not receive sufficient MOE support to do so. There is an adequate supply of Arabic and Roman script manual typewriters, but teaching staff indicate a need for word processors, computers, telex machines, and electric typewriters. Most students have purchased their own calculators and use them regularly in their class work. MOE officials observe that modernization of the curriculum would require new administrative procedures, equipment, and training in equipment use to an extent that exceeds the present financial means of the MOE.

6.1.4.3.4 Evaluation

Commercial students are evaluated in the same manner as those in the general secondary track. This is a function both of the nature of the course work - closely resembling general secondary subjects - and of the physical proximity of commercial and general secondary students. Approximately 65 percent of the commercial students do well enough on the certificate exam each year to qualify for entrance to the Faculty of Commerce and Economics.

6.1.4.3.5 Facilities and Equipment

Detailed description of secondary school facilities and the girls primary teacher training institutes may be found in other chapters, but it should be noted that preparatory school graduates interested in commercial studies presently are being turned away due to lack of space in the program. Equipment status has been covered in the curriculum section above.

TABLE 6.14

CURRICULUM OF THE SECONDARY COMMERCIAL PROGRAM

Subjects	Number of Hours Per Week		
	Year I	Year II	Year III
Religion	5	4	4
Arabic	5	4	--
English	6	6	6
Sports	1	1	1
General Mathematics	1	1	--
Statistics	--	--	6
Economic Geography	2	1	--
Society	1	--	--
Accounting	4	4	4
Secretarial & Office Work	2	2	3
Correspondence	1	2	1
Commercial Mathematics	3	3	3
Economics	1	1	1
Commercial Law	1	1	--
Cost Accounting	--	--	1
Elective	--	--	2
Typing (Arabic)	4	3	3
Typing (English)	--	4	3
TOTAL:	37	37	38

Source: ALESCO Consultant's Report on Technical Education, 1982.

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6.1.4.3.6 Costs, Financing, and Donor Support.

In addition to the costs of typewriter maintenance and repair, the only other special budget item for commercial programs is the YR 150 per month subsistence allowance plus YR 350 per year for travel. In the boys' schools the subsistence allowance is a matter of some contention as the general stream students do not receive such a stipend. There are no dormitory facilities for commercial students and there is no donor support to the program at this time.

6.1.4.4 Other Concerns

The Ministry of Education is not the only organization in the YAR actively involved in technical training. Other government ministries, quasi-public agencies, and private companies at all levels are developing programs to meet their specific needs. Some of this activity will be described here.

Some ministries have one or more training institutes of some type attached to it. These may be for training present and future employees of the ministry, as with the Institute of the Ministry of Electricity, or operate as part of that ministry's public outreach function, such as the social welfare centers of the Ministry of Social Affairs. The institutes that train and upgrade ministry employees are usually well-planned and administered. Their objectives are narrowly defined with their participants having their future tasks firmly in mind. A partial list of government and private programs may be found in Table 6.15.

The Technical Training Department of Yemenia, the national airline, is an excellent example of a training program designed to meet constantly changing demands. Organized in 1978 and based at Sana'a International Airport, the training program for airplane maintenance personnel has graduated an average of 25 Yemeni mechanics each year over the past five years. Excellent quality control procedures have been maintained. The airline trains its staff to an internationally-accepted standard - a rigorous requirement in this particular industry.

TABLE 6.15

SELECTED LIST OF
NON-MINISTRY OF EDUCATION TRAINING INSTITUTES

Institute	Ministry or Administrative Authority	Location
Institute of Banking Studies	Central Development Bank	Sana'a
British Language Institute	British Government	"
Cultural Center	Ministry of Information	"
Workers' Cultural Center	Ministry of Labor & Social Affairs	"
Yemeni Studies Institute	Sana'a University	"
Radio and Television Institute	Ministry of Information	"
Telex and Telegraph Institute	Ministry of Communications	"
Youth Welfare Institute	Ministry of Youth and Sports	"
Health Institute	Ministry of Health	"
Customs Institute	Ministry of Finance	"
National Institute of Public Administration	Ministry of Planning	"
Water Training Institute	Ministry of Electricity & Water	"
Higher Judges' Institute	Ministry of Justice	"
Tax Institute	Ministry of Finance	"
Transportation Institute	Ministry of Transportation	"
Yemen-American Language Institute	US Government	"
Higher Technical Analysis Institute	Ministry of Health	"
Nursing School	Ministry of Health	Hodeidah
Cultural Center	Ministry of Information	"
Cultural Center	Ministry of Information	Ibb
Social Welfare Center	Ministry of Labor & Social Affairs	"
Agricultural Research Center	Ministry of Agriculture	"
Department of Mechanical Agriculture Training	Ministry of Agriculture	Taiz
Cultural Center	Ministry of Information	"
Social Welfare Center	Ministry of Labor & Social Affairs	"
Yemeni Women's Association	Ministry of Labor & Social Affairs	"

Source: Ministry of Civil Service and Administrative Reform, 1984.

The trainees are post-military service, secondary school graduates. Technical secondary school and/or some university study is preferred but only two or three students with these credentials apply each year. The trainees are at least 18 years of age. Above- average grades in the sciences are required and the candidate must pass an entrance examination that concentrates on English and science. Good physical condition is another qualification. The entrance examination is given whenever the airline needs trainees, usually annually. There has been an impressive growth in the numbers of applicants since the mechanical training program's inception. In the first year, 15 trainees were needed and only ten applied; last year 25 trainees were needed and 500 applied for places in the class. Trainees sign a five-year work contract with the airline and receive a monthly allowance of YR 1,500 during training. Graduates, after three years of training, can expect starting monthly salaries of about YR 6,000.

The mechanics' school curriculum meets and exceeds the American Federal Aviation Administration and other international standards. An intensive English course begins the program and then the trainees have 1,225 hours of general subjects (130 hours of workshop practice), 1,860 hours of airframe classes (950 hours of workshop practice) and 1,380 hours of power plant classes (740 hours of workshop practice). Theory and practice are well integrated throughout the three years of training and trainees are evaluated daily with weekly reports going to top management.

Currently there is a staff of nine instructors, five of whom are expatriates. All have worked as mechanics and have received advanced training overseas. Their salaries are equivalent to the highest level of mechanical workers and there is an effort to Yemenize the program by 1987.

The Training Department is also responsible for inservice or "recurrent" training, and Yemenia staff periodically are evaluated and assigned to short courses. The Training

Department has forecasts for manpower requirements in each skill area; training has slightly exceeded those forecasts to date. The flexibility and diversity of the Yemenia training program is a function of that enterprises's acute awareness of changing technology and the potential impact of these changes on the company's manpower needs.

In the private sector there are the traditional small-scale occupations, such as tailoring or carpentry, for which an extensive apprenticeship system exists. Such trades in urban areas tend to rely less on family labor and more on recruited or hired apprentices who are often involved in a step-migration process to the oil-producing states of the region. This type of training is common in rural areas as well.

In the capital-intensive industrial sector an impressive training program is being launched by the country's leading industrial enterprise, Hayel Saeed Anam and Company, Ltd. of Taiz. Wishing to follow government directives to Yemenize the industrial supervisory work force and frustrated by the low turnout from the MOE's VTE programs, Hayel Saeed is planning an ambitious technical institute near Taiz.

A construction budget of US $1.2 million has been allocated with $500,000 planned for annual expenditures. It is hoped that programs to train semiskilled and skilled workers and technicians will provide the company's factories with the trained manpower it needs. The factories are now producing at only half their capacity, partly due to manpower shortages.

On-the-job training and on-site theoretical studies will both be part of the institute's curricula. The highest level of trainee (pre-University) will receive 2,500 hours of practical work experience in a two-year program. Inservice training and management seminars also will be part of the Institute's program. This year an extensive overseas scholarship program has been started in the company in order to generate a vigorous interest in training even before the institute is completed.

The Hayel Saeed industrial group is well into its second decade of production in Yemen and formal training was not an

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original part of the company's development plans. Emerging from pressing needs for skilled manpower, the plan is being quickly and effectively put into operation by the company's training department.

6.2. ANALYSIS

This section uses the preceding discussion of vocational and technical education in the YAR to highlight the most important issues that the government faces in improving the internal and external efficiency of vocational and technical education, increasing access to and equity of the system, and improving the administration, supervision, and financing of this subsector of education. Analysis is offered within a context of needs, plans, and constraints.

6.2.1. Needs

The subsector of vocational and technical education needs to establish a strong link with national manpower requirements, to improve the relevance of teacher training and the quality of education received by school students and workers in upgrading programs, and to build an efficient coordinating body for vocational and technical education with planning and reactive capabilities.

6.2.2. Plans

Government plans to expand vocational and technical education to meet lower and midlevel manpower requirements and to acquire the practical skills which Yemen still lacks. Specific plans include the construction of a third Technical Secondary School at Hodeidah and the construction of a postsecondary polytechnic institute in proximity to the Faculty of Engineering at the University of Sana'a. The latter facility would provide postsecondary technicians and technical teacher training. Both projects are being implemented under a World Bank loan. A third plan of the MOE is to establish

separate facilities for the TSS and VTC in Taiz which now share a campus. Funding for this project has not been identified.

6.2.3. Constraints

Government plans for the development of vocational and technical education are constrained by (1) Limited articulation between technical education programs in the country and the wider socio-economy (e.g., the technical programs do not meet all the development needs, and the graduates are not sufficient to meet market demand); (2) The low prestige of many manual occupations, and (3) The lack of technical experience among staff at all levels; and, (4) The centralization of financial decisions affecting VTE. Also, as noted in the earlier discussion, the higher costs of VTE operation and the scarcity of teachers represent substantial constraints on current VTE operations as well as on future development of new programs.

6.2.4. Summary Issues

This section draws on the preceding discussion to develop several important issues which will confront goverment in its attempts to strengthen its manpower training capacity.

6.2.4.1 External Efficiency

The major issues of external efficiency of the vocational/technical subsector are (1) the lack of frequent labor demand studies to guide curriculum development and (2) the current limitations on who is to be trained in the system. The present entry requirements effectively exclude much of the Yemeni society from formal training opportunities because they do not have the primary education needed for admission to VTE.

VTE students experience finding employment after graduation has been positive; nearly all graduates have found work. Still, with the rapid development of the Yemen economy, the demand for skilled workers will continue to be great. The MOE may need to set priorities among VTE programs in order to ensure that an adequate amount of training in the most

important skill areas will be available. To do this, a strong knowledge base of what manpower demands are emerging in the economy (and in the Gulf region) will be necessary. This information will serve as a basis for the further design and development of technical training programs.

The MOE and the private sector are both trying to produce skilled labor but are doing so independently of each other. The MOE presently has only a limited capacity to coordinate with the needs of the private sector. Limited use of school facilities for public purposes does exist (such as for motor vehicle repair) and there is limited recruitment of students from the technical schools to work in private enterprises. To date, however, these experiences are not institutionalized or even officially defined.

The individual school's primary task appears to be to move students through the formal instructional system. However, at the end of the three years of study the next direction is unclear unless the student has further formal studies in mind. The relative lack of career guidance for the students contemplating vocational or technical education or for students nearing their graduation from such a program reduces the ability of Yemeni society to use its trained manpower effectively. While the MOE is providing some career guidance, more will be necessary if students are to make informed choices. Teachers and staff in the system lack technical work experience themselves (or, at least, lack experience in the Yemen labor market) so they are unable to bring the necessary career information to the classroom.

At the same time, much of the Yemeni population - rural or unschooled - is not qualified under present regulations to make use of the national training facilities. The potential increase in income that these people could enjoy through skill upgrading is thus not realized. The solution is to widen the group of participants for the vocational and training system.

6.2.4.2 Internal Efficiency

In less than 15 years vocational and technical education in the YAR has grown to a system with over 1,600 students and over 370 teachers and administrators. Rapid development of this type of complex educational program can pose instructional as well as management problems. The major issue in terms of internal efficiency is the balance between theory and practice and applying both to student performance and placement.

In the matter of putting students through the system, the Directorate of Technical Education must be commended. There are low attrition rates for students in all three divisions under consideration here. However, this achievement can be attributed primarily to the rewards that await those who use the system to gain access to higher education. Students who do drop out are primarily concentrated in the first year of the VTC's where the program does not meet their academic expectations. Rather than seek other places in the academic system, these students probably find nonacademic work alternatives at this stage.

An efficiency problem that concerns students is the evaluation of their practical work - workshops, labs, etc. Communications problems with non-Arabic-speaking teachers, poor technical skills of teachers, and insufficient individual work space or materials in some departments all make difficult the student's attempt to obtain a useful evaluation of his skill. This situation could jeopardize progress through the system and into a career. Equipment and materials procurement are important hindrances to efficient VTE performance.

In other curricular matters the students seem to make effective use of materials provided, except at the VTC level where some students lack sufficient literacy and numeracy skills. Their inability to grasp these skills at this stage could affect their job prospects.

Student/teacher ratios are generally low throughout the subsector (1:10 in VTE's and TSS's) and indicate both excess

capacity and potential for the development of better student-teacher relationships. The largely expatriate character of the VTE teachers, however, could impede this improvement. However, at present, the majority of the expatriate teachers are concentrated at the higher levels of the system (the TSS's) where many students are looking forward to going on to the University where classes also often will be taught by foreign instructors. Hence, the more advanced technical students experience instructional practices similar to those they might expect to encounter at the university. The concentration of Yemeni teachers at the VTC level seems appropriate since it helps those students who are going into the local job market (these instructors are more familiar with the skill needs in Yemen).

In terms of the training of Yemeni teachers for the VTE subsector, the administrators within the directorate have no control over where the teacher trainees come from, study, or return to work. This activity is controlled by another directorate in the MOE. Also, the natural lack of consistency across donors' training programs for teachers makes it difficult to plan a unified system with a sense of purpose and direction.

Lines of communication are also a problem in the commercial secondary streams. These programs are administered at the top by the Directorate of Technical Education, but at the classroom level they are all found in the General Secondary Schools and Primary Teacher Training Institutes. In terms of curricula the commercial stream does have more in common with general secondary studies than it does with either technical education or primary teacher training. Identity problems are a result. Examinations and university/job placement also are confused by this arrangement.

6.2.4.3 Access and Equity

As stated above in the external efficiency section, the narrow definition of whom the MOE is to train, i.e.

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reserving technical programs for those who make it through primary school, denies access to many people who are in greatest need of skill training. While this client population is also a concern of nonformal education, the point of mentioning it here is that technical education facilities are generally underutilized (carpentry workshops in particular). Also, in Ibb, Beidah, Marib, Hajjah, Sa'ada, and Mahweet governorates there are no technical education programs of the type discussed in this chapter. Of course, this is partly a function of low industrial activity and small populations in these areas, but some skills offered in the TSS's and VTC's would be well-suited to these nonurban regions.

Women have access to the subsector only in the commercial secondary streams, and, because their programs are taught in primary teacher training institutes, they are not surrounded by the competitive general secondary atmosphere that characterizes the boys' commercial streams. More importantly, women's skill development potential is being limited by the narrow program offerings. Women's access to this subsector also is constrained by the low number of educated women available for further training.

6.2.4.4 Administration and Supervision

The inspectorate in technical education is weak; even though the whole subsector consists of less than 15 institutions located in urban areas, inspectors are able to make visits only once or twice a year. Connections between the schools and the MOE are inadequate, increasing the school directors' feelings of isolation. Relations at the governorate level are better in that technical education directors can visit the governorate office very easily, although the ability for a governorate office to be of assistance is limited. Technical education is considered a national MOE program responsibility, (of the MOE and the other ministries offering vocational technical training) so all major direction and decisions must come from Sana'a. Within schools there appears

to be adequate supervision of teachers and good administrator-teacher rapport.

Research capability in vocational and technical education in the YAR is weak. MOE personnel involved in these programs do not have time to conduct the badly-needed studies of needs and performance. There is not, as yet, a specialist in vocational and technical education at the Educational Research Development Center, Sana'a.

6.2.4.5 Costs and Financing

Administering a subsector that is largely supported by a mix of donor contributions poses problems in the financial area as well. China, the Federal Republic of Germany, and the World Bank are current and potential supporters of the programs discussed in this chapter. The Federal Republic of Germany is interested in expanding its support to another VTC in Taiz. The World Bank has expressed interest in the TSS and the proposed polytechnic institute.

Vocational and Technical Education are expensive programs to operate and government is only now beginning to assume responsibility for the substantial recurrent cost obligations of maintaining the VTE schools. All VTC's and the TSS's in Taiz were equipped within the last five years, so there have not yet been large maintenance or repair bills. Students are also expensive to maintain, as all students within the VTE programs are either housed on school property or are given monthly allowances (plus the annual travel subsidy). General academic program students do not receive such allowances; thus, both equity and efficiency questions exist in regard to these costs.

6.3 MAJOR RECOMMENDATIONS

In this section a brief series of options to improve the efficiency of vocational and technical education is presented and discussed in conjunction with relevant programmatic

concerns such as teachers and curricula. Technical and vocational education in the YAR has made much progress in a short time towards modern institutionalization. Building on what has been established and using the opportunities that do exist within the system are the most efficient paths towards implementing any new options.

Before developing vocational and techical programs further, there is an urgent need for more data on the current status of the system in terms of the type and quality of graduates it is producing. There is insufficient understanding of how graduates of vocational and technical education programs fare in the postsecondary education system or in the employment markets. The corollary to this need is that a thorough examination of employers' (including government) attitudes towards vocational/technical graduates is needed. Establishing linkages in these two areas is an important step towards improving the dynamism and demand orientation of vocational and technical education programs.

Out of such a detailed status-and-needs assessment of the VTE system, a national training strategy may be developed. Such a strategy would help to ensure that training is linked to societal needs at every level as well as to raise national consciousness about the relationships among education, training, employment, and productivity. When the relationships among these variables is clear to those planning and implementing the VTE programs, the task of changing social attitudes towards manual training and work may begin. Should the MOE want to bring this understanding to the student level, the establishment of a career guidance program is an available option. At the present time, general attitudes towards technical/manual training and work create an underestimation of the benefits society stands to gain from positive changes in this area.

There are opportunities in the private and the quasi-public sectors for building a greater national consciousness of training needs out of what is already in place. The training

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officers working at Hayel Saeed Anam Ltd., Yemenia, and in other establishments are links to the formal educational system that could be expanded and replicated in all industries. However, it is well understood by most employers that the ultimate source of a Yemeni supervisory labor force is the existing school system, and that fact alone would make any positive contact welcome.

6.3.1 Students, Curriculum, and Cost Recommendations

On-the-job training is an option already in place at every level of private sector enterprise, from the informal small-scale industries to the nation's largest factories. What is lacking within these programs is a prerequisite general education program that promotes an acceptable level of literacy and numeracy. The worlds of work and learning need not be separate, and in the YAR progress can be made quickly in linking them. For example, the workshops of the VTC's and TSS's are already available to private citizens for auto repair, furniture repair. Such arrangements could be institutionalized and made a regular part of the school's operation. Earnings from such activities could reduce VTC and TSS recurrent costs as well as serve the purpose of introducing students to the experiences and responsibilities of work. Students could also be encouraged to use their ample vacation periods for organized apprenticeships in fields related to their studies. An informal precedent already exists in that many students attend double-shift secondary schools while employed in private-sector jobs in their non-school hours.

An option toward linking technical education program costs, student on-the-job experience, and manpower planning concerns would be the implementation of the option of industrial sponsorship or partial sponsorship of students in VTC's and TSS's. Such funding would ensure a particular industry or company of a skilled Yemeni labor supply and improve students' perceptions of what awaits them after their schooling. It also would eliminate the need for subsidizing students in vocational

and technical education. Incentives would be built into education in the form of guaranteed employment. An important constraint could be the current lack of communication between the schools and the industries.

Strengthening the link between the schools and the community is another option available for technical education. As discussed in the analysis section, the established definition of who is to be trained is excessively narrow. This definition deprives those who are most in need of skills of training opportunities and deprives the society of potential manpower. By expanding community use of existing facilities, the gap between the "schooled" and the "nonschooled" segments of the working population would begin to be reduced.

While the desire to expose students to a rigorous program is a legitimate and commendable aim, greater flexibility (e.g. work experience in industry) in the VTE programs would not necessarily reduce system effectiveness. Permitting a wider portion of the society access to technical facilities for legitimate instructional purposes would benefit the students by exposing them to practical and immediate application of the subjects under study.

An important constraint would be that greater usage would put a strain on staff, facilities, and equipment/materials budgets. However, community-use programs could be run most effectively on a user-fee basis. The emphasis should be upon trainee-centered learning and when the trainees, whoever they may be, want to learn a particular skill or aspect thereof, the barriers to that learning experience should be minimized. If there is little or no demand for training in a particular trade, or if that trade is more effectively taught outside of MOE programs, then the MOE should exercise the option of closing the program in favor of programs with higher demand.

6.3.2 Facilities' Recommendations

In the present stage of growth of vocational and technical education it is imperative that the MOE retain clear

supervisory control over these programs. In this way, the VTE programs can become closely related to the determined demands and needs for skills in the wider society.

Within the VTE system, particular attention should be given to the expansion of VTC's. A benefit of expansion of the VTC program is that it is a more flexible system and more easily suited to community needs than the secondary technical program. Teachers would be more readily available for such an expansion and a locally-adapted curriculum is already in use at the Sana'a VTC. Careful attention to manpower requirements is essential, however, before <u>any</u> technical education expansion takes place.

The possibility of program enhancement rather than proliferation also should be considered. Where laboratories and workshops in the VTC's and TSS's have been determined to be underutilized, inappropriate for the educational level, or inadequately staffed, (see section 6.1.4.2.5) the equipment could be inventoried, stored, and made available for future expansion of the system (for example, to equip the planned polytechnic).

Where there is excess space, due to removal of equipment or insufficient technical students, the classrooms could be used to relieve the overcrowded general secondary schools of Taiz and Sana'a, thereby exposing more students to a "technical" atmosphere and assisting in the remediation of the image problem mentioned earlier.

7.0 TEACHER TRAINING

7.1 STATUS

Teacher training in the YAR is provided domestically by the Primary Teacher Training Institutes (PTTI's), the General Primary Teacher Training Institutes (GPTTI's), and the Faculty of Education (FOE), Sana'a University for primary, preparatory, and secondary graduates, respectively. The FOE also offers three post graduate programs: the General Diploma, Special Diploma, and Master of Science (M.S.) program. The diploma programs are in their second year of operation and the M.S. program is in its first year. Both undergraduate and graduate degrees are also pursued out of country. Most undergraduate study in education takes place in Arabic speaking countries, while recent masters' and doctoral level work has been done in the United States and the United Kingdom.

Despite the expansion in the YAR's teacher training capacity in the past decade, the demand for teachers still outstrips supply. At all levels of the educational system, non-Yemeni teachers constitute a large majority of all teachers. The capacity of the TTI's to meet the needs of a rapidly expanding system is, however, not the only or prime reason for this shortfall. Other reasons include: (a) the relative unattractiveness of teaching as compared with other professions; (b) the willingness of donors to support foreign teachers; and (c) the relatively high qualifications necessary for certification at all levels. Thus, improvements in this subsector are constrained by financial, manpower, and structural factors.

7.1.1 Historical Setting

Before 1962, the only schools available to most Yemeni were the religiously oriented schools for Koranic instruction. The schools were taught by religious scholars, chosen for their piety rather than for their formal qualifications as teachers.

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Instruction was primarily in Islamic practice and law, although some teachers also provided literacy training in Arabic.

A high demand for formal schooling has developed since the national revolution and this has resulted in the need for training large numbers of new teachers. The first PTTI's were established in 1963. Primary graduates received three years of instruction and successful program completion was rewarded by the "First Teacher Certificate" or Diplome Awwali. Graduates were generally assigned to lower primary classes. Since their training expenses had been met by government, they were required to teach for two years. By 1980, 645 students were being trained in 20 institutions.

Dissatisfaction with the curriculum of the PTTI's, the quality of teachers produced, and the young age of the graduates led to a major restructuring of the program. Beginning with the academic year 1981/82, two years were added to the original three-year program. Thus, new entrants were offered a five-year program, while those already in training were allowed to complete the former curriculum. Currently, there are 37 PTTI's, 31 for males with 2,245 students and six for females with 911 students.

The teacher training system designed for preparatory graduates, the General Primary Teacher Training Institutes or GPTTI's, have remained much the same since inception. Training in the GPTTI's is for three years at the end of which graduates receive the General Teacher's Diploma. Students graduating from these institutes are required to teach for up to four years. They are assigned to upper primary classes. At the present time, there are some 1,233 students, 461 females and 772 males, in the 12 GPTTI's. All but one of the GPTTI's share facilities with a three-year PTTI. In contrast to many of the PTTI's, the GPTTI's are all located in urban centers. Historical data on PTTI and GPTTI graduates are summarized in Table 7.1.

Major responsibility for the recruitment and training of teachers for the preparatory and secondary education levels

TABLE 7.1

PRIMARY TEACHER TRAINING GRADUATES

1976/77 - 1983/84

SCHOOL YEAR	POST-PRIMARY PTTI GRADUATES	POST-PREPARATORY GPTTI GRADUATES	TOTAL
1976/77	140	42	182
1977/78	449	155	604
1978/79	276	150	426
1979/80	212	92	304
1980/81	350	295	645
1981/82	392	181	563
1982/83	160*	290	450
1983/84	---	353	353
TOTAL	1969	1558	3527

SOURCE: M.O.E. General Directorate of Teacher Training, 1984.

*Program phased out; replaced by five-year program with first graduates in 1984/85

TABLE 7.2

FACULTY OF EDUCATION GRADUATES

1976/77 TO 1983/84

SCHOOL YEAR	FEMALE	MALE	TOTAL
1976/77	15	139	154
1977/78	13	128	141
1978/79	12	108	120
1979/80	15	82	97
1980/81	9	86	95
1981/82	14	76	90
1982/83	23	100	123
1983/84	24	135	159
TOTALS	125	854	979

SOURCE: Technical Office, Sana'a University, 1984.

rests with the Faculty of Education, Sana'a University. The FOE was one of the first faculties established after the University was founded in 1970. Table 7.2 presents data on the number of graduates, male and female, from 1976/77 through 1983/84. Contracted students agree to serve as teachers for five years after graduation. It should be noted, however, that not all graduates enter teaching; some have been assigned to the central MOE offices or to one of the governorate education offices (GEO's).

In addition to its undergraduate program, the FOE now offers a number of postgraduate programs: two one-year diploma programs and a masters' program. The General Diploma program is designed for college graduates with non-education majors. Graduates of the program are certified to teach in preparatory or secondary schools. The Special Diploma program, in contrast, is oriented to educational practitioners who hold a B.A degree. In practice, the Special Diploma program serves as a prerequisite to, and counts as the first year of the two-year masters' program. Special Diploma students major in either Educational Administration or Methodology and Curriculum. Masters' work consists of a year of research beyond the course work taken in the Special Diploma program. In the fall of 1984, approximately 30 students were enrolled in the General Diploma program and 30 in the Special Diploma/Masters' sequence. Since postgraduate students do not receive special stipends, they are not obligated to serve as classroom teachers after program completion.

Foreign study in teacher training is supported both by the government and the University. Most government support is for undergraduate study in neighboring Arab countries while the University's program for future faculty exclusively supports postgraduate degree work. In 1982/83, 119 students were pursuing their baccalaureates, 21 masters' degrees, and six their Ph.D.'s in one of the following countries: Egypt, Saudi Arabia, Syria, Kuwait, Algeria, the United Arab Emirates, the United States, and the United Kingdom.

7.1.2 National Goals and Strategies

National educational and teacher training objectives have been specified in the ongoing Second Five-Year Development Plan SFYP) spanning the years from 1982 to 1986. Government has taken the view that education in the 1980's will require a large investment so that its chronic problems can be addressed. Among these problems are the acute shortages of facilities, teachers, and teacher trainers.

Government intends to pursue the development of education with the goal of attaining universal education, as well as social equity and justice, through increased participation by the rural and female populations. Specific goals relating to the education sector and the subsector of teacher training are:

1. Expansion and improvement of primary education to meet increasing demand; primary school enrollments are projected to increase by more than 11 percent annually during the plan period;

2. Extension and improvement of Yemeni teacher training to include: a new system of primary teacher training (grades 7-11) and new PTTI's in rural areas; a senior PTTI (grades 13-14) to provide primary teacher training to graduates of general secondary schools; a program of inservice teacher training and upgrading of teacher trainers; and

3. Development and modernization of curricula in order to improve education and training.

7.1.3 Organizational Structure

The General Directorate of Teacher Training is one of only five general directorates in the Ministry of Education (MOE) that report directly to the Deputy Minister. The general directorate consists of three directorates: teacher training, inservice training, and teacher training follow-up. The teacher training directorate is by far the largest and has direct responsibility for the rural PTTI's and the GPTTI's.

The Faculty of Education programs are coordinated within the administrative system of Sana'a University (discussed in detail in Chapter 8.0). Although autonomous of the MOE, the FOE is responsible for coordinating its training programs with

the General Directorate of Teacher Training. Such coordination has not always been achieved but the present situation is an improving one.

The preceding discussion of the historical setting of teacher training covered the development and transformation of the various forms of teacher training that have existed in the YAR. At present, the system is as follows:

1. Thirty-one rural primary teacher training institutes exist; they train postprimary students for five years for assignment to primary education; in 1983/84 these institutes enrolled 1,256 teacher trainees.

2. Twelve three-year general teacher training institutes; all are in urban areas and six are reserved for female students; all students are preparatory school graduates; enrollments equalled 1,233 in 1983/84.

3. The Faculty of Education at Sana'a University; in 1982/83 there were 807 students enrolled of whom 300 were in years three and four of their programs; all students are graduates of general secondary schools, scientific institutes, or GPTTI's.

As was indicated in the earlier chapters on primary and preparatory/secondary education, the great majority of practicing teachers in the YAR are non-Yemenis. For 1982/83 the proportions were 84.8 percent for primary education, 93.4 percent for preparatory education, and 94.0 percent for secondary education. These expatriate teachers include both seconded and contract teachers. Seconded teachers are those provided and paid for by foreign governments while contracted teachers are foreign nationals hired directly by the MOE.

Recruiting and hiring of expatriate contract and seconded teachers is the responsibility of a three person committee consisting of a member from the Directorate of General Education, one from the Directorate of Personnel, and one from any third Directorate. The Directorate of Financial and Administrative Affairs is responsible for recruiting all Yemini teachers. The General Directorate of Education assigns all teachers (Yemini and expatriates) either directly or through the GEO's.

7.1.4 Programmatic Concerns

7.1.4.1 Student Enrollments and Characteristics

7.1.4.1.1 Primary Teacher Training Institutes

Detail on enrollments in teacher training programs are available most recently for the 1983/84 school year. Table 7.3 presents the enrollments for that year in the rural PTTI's. While 16 new PTTI's have been added in the last two years, these are all small programs attached to existing preparatory schools. However, the combined effect of increased enrollments at the original 20 PTTI's and the enrollments at the 16 new schools has resulted in almost doubling of the total PTTI enrollments (from 1,670 students in 1982/83 to 3,256 in 1983/84). The majority of all PTTI students are in the first two years of the five-year program.

The 1983/84 figures indicate the excellent regionalization that exists within the PTTI system. The 36 institutes are spread across ten governorates with Hodeidah having the largest number (seven) and Mahweet, Ma'rib, and Sa'ada having one each. Enrollments vary more dramatically with over half (57.1 percent) of the PTTI students for 1983/84 located at the institutes in the Sana'a, Taiz, and Hodeidah governorates. The eleven new PTTI's have been distributed so as to further promote the MOE's regionalization goals.

Female students make up 28.6 percent of the 3,256 students enrolled in 1983/84. This compares with 38.8 percent in 1982/83; the difference indicates the predominance of male PTTI's in the expansion schools. For 1983/84, the female enrollments in PTTI's by governorate were: Sana'a, 253; Taiz, 293; Hodeidah, 217; Ibb, 75; Zabid, 37; and Hajjah, 36.

7.1.4.1.2 General Primary Teacher Training Institutes

Table 7.4 presents the 1982/83 enrollments for the eleven GPTTI's in operation that year. Total enrollments for 1982/83 were 1,093 with 672 male students and 421 females.

TABLE 7.3
POSTPRIMARY TEACHER TRAINING ENROLLMENTS (FIVE-YEAR PROGRAM)
1983/84

Governorate	MALES					FEMALES					Total Enrollments
	Number of Schools	First Year	Second Year	Third Year	Total	Number of Schools	First Year	Second Year	Third Year	Total	
Sana'a	7	236	155	76	467	1	104	95	54	253	720
Taiz	4	178	139	67	384	1	101	106	86	293	677
Hodeidah	3	247	155	86	488	2	119	62	73	254	742
Ibb	1	78	88	46	212	1	19	34	22	75	287
Hajjah	2	86	44	20	150	1	11	17	8	36	186
Dhamar	7	290	118	48	456	--	--	--	--	--	456
Beidah	3	51	30	--	81	--	--	--	--	--	81
Sa'ada	1	27	15	--	42	--	--	--	--	--	42
Ma'rib	1	16	18	--	34	--	--	--	--	--	34
Mahweet	1	13	18	--	31	--	--	--	--	--	31
Total	30	1,222	780	343	2,345	6	354	314	243	911	3,256

Source: Ministry of Education, General Directorate of Teacher Training, 1984.

TABLE 7.4
POSTPREPARATORY TEACHER TRAINING ENROLLMENTS (THREE-YEAR PROGRAM)
1983/84

Governorate	Males					Females					Total Enrollments
	Number of Schools	First Year	Second Year	Third Year	Total	Number of Schools	First Year	Second Year	Third Year	Total	
Sana'a	1	88	64	46	198	1	40	46	42	128	326
Taiz	1	92	115	80	287	1	37	44	51	132	419
Hodeidah	2	67	54	34	155	2	39	59	44	142	297
Ibb	1	21	43	30	94	1	23	7	6	36	130
Hajjah	1	14	9	15	38	1	11	7	5	23	61
Total	6	282	285	205	772	6	150	163	148	461	1,233

Source: Ministry of Education, General Directorate of Teacher Training, 1984.

The GPTTI's existed in only five governorates (Sana'a, Taiz, Hodeidah, Ibb, and Hajjah) with 34.6 percent of all enrollments in the Taiz governorate alone.

Female students were a majority of GPTTI students only in Hodeidah, but represented 39.5 percent of all students in Sana'a. Only 16.8 percent of the students in the Ibb programs were females. For 1983/84 total enrollments in the GPTTI's increased to 1,233 students of whom 461 (37.4 percent) were female. The female enrollments by governorate were: Sana'a, 128; Taiz, 132; Hodeidah, 121; Zabid, 21; Ibb, 36; and Hajjah, 23.

7.1.4.1.3 Faculty of Education

Table 7.5 presents the 1982/83 enrollments in the Faculty of Education by sex of student, year of study, and by nationality (Yemeni and non-Yemeni). Of the 807 students, 663 (82.2 percent) were male. For 1982/83, 14 male and 12 female students in the FOE were non-Yemenis. Education normally has the lowest number of non-Yemeni students of all of the University's faculties.

Table 7.6 provides data on the 1984/85 first year students by nationality, contract/non-contract status, nature of previous training, sex of student, and special field. The figures indicate that first time enrollments are generally Yemeni, contract-status, evenly divided between GPTTI and General Secondary graduates (the latter category includes graduates of the secondary Scientific Institutes) and male. Non-contract-status students include non-Yemenis, students who have incomplete documentation on their secondary work, and students admitted to the FOE on probationary terms. Students from the latter two categories may receive contract-status (and the concomitant financial support) upon successful completion of their first year.

7.1.4.2 Teachers

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TABLE 7.5

ENROLLMENTS IN THE FACULTY OF EDUCATION

1982/83

ACADEMIC YEAR	YEMENI			NON-YEMENI		
	FEMALE	MALE	TOTAL	FEMALE	MALE	TOTAL
FIRST YEAR	46	234	280	8	11	19
SECOND YEAR	40	165	205	2	1	3
THIRD YEAR	24	139	163	1	2	3
FOURTH YEAR	22	111	133	1	-	1
TOTAL	132	649	781	12	14	26

SOURCE: Sana'a University, 1984.

TABLE 7.6

FIRST YEAR STUDENTS IN THE FACULTY OF EDUCATION
1984/85

Special Field	SEX		PREVIOUS TRAINING			CONTRACT STATUS		NATIONALITY		
	Male	Female	Secondary Graduate	GTTI Graduate	Transfer	Contracted	Non-Contracted	Non-Yemeni	Yemeni	Total
Islamic Studies	71	31	47	54	--	85	17	0	102	102
Arabic	32	3	22	13	4	30	5	3	32	35
English	26	8	21	13	4	33	1	--	34	34
History	17	12	5	22	--	27	2	--	29	29
Geography	18	9	6	21	--	27	--	--	27	27
Philosophy and Sociology	5	6	7	4	--	11	--	--	11	11
Mathematics	17	2	10	9	--	17	2	1	18	19
Physics	6	--	2	4	--	5	1	--	6	6
Physics	3	--	2	1	--	3	--	--	3	3
Chemistry	7	1	7	1	--	7	1	--	8	8
Biology	34	23	29	28	--	53	4	--	57	57
Total	236	95	158	170	8	298	33	4	327	331

Source: Faculty of Education, Sana'a University, 1984.

7.1.4.2.1 PTTI's

One of the more controversial issues within the area of teacher training is that of the level of qualifications required for instructional staff at the PTTI's and the GPTTI's. The present pattern of recruitment and training suggests a goal of a bachelor's degree or an equivalent as the predominant and (ultimately minimal) qualification for teaching at a teacher training institute. This is both an expensive (in terms of required training and for salaries, once the individual is trained) and a pedagogically questionable standard to establish.

Between 1980/81 and 1982/83 the number of instructional staff at the primary teacher training institutes increased from 55 to 118. This increase generally was proportional to the increase in enrollments as the student/teacher ratio changed only from 14.0 to 14.2. While this is a low student/teacher ratio, it should be interpreted with caution since (a) many PTTI teaching staff also teach at a preparatory or a secondary school, (b) some PTTI's are not yet complete, so there is not enough classroom space to accommodate more students and, (c) the student/teacher ratio is believed to have increased since 1982/83.

7.1.4.2.2 GPTTI's

In 1982/83, there were eleven GPTTI's in operation with ten of them sharing staff and facilities with PTTI's. The number of teachers in the GPTTI's in that year was 244, up from 127 in 1980/81. The student teacher ratio between 1980/81 and 1982/83 declined from 6.1 to 4.5.

Data on teachers by subject taught are not available separately for the PTTI's and GPTTI's. Table 7.7 presents the total number of teachers for each subject in the programs in 1982/83. The largest numbers of teachers are in the subject areas of Arabic, Social Studies, Science, and Islamic Studies. The smallest subject area is home economics; this course was offered only in the six girls' schools (with nine teachers participating). All other subjects were taught at every school

TABLE 7.7

PTTI AND GPTTI TEACHERS BY SUBJECT TAUGHT
1982/83

SUBJECT	NUMBER OF TEACHERS
Islamic Studies	40
Arabic	43
Mathematics	34
Science/Health	42
Social Studies	43
English	33
Psychology	31
Writing	20
Home Economics (for females only)	9
Instructional Materials	24
Music	19
Gymnasium	24
TOTAL:	362

Source: Faculty of Education, Sana'a University, 1984.

with the exception of music; it was not offered at two schools in 1982/83 because of the unavailability of a qualified instructor.

7.1.4.2.3 Faculty of Education

At the present time, three of the eleven professional staff members in the FOE are Yemeni. All three, including the Dean, are at the rank of lecturer. The eight non-Yemeni staff include one professor, two assistant professors, and five lecturers. The FOE has a policy of hiring new teaching staff in the lower ranks because of the differences in the level of teaching responsibilities by rank. Full professors carry a maximum teaching load of 8-10 hours a week, while assistant professors and lecturers are expected to teach 10 to 12 hours and 12 to 14 hours, respectively.

Faculty of Education instructors teach only the educational courses; FOE students cross-register in other faculties for courses related to their special fields (e.g., science or mathematics). In addition, instructors from other faculties assist in the supervision of practice teaching in their area of specialization.

7.1.4.3 Curriculum

7.1.4.3.1 PTTI's

The curriculum of the PTTI's was revised for the 1983/84 academic year and is designed to place increased stress on subject field mastery and pedagogical concerns. Table 7.8 presents the curriculum in terms of subject areas and the corresponding hours per week of study for each of the five years of the program. The academic courses of Islamic Studies, Arabic, mathematics, science and health, social studies, and English make up 31 of the 36 hours of study per week, or 86.1 percent of the curriculum time in the first two years of study. The proportion spent on academic subjects declines to 23 of 39 hours in year three and 21 of 39 hours for the final two years.

TABLE 7.8

CURRICULUM OF FIVE-YEAR PRIMARY TEACHER TRAINING INSTITUTES

SUBJECT AREAS	HOURS PER WEEK				
	YEAR ONE	YEAR TWO	YEAR THREE	YEAR FOUR	YEAR FIVE
A. ACADEMIC COURSES					
ISLAMIC STUDIES	7	7	6	5	5
ARABIC	7	7	6	5	5
MATHEMATICS	6	6	3	3	3
SCIENCE AND HEALTH	4	4	3	3	3
SOCIAL STUDIES	3	3	3	3	3
ENGLISH	4	4	2	2	2
TOTAL	31	31	23	21	21
B. CULTURAL COURSES					
ART APPRECIATION	2	2	1	1	1
MUSIC APPRECIATION	1	1	1	1	1
PHYSICAL EDUCATION	2	2	1	1	1
TOTAL	5	5	3	3	3
C. PEDAGOGICAL COURSES					
EDUCATIONAL FOUNDATIONS	-	-	2	2	2
EDUCATIONAL PSYCHOLOGY	-	-	2	2	2
METHODS OF TEACHING	-	-	3	3	3
INSTRUCTIONAL MATERIALS	-	-	2	2	2
PRACTICAL EDUCATION	-	-	2	4	4
TOTAL	0	0	11	13	13
D. SPECIAL COURSES					
SOCIETY AND ENVIRONMENTAL ADMINISTRATION (MALE TRAINEES ONLY)	-	-	2	2	2
HOME ECONOMICS (FEMALE TRAINEES ONLY)	-	-	2	2	2
TOTAL	0	0	2*	2*	2*
GRAND TOTAL	36	36	39	39	39

SOURCE: Ministry of Education, Decree No. 144.
*Students take only one of the special courses.

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No pedagogical courses are offered until year three, and in the last three years of study these courses constitute only eleven hours of work out of the scheduled 39. The remainder of the curriculum consists of either "cultural" courses or special courses offered separately for male and female students.

7.1.4.3.2 GPTTI's

The curriculum for the three-year GPTTI's is indicated in Table 7.9. Surprisingly, the students in the GPTTI's spend an even smaller percentage of their time in pedagogical courses than do students at the PTTI's. Only seven hours out of the 39 scheduled per week in year one are allocated to pedagogy (equivalent to 17.9 percent of curriculum time). This is further reduced to only three hours per week for years two and three. In these last two years, students are supposed to engage in evening practice teaching and to gain additional experience with instructional materials by working with a primary school teacher. Visits to the institutes suggest that these activities are not always regularly scheduled and that great variation exists among the institutes in the attention placed on field experience.

Given the importance of subject field mastery in teaching, the allocation of time at the GPTTI's (as at the PTTI's) may be appropriate. The question that is raised is whether one needs a separate institution to provide teacher training, when that training largely consists of the same courses offered at regular preparatory or secondary schools. The only advantage of the existing TTI's over regular school programs with a teacher training option is that the present system reduces the teacher trainees' employment opportunities outside the teaching profession. Even if this is an acceptable and effective strategy, there is still a need to consider providing the teacher training option as an alternative for preparatory and secondary students in the regular schools.

TABLE 7.9

CURRICULUM OF THREE-YEAR PRIMARY TEACHER TRAINING INSTITUTES

SUBJECT AREAS	YEAR ONE	YEAR TWO	YEAR THREE
A. ACADEMIC COURSES			
ISLAMIC STUDIES	6	6	6
ARABIC	6	6	6
SOCIAL STUDIES: History, Geography and Civic Education	3	4	4
SCIENCE AND HEALTH	3	4	4
MATHEMATICS	4	4	4
ENGLISH	4	4	4
TOTAL	26	28	28
B. CULTURAL COURSES			
ART APPRECIATION	1	2	2
MUSIC APPRECIATION	1	2	2
PHYSICAL EDUCATION	2	2	2
TOTAL	4	6	6
C. PEDAGOGICAL COURSES			
EDUCATIONAL FOUNDATIONS AND THEIR PRACTICAL APPLICATION IN PRIMARY SCHOOLS	3	3	3
PRACTICAL EDUCATION	2	(Evening Practice)	
INSTRUCTIONAL MATERIALS	2	(To Be Practiced at a Primary School)	
TOTAL	7	3	3
D. SPECIAL COURSES			
SERVICE TO SOCIETY: APPLICATION AND METHODS FOR MALE TEACHERS	2	2	2
HOME ECONOMICS METHODS FOR FEMALE TEACHERS	2	2	2
TOTAL	2*	2*	2*
GRAND TOTAL	39	39	39

SOURCE: Ministry of Education, Office of Director General of Teacher Training

*Students take only one of the special courses.

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7.1.4.3.3 Faculty of Education

FOE students may concentrate in Islamic studies, Arabic, English, history, geography, philosophy and sociology, mathematics, physics, chemistry, or biology. Students majoring in physics generally minor in mathematics or chemistry. Until 1981, students also were permitted to concentrate in commerce. The FOE was requested to eliminate this special field due to the number of graduates with similar skills produced by the Faculty of Commerce and Economics.

Currently, students are encouraged to major in fields other than social studies (history, geography, philosophy/sociology) since there is a greater need for teachers in the other specializations. Disincentives to pursue a social science major include both a lower likelihood of acceptance into the program (of the 331 students admitted in 1984/85, only 67 are social studies majors) and a lower stipend (YR 10,200 a year as opposed to YR 11,400 per year).

The curriculum is divided among education requirements (33 percent), university-wide requirements (15 percent), major field requirements (50 percent), and electives (2 percent). From 132 to 137 credits are required for graduation, depending on major. The education core courses, by year, are detailed below.

First Year:	Introduction to Psychology Islamic Education
Second Year:	Methodology and Curriculum Audio-visual Techniques Educational System in Yemen Practice Teaching
Third Year:	Theories of Learning and Mental Abilities Comparative Education Methodology Curriculum Analysis
Fourth Year:	Personality and Psychology Audio-visual Techniques Education Research Practice Teaching

All education courses are provided within the FOE. As noted earlier, students cross register in other faculties for courses in their special fields and to fulfill general university requirements. The university-wide curriculum obligation consists of two credits each in Arabic and English and one credit in Islamic Culture. All courses taught within the FOE are in Arabic and the FOE has requested other faculties to do the same for Education students in their courses.

The FOE requires a 70 percent attendance rate for classes. Students failing to fulfill this requirement must pay a penalty fee of YR 75 to qualify to sit for the examination. Contract students may also be assessed a portion of their stipend as a penalty for nonattendance.

Students who fail a course must repeat that course. Students are rarely asked to repeat the entire year. Yemeni students, contract-status or not, who maintain a grade average of "excellent" receive a financial reward of YR 600 at the end of each semester. Those who average "very good" are given YR 300. An average of "good" also was rewarded in the past but this practice has been discontinued

7.1.4.4. Evaluation

7.1.4.4.1./2 PTTI's and GPTTI's

There are no separate admission tests for the PTTI and the GPTTI's. Applicants must have a primary or preparatory certificate, respectively, a health certificate, and provide a guarantee of service. All prospective students are interviewed to determine their seriousness and their ability to speak well; the interview also is used to obtain general information on the candidate's educational backgrounds.

Students are evaluated on the basis of course examinations written and graded by their teachers. They also receive evaluations of their practice teaching. Both five- and three-year TTI students are required to sit for the General Diploma Examination at the end of their programs. Table 7.10

TABLE 7.10

GENERAL DIPLOMA EXAMINATION TEST RESULTS

YEAR	PRIMARY TEACHER TRAINING INSTITUTES			GENERAL PRIMARY TEACHER TRAINING INSTITUTES		
	Students Registered	Students Passed	Percent Pass	Students Registered	Students Passed	Percent Pass
1970/71	304	206	67.8	53	45	84.9
1971/72	56	54	97.0	81	57	70.4
1972/73	129	110	85.3	95	74	77.9
1973/74	123	92	74.5	129	107	82.9
1974/75	97	78	80.4	97	73	75.3
1975/76	186	176	94.6	98	80	81.6
1976/77	462	116	25.1	87	43	49.4
1977/78	551	276	50.1	249	135	53.2
1978/79	268	102	38.1	44	15	34.0
1979/80	397	217	54.7	117	92	78.7
1980/81	337	304	90.0	279	255	91.0
1981/82	455	327	72.0	250	157	73.0
1982/83	328	257	78.0	368	275	75.0

Source: Ministry of Education, 1984.

provides historical data on the number who registered for and passed the exam between 1970/71 and 1982/83.

7.1.4.4.3 The Faculty of Education

Admission to the Faculty of Education requires a passing score of at least 57 percent on the secondary school leaving examination, a general health certificate, and an interview with FOE staff. Each year, a certain number of pupils who do not meet all these requirements are admitted on probation. Only Yemeni candidates who satisfy all the requirements, however, are offered contract status. The contract obligations entail a promise of five years of service, regular attendance at classes (70 percent or better), and abstention from employment while studying.

Undergraduates are evaluated on the basis of their success on semester examinations in each subject. Students who fail a course must repeat that course. Table 7.11 presents data on the number of fourth year students, by major field, who sat for and successfully completed their final examinations. Students majoring in physics and English had the highest pass rates, while those majoring in Arabic and Commerce (the latter course now discontinued) had the lowest. Table 7.12 provides information on the averages of the graduates, by specialization.

Students admitted to the postgraduate programs require an overall rating of at least "good" in undergraduate course work. Again, success is largely determined by examination. At the diploma level a short thesis may also be required; for the masters' degree, a more substantial research project must be completed.

7.1.4.5. Facilities and Equipment

7.1.4.5.1./2 PTTI's and GPTTI's

Facilities and equipment issues for the three- and five-year teacher training programs are discussed together because all but one of the GPTTI programs share facilities with

TABLE 7.11

GRADUATES OF THE FACULTY OF EDUCATION
June, 1984

Major Field	Number Registered For Final Exams	Number Who Sat For Final Exams	Number Graduating	Percent Successful
Islamic Studies	29	29	21	72.4
Arabic	67	63	43	63.2
English	7	6	6	85.7
History	17	17	14	82.3
Geography	26	24	22	83.6
Philosophy and Sociology	10	10	6	60.0
Mathematics	13	11	7	53.8
Physics and Chemistry	10	10	10	100.0
Biology	32	30	26	81.3
Commerce	8	8	4	50.0

Source: Faculty of Education, Sana'a University, 1984.

TABLE 7.12

GRADUATES OF THE FACULTY OF EDUCATION

BY AREA OF SPECIALIZATION AND GRADE LEVEL

June, 1984

AREA OF SPECIALIZATION	GRADE LEVELS								
	EXCELLENT	PERCENT	VERY GOOD	PERCENT	GOOD	PERCENT	POOR	PERCENT	TOTAL
Islamic Studies	--	--	6	28.6	15	71.4	--	--	21
Arabic	--	--	6	14.0	32	74.4	5	11.6	43
English	--	--	--	--	6	100.0	--	--	6
History	--	--	--	--	9	64.3	5	35.7	14
Geography	--	--	4	18.2	17	77.3	1	4.5	22
Philosophy and Sociology	--	--	1	16.6	5	83.3	--	--	6
Mathematics	--	--	1	14.3	5	71.4	1	14.3	7
Physics and Chemistry	--	--	2	20.0	6	60.0	2	20.0	10
Biology	--	--	9	34.6	16	61.5	1	3.9	26
Commerce	--	--	1	25.0	2	50.0	1	25.0	4

Source: Faculty of Education, Sana'a University.

the PTTI system. The General Directorate of Teacher Training has emphasized the problem of facilities in the teacher training program. It has cited the lack of dormitories, dining halls, lavatories, libraries, and laboratories as problems common to the majority of PTTI's. Another standard problem is the inadequacy of funds for maintenance and repair of buildings.

Facilities use is relatively high because of the cooperative use of the buildings and classrooms by the two programs. Those PTTI's which do not share facilities with a GPTTI normally share with a preparatory or secondary school. Thus, almost all TTI facilities are used in two shifts each day.

7.1.4.5.3 Faculty of Education

The FOE is located at the new campus of Sana'a University. It occupies a building originally built by the World Bank as a teacher training institute. Recently, some space has been renovated for use as a science laboratory. Both staff and students believe that their buildings are inferior to those of the other faculties on the new campus and that this inferiority sends a message to prospective students on the relative value placed on the FOE by the University.

7.1.4.6 Costs, Financing, and Donor Support

The shortage of teachers at all levels of schooling led to major improvements in teachers' salaries, allowances, and perquisites in 1981/82. In addition to this effort to make teaching a more attractive career option, special incentives were designed to improve the recruitment of students for the teacher training institutes and the Faculty of Education at Sana'a University. Estimates of these incentives for 1983/84 are provided below:

	PTTI's and GPTTI's		Faculty of Education	
			Major Fields	
	Five Year Program	Three Year Program	Social Studies	All Others
Stipend	YR 7,200	9,600	10,200	11,400
Clothing	800	800	--	--
Travel	200	200	--	--
Housing	--	--	1,800	1,800
Books	--	--	200*	200*
	YR 8,200	YR 10,600	12,200	13,400

Teacher training institute graduates who go on to study at the Faculty of Education receive their regular teacher's salary in addition to the FOE incentive. University statistics indicate that the number of students entering from the TTI and, consequently, qualifying for the dual incentives was:

Year	Entrants from a TTI	Total Entrants	TTI as a % of Total
1983-84	228	392	58%
1984-85	160	334	48%
1985-86	287	447	64%

Boarders at the TTI's receive only one-half their stipend in cash. The other half is allocated by the institution toward their room and board. Day pupils are provided with free transportation to and from classes. Since all of the females in these programs are day students, this provision of transportation is considered important in overcoming parental reluctance to allow their daughters to prepare for teaching careers. Faculty of Education students are provided the housing allowance whether or not they incur separate housing expenses.

Based on these incentives, unit costs for the PTTI's five- and three-year programs are estimated at YR 13,523 and YR 15,898 respectively. These figures represent the sum of the incentives plus the unit costs for the appropriate levels of schooling. Since students in the five-year program pass through preparatory and secondary stages, the amount added to their incentive allowances is an average of the recurrent cost per pupil of general preparatory and general secondary students.

At the university level, recurrent costs per student are not available separately for each faculty. The special incentives for education students have been merged with other annual costs to obtain average cost figures. The average recurrent cost per university student is estimated at YR 20,000.

Donor financing for teacher training has come primarily from USAID, UNICEF, the Sudan, and the World Bank. USAID has provided support for the out-of-country training for future

training institute staff, as well as for the Faculty of Education. In 1983, USAID contributions for scholarships amounted to US $4.3 million. Past spending for this project exceeds US $20.1 million. Last year UNICEF and the Sudan committed US $120,000 and US $350,000 respectively to inservice training for teachers. Their total life-of-project contributions for this activity are not available.

Capital expenditures for the PTTI's were financed by the World Bank and four new PTTI's, one extension to a PTTI, and one senior (postsecondary) PTTI are planned as part of the World Bank's Sixth Education Project. The FOE is located in buildings originally designated for a PTTI.

7.2 ANALYSIS

7.2.1 Needs

The major need in the subsector of teacher training is for a clear rationalization of the overall structure in terms of the projected teacher demands, the available teacher supply, and the fiscal constraints government will face in the next decade. At present, teacher training suffers from a rapid expansion in enrollments, especially the increases in the number of PTTI's of the postprimary type. The reforms of 1982 sacrificed rapid production of teachers for promises of quality enhancement through longer and more expensive programs. Even if the trade-off of quantity for quality was justified, the "quality" was defined in terms of formal academic qualifications that often have little to do with instructional efficacy at the classroom level.

Unfortunately, the 1982 reforms related more directly to increasing the number of teacher trainees than to expanding the number of permanent career Yemeni teachers. There is a hope that the expansions in TTI enrollments that have occurred in the last two years will be translated into new teachers who will remain in the profession. However, improved salaries for teachers - or the present salaries for individuals with lower

formal qualifications - are a more probable determinant of long-term teacher recruitment and retention. Student subsidies have affected trainee recruitment and the repayment penalties are such that retention rates may be expected to remain high within the TTI's. However, the large subsidies of students at the TTI's and at the FOE encourage the students to attain a level of qualifications where the relative financial attractiveness of teaching as a career often is not positive.

Within the last year (1984/85), the government has issued a decree mandating that graduates of a TTI or the FOE may not be hired by any public or private employer other than the MOE. This move toward long-term bonding is expected to remain in force as long as there is a shortage of Yemini teachers. At present, government is considering a proposal to raise teacher salaries in an effort to make the incentives for remaining in the profession more attractive. The MOE is also exploring the feasibility of other incentive programs for teachers such as subsided housing and a teacher retirement fund.

7.2.2 Plans

The major plan for teacher training is consolidation and improvement of the new rural PTTI programs. The 1984/85 budget anticipates an increase in teacher trainees of approximately 2,000. Most of the expenditures planned for future years are for instructional staff and other recurrent costs. The capital costs that are planned are primarily for modification of the host institutions of the PTTI's.

The General Directorate of Teacher Training has identified the following as the basic requirements for the PTTI's (and, therefore, for the GPTTI's that share their facilities):

- five classrooms for fifty students each
- laboratory with storage room
- library with storage room
- instructional materials room
- technical education room
- lecture hall

- administrative offices
- sports playground
- clinic

The general directorate realizes that this goal will not be realized soon. At present, a large number of the rural PTTI's consist only of a single teacher and classroom attached to a rural preparatory school. There is no indication of a funding source sufficient to finance the desired facilities upgrading except in isolated instances.

Other plans include the establishment of a Senior PTTI (SPTTI) and continued discussion about a two-year teacher preparatory program at the FOE. The SPTTI is expected to attract secondary graduates interested in careers in primary school teaching. Training would extend for two years. The two-year, Associate's Degree program at the FOE would appeal to the same pool of graduates as would the SPTTI. However, the FOE program would provide training for teaching at the preparatory level. The first SPTTI is expected to be built in Sana'a as part of the Sixth World Bank Education project. The Associate's Degree program for the FOE is now before the University Council. The FOE has already restructured the sequencing of its curriculum in anticipation of approval of this new program.

7.2.3 Constraints

As with all levels of the education sector, teacher training will face serious fiscal constraints over the next decade as major resource reallocations occur to meet enrollment expansion in primary education and the expense of consolidation of the new programs at the University. The teacher training subsector will continue to be constrained by manpower shortages in terms of a lack of qualified Yemeni teacher trainers. This constraint is partly due to the level of expected qualifications for TTI and FOE instructional staff.

Two related constraints on government's achievement of its goal of Yemenization of the teaching force are the social

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attitudes toward the teaching profession and the relatively low salaries that are paid, given the required qualifications. The negative attitude that many parents and students have toward teaching as a career is complex in origin. In part it relates to the paucity of experience with Yemeni teachers, the parents' own lack of education, the examples that exist of economically successful individuals who have little or no education, and the generalized expectation that formal education has value only or primarily as a conduit to the University and to high-level, modern sector employment.

These attitudes on the part of parents and students are reinforced by the current relative wages earned by teachers. The government pay scale appears to imply that individuals with a given level of education are worth less as teachers than the labor market is willing to pay these same individuals in other lines of work. Subsidies for teacher trainees have affected only the short-term and not the long-term constraint on increasing the supply of Yemeni teachers at all levels.

7.2.4 Summary Issues

7.2.4.1 External Efficiency

Since teacher training programs are intended to result only in government employment, and such employment is guaranteed, the residual external efficiency issue is the degree to which teacher training enhances the instructional effectiveness of its graduates. There is no statistical data on this issue, and the anecdotal evidence is contradictory and inconclusive.

A more measurable research outcome would be to study not initial employment but the retention of teacher training graduates within the teaching profession after they have completed their period of obligatory service. This research should provide information on the type of graduate most likely to remain in the teaching profession. Intuitive logic would suggest that female graduates, because of their lower

opportunity costs in a modern economy dominated by traditionally male jobs, would be likely to remain longer as teachers than would their male counterparts. Similarly, because of the relatively reduced job opportunities for women, the female graduates who are retained in the profession may be expected to be of a higher average level of ability than the males.

7.2.4.2 Internal Efficiency

The low student-teacher ratios generally, and especially in the GPTTI's, suggest a possible underutilization of staff (even considering the increase in student teacher ratios since 1982/83). This ratio is an imprecise indicator for the PTTI's that share instructional staff with a host institution. Facilities do appear to be well utilized with two shifts of students per day a common administrative practice.

The substantive issue of internal efficiency is not one subject to easy quantification, however. The key policy issue is whether separate teacher training institutes are the most cost-effective means of producing the quantity and quality of graduates (and career teachers) required. The new rural PTTI's represent a modification toward greater integration with the regular school system. However, some members of the general directorate view this integrated relationship as only a transitional one until such time as independent PTTI facilities can be justified.

Joint PTTI and GPTTI programs with regular academic preparatory and secondary schools are a logical step where student-teacher ratios in both the teacher training and regular programs are low. A coordination of joint regular and TTI programs would be facilitated by the existing overlap in the curricula between the academic and teacher training programs. At the YAR's current stage of economic and educational development, exclusive dependence on separate teacher training institutions as a source for new teachers at the pre-University level may prove to be an excessively expensive policy option.

7.2.4.3 Access and Equity

The rural PTTI's have contributed greatly to ruralization and regionalization of access. Even in the GPTTI's and the FOE, institutions that are located only in urban areas, the payment of housing, transportation, and other subsidies encourage the recruitment of a national student body limited only by the regional and rural/urban distribution at the prerequisite educational experience. The major access problem is the participation of females. With the need for separate classrooms or schools for females, the predominant tendency has been to plan on male participation as the basis for teacher training programs. For the reasons stated above under the external efficiency discussion, there is good reason to believe that increased equity in female participation could lead to increased efficiency in the achievement of teacher training's goals of more and better qualified Yemeni teachers for the primary, preparatory, and secondary schools.

7.2.4.4 Administration and Supervision

The major administrative issue for the teacher training subsector relates to the need for more coordination between the FOE and the MOE. At present, relationships are much improved; however, the relationship is too important to be dependent only on the cooperative spirit of a current Dean or Minister. A formal coordinating body should be established to plan for the quantity of students and for the content of training offered at the FOE. While no abridgement of the autonomy of the FOE can or should be considered, it is appropriate that new program development in the FOE be planned in cooperation with the MOE units responsible for employing and/or supervising the graduates of the program.

7.2.4.5 Costs and Financing

These issues were covered in detail in the status section. The unresolved issue is the efficiency of, and fiscal ability for, maintaining teacher training at the pre-University

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level as a separate enterprise from the academic preparatory and secondary programs. Even if Chapter 2.0's forecasts of government revenue prove to be conservative, the combined effects of teacher training costs, student subsidies, and high teacher salaries will create a substantial fiscal burden for government. When this certainty is combined with the uncertainty of retaining the teacher training graduates in the profession, it should be obvious that the present system - including its cost and financing - deserves continued monitoring and re-examination to make sure that changes have their desired effect.

A second issue related to teacher retention concerns the financial support received by FOE students who also graduated from a teacher training institute. These students receive both a salary as a teacher and the FOE subsidy while they are at the University. This level of subsidy has a negative impact on the subsequent retention of those graduates in teaching that operates in two ways. First, when FOE students graduate and enter full-time teaching, they experience a decline in income as the FOE stipend ends. This encourages some FOE graduates to look for alternative employment that will offer better financial rewards. Second, in an effort to compensate for the drop in income, FOE graduates who previously completed Primary Teacher Training tend to reenter teaching as secondary school teachers rather than returning to the primary level where they would have taught had they not gone on to the University. One effect of the current subsidy system at the FOE, then, is to attract primary school teachers into secondary school teaching.

7.3 MAJOR RECOMMENDATIONS

7.3.1 Programmatic Concerns

Recommendation 1: Reconsider the present teacher training structure to determine if a teacher training option in regular preparatory and secondary schools is possible. This might take the form of teacher education classes offered along with

regular academic courses. These courses could serve to (a) interest students in education as a career and (b) prepare them to work as teacher interns upon graduation from preparatory or secondary school.

Recommendation 2: To increase the production and quality of teachers, preparatory or secondary graduates should be recruited as teacher interns. They would spend two years working in a classroom with an experienced teacher. In lieu of salary, they would be paid the same stipend now paid to PTTI teacher trainees. Inservice training and full-time instruction in the vacation periods would provide the professional and pedagogical training required. These teachers would cost less to produce and would demand less in salary obligations than current teacher training graduates while providing a substantial increase in the potential number of Yemeni teachers.

Recommendation 3: Consider pay restructuring for teachers with the purpose of improving teacher retention and enhancing the professional and career status of teachers. Improved pay levels could begin at the end of the teacher's obligatory service and increase at regular increments to a salary level sufficient to retain the teachers in the profession. It has been suggested that the present salary structure will not retain teachers in adequate numbers; if this proves to be so, the investment in the training of teachers does not benefit the nation's attempt to upgrade and Yemenize the teaching force for primary, preparatory, and secondary education.

Recommendation 4: Reexamine the financial incentive system for students enrolled in the Faculty of Education. Consideration should be given to whether an adequate incentive to attract students into the Faculty of Education can be achieved without providing teacher training institute graduates who go on to the FOE with both a salary (as a teacher) and an FOE stipend (while they are enrolled in the University). FOE students who receive a lower stipend level in the FOE may experience less difficulty adapting to the salary structure of

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a full-time teacher when they graduate. This may help reduce the subsequent attrition of these teachers from classroom teaching.

Recommendation 5: Consider providing flexibility in teaching methods and programs employed in teacher education in order to assist in the prompt and intensive preparation of new teachers.

Recommendation 6: Consider expanding and strengthening in-service teacher education programs for Yemini teachers at the primary, preparatory, and secondary levels. Characteristics of these in-service programs might include (a) greater use of vacation and holiday periods for instruction, (b) the awarding of promotion and salary increments for successful completion of the training, and (c) the use of new delivery strategies for in-service instruction.

Recommendation 7: Give appropriate authority to government and local executive bodies to enable them to plan for the projected increases in schools, students, and teachers.

Recommendation 8: Allow opportunities for teachers who are TTI graduates to continue their studies in advanced educational institutes and the FOE on a part-time or full-time basis.

7.3.2 Summary Issues

Recommendation 1: To increase internal efficiency, strategies should be undertaken which link primary teacher education more closely with preparatory and secondary education. This might be done by offering education courses to preparatory and secondary students. It may also be accomplished by linking the PTTI programs more closely with the academic programs of their host schools.

Recommendation 2: For a combination of external efficiency and access/equity reasons, the teacher training program should be reoriented toward greater parity in the numbers of male and female students. Given the present opportuntiy costs for male employment in the YAR economy, government would be justified to

expand female participation even to the point where females constitute a majority of the teacher trainee population.

Recommendation 3: The financial subsidy received by FOE students should be reexamined to determine if a lower subsidy might aid in teacher retention without seriously impeding recruitment of students into the FOE.

Recommendation 4: Encourage more females to attend teacher training and provide government assistance to help them overcome difficulties that stand in the way of their continuation in the occupation. Specific suggestions include (a) providing transportation for them to attend training and to get to their place of employment and (b) establishing child care programs for the children to attend while the mothers are teaching.

Recommendation 5: Further develop the administrative and planning capabilities at central government and local levels to support current and projected expansion in teacher training.

7.3.3 Recommendations for Further Analysis

Two major research topics exist for the subsector of teacher training. The first relates to the effectiveness of the present incentives (student stipends and teacher salaries) for the recruitment, production, and retention of teachers in the primary, preparatory, and secondary levels of education in the YAR. This will have to be a longitudinal study beginning with an examination of the social and educational characteristics of first-year students at the PTTI's and GPTTI's. It should then go on to study the correlates of student attrition in the teacher training institutes. Finally, a sample of graduates should be tracked to assess the determinants of their decisions to remain in or leave the teaching profession.

A second study of importance is an analysis of the fiscal impact of Yemenization of the teaching force. This study should look at the combined effects of YAR fiscal

responsibility and the continuance or modification in the levels of teacher salary support from donors. Concern exists in the education sector that Yemenization can be pursued only at a greatly increased expense to government because it involves the loss of donor support as well as the incurrence of new salary obligations. No data exist to support or refute these assumptions at the present time.

8.0 HIGHER EDUCATION

8.1 STATUS

Postsecondary education is provided within the YAR by the Sana'a University, the National Institute for Public Administration, the Telecommunications Institute, and the Police College. Additional opportunities for higher education, particularly foreign study at the postgraduate level, are provided through the Ministry of Education (MOE), the Central Planning Organization (CPO) and Sana'a University's program for future faculty.

The focus of this chapter is on Sana'a University. The first section, a review of its history, goals, organizational structure, and programs, sets the stage for an analysis of the University's efficiencies and constraints. Finally, conclusions are drawn and options for policy and practice are presented. The National Institute for Public Administration and the Telecommunications Institute are described in Chapters 3.0 and 6.0 respectively. The activities of the Faculty of Education at Sana'a University are dealt with in detail in the teacher training chapter.

8.1.1 Historical Setting

Although the Madrassah (theological seminaries) flourished before 1919 in the major cities of what is now Yemen, they declined during the Hamid al-Din Imamate (1919-1962). This decline has been ascribed primarily to a lack of financial support by the government. The few young people fortunate enough to acquire secondary schooling migrated to other countries for higher education. In 1960/61, it was estimated that 1,014 Yemeni were attending postsecondary institutions in twelve foreign countries (roughly 71 percent in Egypt, 26 percent in socialist countries, and three percent in Kuwait and the U.S.). This education was either self-financed or provided free to the student by the recipient nation.

Following the revolution in 1962 and the subsequent civil war, 1962-1971, pressure mounted for the foundation of a

national university. The factors instrumental in the establishment of the University have been described as:

1. The need for Yemeni teachers at all levels;

2. Student inability to finance higher education abroad, cultural prohibitions against women going abroad for study; and government desire to reduce the expense of scholarships for foreign study;

3. Concern from the educated citizenry as well as from emigrees returning from countries with well established educational systems; and

4. Urging from religious leaders concerned about the decline in knowledge of Shari'a (Islamic Law).

Founded in November of 1970, the programs and even the setting of Sana'a University reflect these influences. A teachers training institute which had been constructed in the late 1960's served as the new university's "physical nucleus." The first two programs to be initiated were the Faculty of Shari'a and Law and The Faculty of Education (the latter including arts and sciences). The curriculum of both faculties included offerings in education. The University opened with sixty-four students and nine faculty members. In 1972 the name of the Faculty of Education was changed to the Faculty of Arts, Science, and Education. Then, in 1973 the Faculty of Arts and Sciences and Education split into three distinct faculties (Arts, Sciences, and Education). In the same year commerce and economics were added to the curriculum of Shari'a and Law. The separate Faculty of Commerce and Economics was established in the following year. The Faculties of Medicine and Engineering were added in 1983 and Agriculture in 1984.

Trends in enrollments by gender, nationality, and faculty for selected years from 1970/71 to 1982/83 are shown in Table 8.1. Table 8.2 provides information on the number of graduates by faculty and gender from 1973/74, the first graduation year, through 1983/84. Overall, these two tables indicate rapid and substantial, if erratic, growth in both the size and diversity of the University during the past fourteen years. The characteristics of the students and faculty, as well as the

TABLE 8.1

UNIVERSITY ENROLMENTS BY SEX, NATIONALITY AND FACULTY FOR SELECTED YEARS FROM 1970/71 - 1982/83

	Year	1970/71			1973/74			1976/77			1979/80			1980/81			1981/82			1982/83		
Faculty	National.	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Sciences	Tenural	46	-	46	174	1	175	447	13	460	825	32	865	1143	40	1183	1426	47	1473	2501	91	2592
and	Non Tenural	1	-	1	14	-	14	[illegible]	[illegible]	43	[illegible]	7	29	19	6	25	12	2	14	16	2	18
Law	Total	47	-	47	188	1	189	494	25	519	857	37	894	1162	46	1208	1438	49	1487	2545	83	2628
	Tenural	7	1	8	288	22	310	352	56	372	506	106	612	510	147	657	616	221	837	831	229	1100
Arts	Non Tenural	1	3	4	109	49	158	65	57	123	63	41	104	82	38	120	85	50	135	102	65	167
	Total	8	4	12	397	71	468	350	113	463	569	147	716	592	185	777	701	271	1002	933	294	1267
	Tenural	5	-	5	1	2	17	55	12	67	120	27	147	160	46	206	320	77	397	312	126	438
Science	Non Tenural	-	-	-	[illegible]	2	10	17	3	20	35	16	51	41	18	59	59	20	79	42	15	57
	Total	5	-	5	23	4	27	72	15	87	155	43	198	201	64	265	379	97	476	354	141	495
Commerce	Tenural	-	-	-	192	3	195	933	46	979	1056	54	1150	1202	61	1263	1321	113	1434	1579	146	1724
and	Non Tenural	-	-	-	31	13	44	137	62	199	68	19	87	36	22	58	37	22	59	22	27	49
Economics	Total	-	-	-	223	16	239	1070	108	1178	1124	73	[illegible]	1238	83	1321	1358	135	1493	1601	173	1773
	Tenural	-	-	-	203	24	227	777	94	871	566	70	636	814	123	937	578	118	696	649	132	781
Edu-	Non Tenural	-	-	-	-	-	-	[illegible]	19	35	19	12	31	4	7	11	8	10	18	14	12	26
cation	Total	-	-	-	203	24	227	797	109	906	585	82	667	818	130	948	586	128	[illegible]	663	144	807
	TOTAL	60	4	64	1034	116	1150	2773	370	3143	3350	362	3712	4011	508	4519	4512	660	5172	6145	815	6960

Sources: Technical Office, Kong'a University, 1984; Central Planning Organization, Statistical Year Books 1983, Statistical Year Books 1984.

TABLE 8.2

NUMBER OF GRADUATES BY FACULTY AND SEX FROM 1973/74 TO 1983/84

Faculty:	Sharia and Law			Arts			Science			Education			Commerce and Economics			Grand Total		
Academic Year	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
1973/74	-	-	-	7	2	9	-	-	-	-	-	-	-	-	-	7	2	9
1974/75	20	-	20	32	4	36	3	-	3	-	-	-	-	-	-	55	4	59
1975/76	36	-	36	47	11	58	3	1	4	-	-	-	-	-	-	88	12	100
1976/77	55	-	55	35	1	36	-	-	-	139	15	154	64	3	67	293	19	312
1977/78	32	-	32	25	18	43	11	1	12	128	13	141	83	8	91	279	40	319
1978/79	53	2	55	33	21	54	11	1	12	108	12	120	83	7	90	288	43	331
1979/80	93	2	95	23	12	35	9	3	12	82	15	97	106	13	119	313	45	358
1980/81	83	8	91	37	11	48	12	4	16	86	9	95	112	3	115	330	35	365
1981/82	73	3	76	48	22	70	11	3	14	76	14	90	127	16	143	335	58	393
1982/83	155	2	157	54	12	66	31	10	41	100	23	123	185	12	197	525	76	601
1983/84	237	5	242	55	31	86	26	12	38	135	24	159	119	14	133	572	86	658
TOTAL:	832	24	856	401	160	561	117	35	152	854	125	979	879	76	955	3083	425	3508

Note: The Faculties of Medicine and Engineering were established in 1982/83 and the Faculty of Agriculture in 1984/85.

Source: Technical Office, Sana'a University, 1984.

ratio of graduates to expected graduates, is discussed later in the chapter.

The University was granted the authority to confer postgraduate degrees in 1983. The Faculty of Arts offers both a diploma program (one year) and a masters program (two to three years). Commerce and Economics, Shari'a and Law, and Science offer only diploma programs at the present time but will offer masters programs as staff become available and student demand is determined to be sufficient. In 1983, the Faculty of Education began its general diploma program; in 1984/85, it initiated its special diploma program. Two types of diploma are offered: a general diploma which certifies graduates from other faculties in education, and a special diploma. The special diploma program may be considered as a one-year advanced study course for educational practitioners or as the first step toward a master's degree in education. It is intended that candidates for the master's degree in education will be selected from applicants who have completed the special diploma. The master's degree requires an additional year of thesis work and participation in seminars. The first master's degree was conferred in 1985. Postgraduate enrollments for the academic year 1983/84 are shown in Table 8.3.

Originally under the authority of the Ministry of Education, the University, in 1974, became an autonomous institution headed by a governing council. The Minister of Education serves as President of the Council. The original curriculum of the University was based on that of Ein Shams University in Cairo. The faculty were and remain predominantly Egyptian, although gradual Yemenization is occurring in the composition of the lower faculty ranks; these gains are promoted by the University's fellowship program for future Yemeni faculty.

Kuwait has served as the prime financier for the University's programs with the exception of those of the Faculty of Education. At the time of the University's establishment, the contribution of the YAR was estimated at

TABLE 8.3

1984 ENROLLMENTS IN GRADUATE PROGRAMS

AT THE SANA'A UNIVERSITY 1984

FACULTY OF ARTS
Master's Program

Specialization	Nationality	Male	Female	Total
English	Yemeni	3	1	4
History	Yemeni	3	-	3
Archeology	Yemeni	2	-	2
Geography	Yemeni	4	1	5
Total		12	2	14

FACULTY OF ARTS
Diploma Program

Specialization	Nationality	Male	Female
Social Sciences	Yemeni	5	-
Vocational	Sudanese	1	-
Geography (Surveying)	Yemeni	4	-
Total		10	-

FACULTY OF COMMERCE AND ECONOMICS
Diploma Program in Cost Accounting

Nationality	Male	Female	Total
Yemeni	15	-	16
Egyptian	6	1	7
Total	22	1	23

FACULTY OF SCIENCE
Diploma Program

Specialization	Nationality	Male	Female
Chemical Analysis	Yemeni	2	3
	Egyptian	1	-
	Palestinian	1	-
Practical Geology	Yemeni	5	-
Total		9	3

FACULTY OF SHARI'A + LAW
Diploma Program

Nationality	Male	Female	Total
Yemeni	140	3	143
Palestinian	4	1	5
Egyptian	3	-	3
Libyian	1	-	1
Ethiopian	1	-	1
Total	149	4	153

FACULTY OF EDUCATION
Diploma Program

Nationality	Male	Female
Yemeni	5	-
Palestinian	10	-
Egyptian	6	-
Jordanian	1	-
Total	22	-

SOURCE: Technical Office, Sana'a University, 1984.

less than eight percent of total costs. Kuwait's role as an important benefactor has continued to the present, although the emergence of other donors and the increased commitment of YAR funds have reduced the Kuwaiti share of both capital and recurrent costs at the University. Yemen now (1985/86) provides more than 50 percent of the University's recurrent expenditures.

8.1.2 National Goals and Strategies

Founded to provide the skilled manpower required for national development and to preserve the religious and cultural traditions of the society, the development of the University was prominent in the government's first plan, the Three Year Development Program 1973/74 - 1975/76. During this period, the accomplishments of the plan were:

1. the strengthening of the existing faculties by increasing the teaching staff to match increasing enrollments, and improving the facilities of the Faculty of Science;

2. the opening of a Faculty of Commerce;

3. the implementation of a UNESCO - sponsored project to establish a Faculty of Education.

By the end of the initial plan period, the University had been granted autonomous status. It was, therefore, responsible for designing its own goals and strategies and submitting them to the CPO for approval as part of the First Five Year Plan, 1976/77 - 1980/81 (FFYP). Emphasis was placed in that plan on increasing enrollments, gradual Yemenization of the faculty, development of the library, improvement of student services, and laying the groundwork for new faculties.

While improvements were made on all these fronts during the FFYP, the objectives remained much the same for the Second Five Year Plan, 1981/82 - 1985/86 (SFYP). The educational goals specific to the University in the SFYP were to:

1. Increase enrollments by 248 percent;

2. Advance Yemenization of staff by increasing the numbers sent abroad for masters' and doctoral degrees;

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3. Raise the admission scores in the Faculty of Education;

4. Create the Faculties of Medicine, Engineering, and Agriculture;

5. Establish an Oceanographic Center;

6. Construct a teaching hospital, classrooms and laboratories for the Faculties of Medicine, Engineering, Agriculture and Science, and an experimental farm;

7. Establish and build a University printing press; and

8. Provide additional housing for staff and new dormitories for women.

The cost of the capital projects in the SFYP was estimated at YR 736 million and partial financial support was expected from Kuwait, Iraq, and the World Bank.

During the first three years of the SFYP, enrollments increased by 64 percent, averaging an increase of approximately 28 percent per year. Shari'a and Law is the fastest growing faculty, which may be due to the inclusion of Police College students in its enrollment counts in recent years. Education is the second fastest growing faculty; it should be noted that Education is the only faculty that provides significant financial incentives for its students. The Faculties of Arts and Science rank last in rate of enrollment growth, with Science showing only modest increase in recent years. The three new faculties are too recently established to have discernable enrollment trends. Overall, these growth rates suggest that the enrollment goals of the SFYP will not be realized.

The creation of the new Faculties of Medicine, Engineering, and Agriculture has proceeded on schedule. The buildings for both the Faculty of Medicine and Engineering are well underway and may be completed before the end of the SFYP. Facilities for the Faculty of Agriculture are presently in the planning stage. Currently, it is sharing space with other

faculties. The plans for a teaching hospital, experimental farm, new science laboratories, and oceanographic center have been postponed, awaiting funding, but have not been abandoned. Plans for building housing for women do not appear to be a high priority in the short term. The University currently rents seven houses for women students and is completing negotiations for an additional three or four residences. These facilities are provided free of rent to women students in the Faculty of Education. Women from other faculties are charged YR 150 per month for the same accommodations.

8.1.3 Organizational Structure

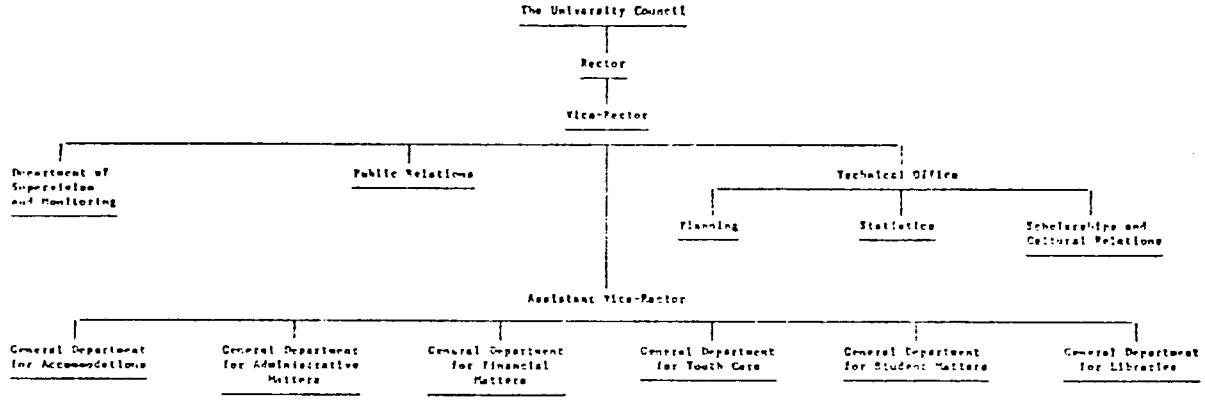
Since 1974, the University has been an autonomous institution governed by a Council and administered by a Rector. The administrative structure of the University is shown in Figure 8.1. The Council is ultimately responsible for policy-making and curriculum, although the Rector together with the relevant Dean or Deans plays an important role in this process. The Deans of the academic faculties report directly to the Rector.

The University operates on a two semester credit system (with the exception of the Faculty of Shari'a and Law which uses a different credit system), with course examinations at the end of each semester. Undergraduate admission standards vary among the faculties. While all faculties require a secondary school certificate, acceptable scores on the secondary leaving examination differ. Minimum scores for each faculty for 1984/85 were as follows:

Medicine	75
Engineering	75
Agriculture	68
Commerce and Economics	62
Shari'a and Law	62
Science	60
Education	80
Arts	50

FIGURE 8.1

ADMINISTRATIVE ORGANIZATION OF THE UNIVERSITY



Source: Technical Office, Sana'a University

Individuals whose scores fall below the minimum required for a particular faculty may be considered for admission on a case-by-case basis. The actual average entrance scores of incoming students, by faculty, are not available.

Credit hours necessary for graduation also differ by faculty with the highest number of credit hours demanded by Agriculture, Engineering, and Medicine, whose programs require extensive laboratory time. The range among faculties is from the 132 credit hours required in Arts to the 171 hours required in Engineering. Differences in credit hours are reflected in the expected number of years until graduation. Students in the three new faculties are expected to complete their programs in five rather than four years.

There appears to be little redundancy in course offerings across faculties. Students in the Faculty of Education, for instance, take specialty courses in both the Faculty of Arts and the Faculty of Science. Similarly, students in Agriculture, Medicine, and Engineering take the basic science sequence in the Faculty of Science. While the Police College is not considered a formal part of the University, its students receive a degree in Shari'a and Law, as well as a diploma from the College. Admission to graduate programs requires a bachelor's degree and a minimum academic rating of "good" (see section 8.1.4.4 on evaluation for detail on rating system).

The University is located on two campuses. The old campus, located closer to the Sana'a city center, eventually will house only the Faculties of Arts and Science and the Language Center once the administration completes its move to the new campus. Bus service is available for transit of students and staff between the two sites.

8.1.4 Programmatic Concerns

8.1.4.1 Student Enrollments and Characteristics

Tables 8.1 and 8.2, presented earlier, show both the historical trends and the latest enrollment and graduation

figures by faculty and sex of student. Enrollments in the University are predominately male (88 percent) and Yemeni (97 percent). The percentages of both female and non-Yemeni enrollments have remained fairly constant over time. In 1982/83, 36 percent of all women enrolled were students in the Faculty of Arts, another 21 percent were matriculated in Commerce and Economics, and roughly 17 percent each in the Faculties of Science and Education. Under eight percent of total female enrollments were in the Faculty of Law.

The largest faculties, and those for which the highest rates of growth are predicted, are Shari'a and Law and Commerce and Economics. The graduation figures suggest, however, that there is considerable student attrition in the Commerce and Economics program. The data summarized in Tables 8.4 and 8.5 indicate that high attrition and repetition rates are characteristic of most of the faculties, particularly in the first year. Overall, attrition rates appear to be somewhat lower for the women students. The relative success of women students may be due to the facts that: (a) only the academic elite among women, in terms of both motivation and performance, attain the University level; and (b) women, for a variety of cultural reasons, are less likely to have competing employment responsibilities that interfere with their studies.

Unfortunately, the repeater data displayed in Table 8.5 is not available separately for male and female students. The aggregate data indicate that 384 or 30 percent of the 1983/84 first year class in Commerce and Economics were, in fact, repeating their course work. The number of students who failed to return to the University from the previous year's class is not available. Of the other faculties for which repeater information is available, Shari'a and Law also had high numbers of repeaters while the Faculty of Arts appears to have had no repeaters (but very high attrition).

It is not possible to relate these attrition and repeater rates to student/teacher ratios, another common measure of internal efficiency. In order to do so, it would be necessary

TABLE 8.4

DISTRIBUTION OF STUDENTS BY SEX AND YEAR OF STUDY FOR 1979/80 - 1982/83

AND BY FACULTY AND BY YEAR OF STUDY FOR 1982/83

Year of Study	First			Second			Third			Fourth			All Years		
Year/Faculty	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1979/80	2017	214	2231	757	113	870	525	61	586	472	61	533	3771	449	4220
1980/81	2000	250	2250	930	113	1043	553	84	637	528	61	589	4011	508	4519
1981/82	2348	325	2673	1051	139	1190	673	85	758	354	81	435	4518	654	5172
1982/83	3088	391	3479	1471	211	1682	949	126	1075	637	87	724	6145	815	6960
Sharia/Law	1290	39	1329	678	9	687	380	9	389	197	6	203	2545	63	2608
Arts	610	143	753	180	79	259	108	40	148	75	32	107	973	294	1267
Science	216	72	288	57	31	88	51	26	77	30	12	42	354	141	495
Commerce/Economics	727	83	810	390	50	440	269	26	295	224	14	238	1610	173	1783
Education	245	54	299	166	42	208	141	25	166	111	23	134	663	144	807

Source: Technical Office, Saud'a University, 1984.

Note: Available data on enrollments for 1983/84 appear in Table 8.5

TABLE 8.5

ENROLMENTS AND REPEATERS FOR SELECTED

FACILITIES BY YEAR OF STUDY FOR 1983/84

FACULTY

YEAR OF STUDY	SHARIA & LAW		COMMERCE & ECONOMICS		ARTS		SCIENCE*		EDUCATION*		MEDICINE**		ENGINEERING**		Grand Total
	New	Repeater	New	Repeater	New	Repeater	New	Repeater	New	Repeater	New	Repeater	New	Repeater	
1	1393	711	899	384	848	0	323	NA	545	NA	42	-	32	-	
2	535	123	272	304	258	0	109	NA	194	NA					
3	532	58	322	101	182	44	65	NA	148	NA					
4	341	22	210	33	104	19	67	NA	177	NA					
Total	3710		2325		1255		564		1064		42		32		8992

*Repeater data was not available for the Faculties of Science and Education
**The Faculties of Medicine and Engineering were opened in 1983/84

SOURCE: Technical Office, Bayero University, 1984.

to know whether students are part-time or full-time, to have attrition and repeater rates for each faculty for an entire cohort, and precise information on the size of the classes in which the students participated. For instance, for the year 1982/83 the student/teacher ratios by faculty were:

Shari'a and Law	149:1
Arts	19:1
Science	6:1
Commerce and Economics	41:1
Education	80:1

These figures are misleading, however, since Police College students are included in the enrollments in Law, students enrolled in all faculties take some courses in the Faculties of Arts and Science and the Faculty of Science offers special service courses to students enrolled in the faculties of Medicine and Engineering. Thus, it is difficult to judge either the relative availability of the instructional staff to students or actual average class sizes on the basis of these data.

8.1.4.2 Instructional Staff

Table 8.6 presents data on the number of instructional staff, by faculty rank, and Yemeni/non-Yemeni citizenship for 1982/83. Table 8.7 presents similar data on staff for 1983/84 for the full University and with the proportion of females by rank and nationality. Comparison of the tables indicates an impressive growth in teaching staff numbers between the two years (approximately 20 percent). The increase is particularly large among Yemeni staff at the instructor and assistant lecturer ranks. Part of this staff growth is, of course, accounted for by the opening of the Faculties of Medicine and Engineering in 1983. When these faculties, as well as the Faculty of Agriculture, are fully staffed, however, the percentage of Yemeni faculty might well decline once more.

At the present time (1984/85) two Yemeni hold the rank of Professor and seven Yemeni are at the Assistant Professor

TABLE 8.6

INSTRUCTIONAL STAFF BY FACULTY,

RANK, AND NATIONALITY

1982-83

Faculty	Professor	Assistant Professor	Lecturer	Assistant Lecturer	Instructor	Total
Local Staff						
Law	-	-	3	-	2	5
Arts	-	1	5	4	10	22
Science	-	1	3	1	8	13
Commerce & Economics	-	2	2	11	11	26
Education	-	-	3	1	7	11
Total Local Staff	-	4	16	19	38	77
Non-Local Staff						
Law	4	3	6	-	-	13
Arts	14	16	15	1	-	46
Science	18	17	8	4	25	72
Commerce & Economics	5	6	5	2	-	18
Education	1	-	4	-	-	5
Total Non-Local Staff	42	44	38	7	25	154

Source: Central Planning Distribution, Institutional Year Book, 1983, April 1984.

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TABLE 8.7

SANA'A UNIVERSITY INSTRUCTIONAL STAFF, 1983/84

Nationality	Professors		Assistant Professors		Lecturers		Assistant Lecturers		Instructors		Total
	Total	Percent Final	Total	Percent Final	Total	Percent Final	Total	Percent Final	Total	Percent Final	
Yemeni	-	-	4	0%	23	0%	28	11%	58	16%	113
Egyptian	37	0%	34	0%	37	0%	15	7%	30	10%	153
Syrian	-	-	-	-	2	0%	-	-	1	-	3
Palestinian	-	-	-	-	1	0%	-	-	-	-	1
British	-	-	-	-	-	-	7	43%	3	33%	10
American	-	-	-	-	2	0%	1	0%	-	-	3
Indian	2	-	-	-	-	-	-	-	1	100%	3
Iraqi	-	0%	1	0%	-	-	-	-	-	-	1
Total	39		39		65		51		93		287

Source: Technical Office, Sana'a University, 1984.

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level. Overall, the faculty is primarily male (93 percent). Yemeni women account for only 11 percent of all Yemeni faculty; there is now one Yemeni women in the Faculty of Education who holds the rank of lecturer.

The prerequisite qualifications for each rank are shown below:

RANK	PREREQUISITE EDUCATION	PREREQUISITE EXPERIENCE
Instructor	Baccalaureate	--
Assistant Lecturer	Master's Degree	--
Lecturer	Ph.D.	--
Assistant Professor	Ph.D.	5 years
Professor	Ph.D.	10 years

The actual promotion decisions are based upon research and publication activities; the education and experience prerequisites are minimal but not necessary sufficient conditions for promotion.

Approximate salary schedules and allowances for Yemeni teaching staff are as follows (in Yemeni Rials):

RANK	SALARY	HOUSING ALLOWANCE
Instructor	3,600	-
Assistant Lecturer	6,000	-
Lecturer	8,800	2,000
Assistant Professor	10,400	2,000
Professor	21,500	2,000

Staff at the lecturer rank and above either are provided with housing or receive the housing allowance. Data on instructional salaries and allowances paid to non-Yemeni staff by donors is not available, although it is reasonable to assume that a differential exists in favor of the expatriates.

Data on the non-instructional staff, their numbers, nationality, and status are shown in Table 8.8. The top administrative positions of Sana'a University are all occupied

TABLE 8.8

SANA'A UNIVERSITY NON-INSTRUCTIONAL STAFF

1983/84

	Yemeni				Non-Yemeni			
	Permanent		Contracted		Seconded		Contracted	
	Male	Female	Male	Female	Male	Female	Male	Female
Management	20	-	-	-	-	-	-	-
Accomodations Dept.	20	-	3	-	6	-	4	4
Administrative Dept.	35	4	1	2	1	1	-	-
Financial Dept.	33	-	-	-	2	-	1	-
Youth Care Dept.	1	3	5	-	-	-	-	1
Student Dept.	2	-	-	-	5	-	1	-
Library Dept.	20	4	-	-	11	-	2	1
Instructional Support	52	2	2	1	39	1		2
Language Center	2	-	-	1	-	-	-	-
Totals	193	13	11	4	64	2	8	8
Grand Total	303							

Source: Constructed from data provided by the Technical Office, Sana'a University, 1984.

by Yemeni males. In general, 73 percent of the non-instructional staff are Yemeni and 91 percent are male. Seconded staff are all male. Although none of the instructional support staff members are members of the academic faculty, the non-instructional staff category does include lab technicians and other instructional aides.

8.1.4.3 Curriculum

The indications of high attrition and repetition rates at the University, particularly in the first and second years of study, suggest that, among other issues, there may be a serious lack of articulation between the secondary curriculum and that of the University. Additional reasons include the pressure of part-time employment, family responsibilities, poor study habits, and the lack of tuition charges that may lead some students to undervalue the opportunity. Certainly, the poor rationalization of curriculum at lower educational levels, discussed earlier, indicates that a substantial portion of the instructional difficulties at the University may stem from the inadequacies of pre-university training. Nonetheless, the rapid expansion of the University, and its continued dependence on foreign faculty and curricula, indicate that there has been little time for adequate analysis and rationalization of program content in each of the faculties.

8.1.4.4 Evaluation

There is no separate admission examination to the University except in the Faculties of Engineering and Medicine. Admission for other faculties is dependent on student scores on the secondary leaving examination. The Faculties of Education and Medicine also incorporate the results of admissions interviews in the admission decision process. The instructional staff within faculties write and correct their own course examinations. Graduation depends on successful completion of the required number of courses. The University grading system involves both a formal grade and a

numerical equivalent. For 1984/85, the grading system is as follows:

GRADE	SCORE
Excellent	90-100
Very Good	80- 89
Good	65- 79
Satisfactory	50- 64
Fail	0- 49

At the postgraduate level, where admission requires an overall rating of "good" in undergraduate course work, success is again largely determined by faculty examination. At the diploma level a short thesis may also be required and at the master's level, a more substantial research project must be completed. The postgraduate programs are still too new to allow for assessment of the effects of the research requirements on either the quality of graduate programs or of the time required between the end of coursework and graduation. If research project requirements lengthen the study period appreciably, the requirements may be difficult to justify given the immediacy of the present demand for skilled manpower.

Examination and other forms of skill testing represent the primary means used in evaluating the University's students. Other important forms of evaluation include assessments of teaching quality, administrative efficiency, and curriculum relevance (to both employment opportunities and societal needs). These forms of evaluation appear to be underemphasized at the present time.

8.1.4.5 Facilities and Equipment

The growth of the University in numbers and faculties has imposed constant requirements for additional space and equipment. At the present time, the Faculties of Medicine, Engineering, and Agriculture are sharing space and equipment with other faculties. Enrollments in the new faculties will be held at their present low levels pending the availability of their permanent facilities. Concern has been expressed about

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the need for new equipment for the Faculty of Science and the high costs associated with providing and maintaining up-to-date laboratories. As all students fulfill basic science requirements in the Faculty of Science, however, equipment expenditures there are easy to rationalize. It is important that laboratory space continue to be shared by all faculties, rather than each faculty having separate facilities.

A second area of concern is the relatively small holdings of the University library. In 1983-84 library holdings were as follows:

	ARABIC	FOREIGN LANGUAGE	TOTALS
Books	51,246	41,276	92,522
Periodicals	250	500	750
Total	51,496	41,776	93,272

Since there are few other libraries in Sana'a it is important that both faculty and students have access to the necessary instructional support materials. Certainly, the library should serve as a repository for all major governmental and parastatal publications. At the present time, these materials are not available at any central location and collection of them requires individual visits to individual ministries or parastatal agencies.

A third facilities/equipment issue is that of housing for women. The University currently rents housing for women students who then pay a subsidized housing fee to the University. However, University officials observe that the current housing may not be entirely satisfactory and may serve as a deterrent to the enrollment of women candidates from governorates other than Sana'a. The University has plans to build dormitories for women, but construction has not yet begun.

8.1.4.6 Costs, Financing, and Donor Support

The University, from its inception, has benefited from the high priority given it in national planning and in donor financing. It was estimated that in 1982-83 Yemen payed 38 percent of the recurrent costs of the University or about YR 49

million annually. At present (1985) calendar year the Yemeni's share of University costs exceeds 50 percent.

These funds cover the cost of salaries and allowances paid to Yemeni administrative and instructional staff and workmen. Kuwait and other donors contribute roughly 62 percent of the recurrent costs of the University. While exact figures are not available, donor sources indicate that in 1983 Kuwait paid the salaries and travel allowances of approximately 180 non-Yemeni instructional staff and 70 technicians and administrative staff. Nine other staff or resource personnel were provided by France, the Federal Republic of Germany, the United Kingdom, and the United States. Donor support for recurrent costs is likely to increase, at least in the short term, as the three new faculties, Medicine, Engineering and Agriculture, become established.

The situation with respect to capital expenditures is similar. Although relatively little information on University capital costs is published, the projects outlined in the SFYP called for a 29/71 percent domestic/donor division of responsibility. Kuwait, is the major, financial supporter with a lesser contribution from the World Bank to the Faculty of Engineering. Even with respect to the SFYP projects, Kuwait has taken the lead among donors. To date, Kuwait is estimated to have financed 60 percent of all University construction expenses and equipment purchases. Kuwaiti contributions have included most of the administrative and instructional buildings on the new campus, faculty housing, and the facilities for the Police College. Additional buildings are now under construction for at least two of the faculties, and ground has been broken for the Faculty of Medicine.

At the present time, all students enjoy free tuition and a partial subsidy of textbooks.* Recurrent costs per University student are estimated at YR 20,000 per pupil. For comparative

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*Science textbooks are sold to students at one-half their cost and all other texts at 75 percent of cost.

purposes this sum is 94, 85, and 75 percent more than the amounts expended for primary, preparatory, and secondary students, respectively. Total unit costs include, of course, the amounts invested by students in their own education. Conservative estimates of the yearly costs borne by students include:

Registration fee	YR	115
Student Activities fee		100
Texts, materials		300
Housing		1,800
Travel		490
Food		8,195
	YR	11,000

Expenses related to housing, travel, and food only apply to students who are from outside of Sana'a or who head households.

Faculty of Education students under contract are exempted from all of the above charges except the student activities fee. In addition to these savings, they receive the following specific subsidies, depending on their special field.

	Social Science		All Other Fields
Stipend	YR 10,200	OR	11,400
Accommodation Allowance	1,800		1,800
Book Allowance	200		200
	YR 12,200		13,400

The housing allowance is provided whether or not the student has explicit personal housing expenses. The book allowance is available only to third and fourth year students. The subsidy provided to contracted education students approximates seven percent of the total (YAR and foreign) recurrent budget or 27 percent of the YAR contribution to recurrent costs. The current subsidy program needs to be examined from the perspective of equity and efficiency. While it might attract and retain students into a particular course of study, it may not necessarily guarantee eventual classroom employment beyond the minimum service period of five years. Increasing teacher salaries may be a more effective means of

Yemenizing the teacher force. A fuller discussion of the incentives for teachers is presented in chapter 7.0 (Teacher Training).

8.1.4.7 Foreign Study

Opportunities for supported foreign study are available at all postsecondary levels. Most are financed through joint donor and YAR contributions. Applications for undergraduate study are handled through the Ministry of Education. In general, applicants for undergraduate programs must have a secondary certificate and a score of at least 75 on the secondary leaving exam, while those for masters programs must have a college degree and a good academic rating. Requirements may be higher, depending on preferences of different donors. In repayment for subsidized study, undergraduates must contract to work five years for the government. Students are generally not supported for work in specializations available at the University of Sana'a or in areas not considered particularly relevant for national development. At the present time students are being encouraged to major in science-oriented specializations.

Unlike undergraduate applicants, individuals applying for master's or doctoral study support (through the government program coordinated by the CPO) are supposed to be employees of a governmental or parastatal agency. Apparently, exceptions are made to this rule. In general, applications are made to the CPO through the agency of employment. Specializations most likely to be approved are those related most closely to an agency's needs. In repayment for study support, master's degree students contract to work two to three years for the government and doctoral students for at least four years. The actual number of years is determined by the number of years of educational support. The contract, however, does not limit the individual to working for the original agency. The returning graduates may be reassigned to another unit. Tables 8.9 and 8.10 show the distribution of students by country and field of study for the governmental programs. They also include the

TABLE 8.9

STUDENTS ON GRANTS IN THE ARAB COUNTRIES BY SPECIALIZATION FOR THE YEARS 1980/82 - 1982/83 AND THEIR DISTRIBUTION BY HOST COUNTRY FOR 1982/83

Specialization / Year and Country	Total	Self Financed Students	Others	Arts	Law	Information	Economics & Commerce	Cinema & Photography	Engineering Institutes	Education	Science	Agriculture	Engineering	Pharmacology	Veterinary Science	Medicine
1980/81	2,358	-	276	134	93	13	334	-	-	62	95	375	502	93	33	348
1981/82	350	-	122	3	-	-	-	-	-	17	17	87	62	18	8	24
1982/83	3,164	213	269	182	57	13	343	24	89	119	194	443	663	152	40	363
Egypt	936	157	45	42	49	5	158	20	-	69	29	117	79	10	1	155
Saudi Arabia	1,017	33	87	127	-	7	125	-	-	33	103	92	298	61	15	36
Syria	724	7	57	5	8	1	30	2	53	4	7	181	200	35	21	113
Iraq	208	1	10	-	-	-	14	1	25	-	1	30	34	43	-	49
Jordan	70	2	4	-	-	-	7	-	7	-	-	15	26	3	-	6
Kuwait	31	1	1	2	-	-	1	-	4	-	14	-	7	-	1	-
Qatar	71	7	30	-	-	-	-	-	-	8	26	-	-	-	-	-
U.A.E.	41	5	8	6	-	-	-	-	-	4	8	3	7	-	-	-
Algeria	22	-	13	-	-	-	-	1	-	-	6	-	-	-	-	2
Other Countries	44	-	14	-	-	-	8	-	-	1	-	5	12	-	2	2

Source: Central Planning Organization, Statistical Yearbook, 1983, April, 1984.

TABLE 9.10

STUDENTS ON GRANTS IN FRIENDLY COUNTRIES IN VARIOUS SPECIALIZATIONS FOR THE YEARS 1980/81 AND THEIR DISTRIBUTION BY HOST COUNTRY IN 1982/83

Specialization / Year and Country	Total	Self Financed Students	Unknown	Arts	Informat	Commerce & Economics	Chemes & Photography	Science	Agriculture	Engineering	Pharmacology	Veterinary Science	Medicine
1980/81	995	-	124	14	43	21	-	41	12	377	43	8	[illegible]
1981/82	254	-	13	3	-	-	-	1	33	184	2	-	76
1982/83	1,250	120	69	13	22	43	16	12	130	430	31	15	[illegible]
U.S.S.R.	723	2	11	6	19	12	16	17	64	323	6	15	[illegible]
U.S.A.	171	39	11	5	2	28	-	13	43	120	-	-	-
Pakistan	120	1	17	-	-	2	-	2	17	72	25	-	99
Britain	79	60	6	-	-	4	-	-	-	9	-	-	-
China	55	-	1	-	-	-	-	-	-	54	-	-	-
Romania	35	3	-	-	-	-	-	-	-	8	-	-	[illegible]
German Democratic Republic	33	-	-	-	-	-	-	-	5	16	-	-	[illegible]
West Germany	25	-	7	-	-	7	-	-	-	9	-	-	[illegible]
Czechoslovakia	21	1	-	-	-	-	-	-	1	10	-	-	9
Hungary	14	-	-	-	-	-	-	-	-	4	-	-	[illegible]
India	14	13	-	-	-	-	-	-	-	-	-	-	1
Poland	12	-	-	-	-	-	-	-	-	5	-	-	7
Other Countries	28	1	1	2	1	-	-	-	-	18	-	-	[illegible]

Source: Central Planning Organization, Institutional Yearbook 1983, April, 1984.

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number of Yemeni who are financing their own study. Unfortunately, data on gender and level of degree sought is not available.

In addition to the government programs for foreign study, the University of Sana'a operates a program exclusively for postgraduate support for future faculty members. Applicants contract to teach for a number of years equal to twice the number of years of supported study. Table 8.11 provides information on the number of University fellows, the degrees sought, the field of study, and the country of study. Again no information is provided on the gender of participants. The table indicates that in 1982/83, there were 146 University fellows, with the greatest numbers concentrated in the United States and Egypt. The numbers by specialization tend to favor the established rather than the new faculties, which raises questions about (1) faculty turnover and (2) the adequacy of the lead time in the planning for the faculties of Medicine, Engineering, and Agriculture prior to their establishment.

8.2 ANALYSIS

8.2.1 Needs

The principal need in higher education is to develop policies and long-term strategies which reflect national goals and address specific issues of equity, efficiency, and finance. Before such plans can be formulated, a basic set of policy issues needs to be resolved and research questions answered. The most salient policy issues appear to be:

1. How much of the national education budget should be set aside for higher education?

2. To what extent should the future course of the University be guided by the skills needed in the YAR or by the models of higher education found in other countries?

3. Is it more important to expand enrollments or course offerings?

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TABLE 8.11

UNIVERSITY OF SANA'A FELLOWSHIPS FOR

FUTURE FACULTY STUDYING ABROAD

1982/1983

Field of Study	Shari'a and Law		Arts		Education		Science		Commerce and Economics		Engineering		Medicine		Agriculture		Total		Grand Total
Degree Program	MA	Ph.D	MA	Ph.D	MA	Ph.D	MA	Ph.D	MS	Ph.D	MS	Ph.D	MS	MD	MS	Ph.D	MS	Ph.D	
Country																			
U.S.			3	8	15	6	4	8	4	9	5	1	1		[illegible]	2	34	34	68
U.K.			2	1		4	1	1				1	3				6	7	13
Egypt	10	10	12	11	3	2			4	2	1						30	25	55
West Germany			1	2													1	2	3
USSR																			
France								1		2		1						4	4
East Germany		1																1	1
Saudi Arabia											2						2		2
Total	10	11	18	22	18	12	5	10	8	13	8	3	4	0	2	2	73	73	146

Source: Technical Office, Sana'a University, 1984.

4. What priority should be given to the Yemenization of faculty and staff and providing access to women and students from regions underrepresented in higher education?

5. Would the "right" of students to higher education be enhanced or reduced by increasing the students'/parents' share of financing?

6. Is it more efficient that study be subsidized or should salaries in government and teaching be made more competitive?

7. How much dependence on donor support is excessive?

8. What are the capital and recurrent cost implications of the choices related to each of these issues?

The research which would prove useful to informed debate on these issues is detailed in the appropriate summary section.

8.2.2 Plans

Goals and strategies for the Third Five Year Plan (TFYP) are now under discussion. However, detailed information on new projects, enrollment targets, and curricular changes are not yet available. The government is committed to complete the projects identified in the SFYP. This includes providing appropriate facilities and equipment for the three new faculties, the teaching hospital, and the experimental farm; additional laboratories and equipment for the Faculty of Science; and additional housing for women. One suggested modification of the SFYP proposals is for government to continue to rent rather than build housing for women students. The proposal to locate the Faculty of Agriculture at a vocational/technical facility in Sana'a also remains under consideration. Completing projects related to the faculties of Medicine, Engineering, and Agriculture is a high priority as enrollments in these programs must be restrained until adequate facilities are available.

In addition to the realization of the existing SFYP projects, the University's objectives for the future include:

1. The opening of additional campuses, particularly with Faculties of Education and Science, in Taiz and Hodeidah;

2. Raising the standard of the University Administration; and,
3. Securing the financing necessary to improve administrative and student services, scholarships for Yemeni faculty for graduate work, and scholarships for needy undergraduate and graduate students.

8.2.3 Constraints

The most important constraints on planning with respect to higher education are those imposed by fiscal, economic, and skilled manpower limitations. The analysis presented in Chapter 2.0 suggests that the demands that will be placed on the recurrent budget by the expansion of primary and secondary schooling alone will force a reallocation of resources away from other governmental activities. The actual funds available to the University may, therefore, decline in real (purchasing power) terms over the next few years. This projection indicates not only the need for more efficient use of governmental and donor funds during the TFYP period but also reconsideration of some of the outstanding SFYP projects (such as the building of a teaching hospital and the experimental farm) and consideration of some form of user (student)financing.

Skilled manpower constraints within the University are evidenced by the slow rise in the numbers of Yemeni in the highest faculty ranks and continued dependence of the administration on seconded and contracted foreign nationals. However, some progress is being made; many top administrative posts already are filled by Yeminis. Studies of staff development needs and re-examination of the requirements for academic promotion would suggest ways of minimizing this constraint.

The economic constraints on the University stem from two sources. First, the performance of the economy will determine the YAR's fiscal outlook and, therefore, affect the government's ability to support higher education. Secondly, labor market demand for the types of skill produced by the University and overseas programs will provide a measure of institutional relevance to national development. In order to

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minimize the latter constraint it is necessary to study labor market needs on a regular basis and plan and revise staffing patterns, curriculum, and programs accordingly.

Fiscal, manpower, and economic constraints are all sensitive to internal efficiency issues. Attrition, repetition, low student/teacher ratios, and redundancy in course offerings, equipment and laboratories across faculties would represent real internal inefficiencies. Consequently, studies, particularly of the causes of attrition, repetition, and part-time study are needed. At the present time there is little evidence of course redundancy. However, research related to facility and equipment usage is necessary for effective long-term planning.

8.2.4 Summary Issues

The rapid growth and expansion of the University in the last fourteen years has had concomitant social costs. Attrition and repetition rates have been high. The need for and presence of foreign instructional and non-instructional staff has fluctuated but probably will not be reduced permanently in the near future. Scarcity of time and resources has meant that little attention could be given to the articulation between the secondary and the University curriculum and to the nature of the public and private sectors' demand for skills. Evaluation has been limited to student assessments and consequently appraisals of teaching and administrative staff are not available. With respect to facilities and equipment, demand is perceived as consistently exceeding supply. The amount and implications of donor support for future recurrent cost demands on the YAR budget and the future direction of the University tend to be inadequately discussed.

In the subsections which follow the relationship between these issues and the external efficiency, internal efficiency, equity, administration and supervision, and financing of the University are discussed.

8.2.4.1 External Efficiency

The major issue with respect to external efficiency or the fit between the skills of graduates and labor market demand is the lack of information. Two types of studies are important in this regard. The first is a tracer study of graduates. This would answer the following questions: Where are the former graduates employed (country, governorate, public, private, parastatal sector); what are they being paid; are the skills required by their jobs general (literacy, numeracy, English language ability, etc.) or specific to their major (e.g. law or accounting).

The second type of research which addresses external efficiency issues is, of course, labor market surveys. This type of research provides the detailed information on the skill requirements of each sector of the economy. Since requirements change both with the supply of skilled graduates and with changes in sectoral development, such surveys must be done on a regular basis to be meaningful.

Other external efficiency issues of great potential interest are those related to the externalities or spillover effects of higher education. Namely: does higher education affect demand for schooling for the next generation? Does it have appreciable effects on health, life style, commitment to the nation, and related social concerns?

8.2.4.2 Internal Efficiency

There are a number of indicators of the level of internal efficiency achieved by an educational institution. With respect to students these include attrition and repetition rates, the average time required to obtain the degree sought, and average class size. While some of the data necessary to construct these indicators is available, the information is not complete. Attrition and repetition rates need to be computed for all faculties each year and the causes studied. In addition, while the ratio of instructional staff to students in each faculty is recorded, cross-faculty registration for

courses suggests that average class size per instructor by faculty would be a more useful indicator of efficiency. This statistic would also serve as a measure of the efficient use of faculty time. Other data of interest but not yet collected are related to the intensity with which facilities and equipment are used and services (library, language center) provided.

8.2.4.3 Access and Equity

The major issue with respect to access and equity is the small representation of women on the staff (both administrative and instructional) and in the student body. The first step in addressing these issues as they relate to students is to study the flow of women and students from underrepresented regions (once these are identified) through the earlier stages of schooling. The next step is to identify the causes of inadequate flow (e.g. lack of girls' schools, lack of information about educational opportunities). The final is to take the necessary corrective action; that is, reduce the disincentives when and where possible. The same study/action approach would also be useful with respect to underrepresentation of these groups on the University staff. At the same time, greater effort might be given to increasing the number of female non-Yemeni staff at all levels; this task could be accomplished more readily in the short term. Such a step would signal a commitment to providing more equal opportunities while offering role models for young Yemeni men and women. In addition, parents might be more willing to allow their daughters to attend a less predominantly-male institution.

8.2.4.4 Administration and Supervision

The most pressing issue with respect to administration and supervisio is the need for an increased capacity for data management, evaluation of current activities, and analysis of the implications of future alternatives. The University technical office responsible for planning, research, data management, and budgeting has a permanent staff of six, no

computer facilities, and inadequate office space. Only the office space issue is scheduled to be resolved in the near future.

Student records with entry level scores, personal characteristics (e.g. gender, governorate of origin, marital status, age, number of children, full/part-time employment), part-time/full-time status, and, of course, grades should be maintained on a computer in the registrar's office. Establishing the infrastructure for the regular collection, computerization, and storage of this data is a priority activity. This data would provide the Technical Office with the appropriate basis for their institutional analyses as well as shorten the time investment required to generate annual reports. With reduced data collection responsibilities, the technical staff could initiate studies related to evaluation of University efficiency, both internal and external, and the costs and benefits of future policy options. Increasing the size of the technical staff is less important than freeing their time to design and conduct the research needed. Faculty and graduate students, both in Canada and out of the country, might be enlisted to take on individual institutional research projects.

In addition to these data collection, management, and internal self-assessment activities, the speed at which the University has expanded suggests a need for external evaluation of the administrative structure and the use of administrative and supervisory time. Such information is a necessary prerequisite to determination of the capacity of the University to direct its course into the future and to meet the demands of an ever growing and diversified faculty and student body.

8.2.4.5 Costs and Financing

Available data on cost issues, particularly expenditures per student and per graduate, were discussed earlier in this chapter. In this section, two major financing issues will be addressed: the use of tuition payments to permit

reallocation of funds within the University and more efficient use of donor resources.

At the present time, tuition is free and textbooks partially subsidized. The high opportunity costs associated with university attendance, as well as the need to finance room and board expenses has meant that most students work at least part-time. This double burden is undoubtedly one of the factors contributing to attrition and repetition. Since substantial economic benefits will be realized by many of the graduates, at least in the near term, and competition for government resources is great, the answer to the problem is not increased subsidization but provision of loan assistance to students.

Capital support in the form of loans would enable students to participate full time in their studies while fulfilling their familial obligations. This would shorten the time between University admission and graduation and prepare individuals more quickly for government, parastatal, and private sector employment. Options for repayment might include obligatory governmental service, similar to the requirements for those who study out-of-country, direct repayment in the form of temporary salary reduction, or some combination of the two. To the extent that graduates are found to migrate for work, these options are less feasible. In such cases, direct repayment would be the alternative of choice. Providing access for students to loans, of course, still constitutes an implicit subsidy, since both interest and opportunities for other government investments would be foregone.

At the graduate level, work-study arrangements could be made so agencies in need of skilled manpower need not entirely forego their employees' labor. Consideration might be given to user charges at this level as well.

The University, from its inception, has been heavily dependent on donor support for both recurrent and capital cost obligations. The list of donors and their support for and involvement in different faculties is indeed impressive. In

light, however, of the University's twin goals of fostering national development and preserving traditional values, it is important to review curricular plans, objectives, content, and methodologies more from the perspective of the needs of the Yemeni economy and society and less from a comparative educational standpoint. This review, together with more selective marshalling of donor support, may lead to a slower expansion of curricular offerings. However, the tradeoff of expansion for consolidation and rationalization of programs may well be one which favors both quality and stability.

At the present time, there is an immediate and urgent need for detailed study of both the long and short term recurrent cost implications of existing donor programs at the University. At the same time, cost studies of each faculty are important for future planning, as are the studies of students and graduates mentioned in the preceding subsections. Additionally, procedures for the internal allocation of resources among faculties need to be clarified and further developed. Given the current and projected rapid growth of University enrollments in all faculties, competiton for limited resources is expected to intensify. The clarification of priorities and allocation procedures can help minimize future conflicts over resources.

8.3 MAJOR RECOMMENDATIONS

The options listed in this section represent alternatives to current practice. Their relative usefulness will depend on the way in which the major policy issues listed in subsection 8.2.1 are resolved. The options are not mutually exclusive and may be considered separately or in combination. The options listed with respect to programmatic concerns address the specific problem areas in University functioning which require specialized and immediate treatments. The options provided under summary issues deal with increasing the capacity of the University to determine, control, and plan its future.

8.3.1 Programmatic Concerns

Recommendation 1: Study Issues Related to Student Enrollments and Flows.

Anecdotal information on low participation rates has served in the place of more detailed information on the causes (and consequences) of the low enrollments of women and other groups. Reliable and valid survey data, however, is a necessary prerequisite to reducing any disincentives currently in the system and increasing the incentives for participation. Much the same approach is needed for discovering and reducing factors contributing to high attrition and repetition rates and excessive rates of part-time study.

Recommendation 2: Review Issues Related to Staff Characteristics, Evaluation, and Advancement.

Greater efforts might be made to increase the number of women, foreign and Yemeni, on both the administrative and instructional staffs. In addition, qualitative criteria for all staff need to be developed and used as the basis for promotion. With respect to the instructional staff, consideration might be given to lowering the time requirements for advancement from Lecturer to Professor. Surely, the important issues are the quality of scholarship and teaching and not time in the profession. It appears inappropriate that certain Yemeni staff, who have international reputations, and fill vital roles in government planning, hold only the rank of Assistant Professor at their own national university.

Recommendation 3: Justify Curricular Offerings and Instructional Methodologies.

Review of the curriculum in each faculty should be conducted in terms of: (a) articulation with previous schooling; (b) student demand; (c) potential duplication with other faculties; (d) language of instruction; and (e) relevance to later student employment opportunities and manpower needs.

Recommendation 4: Study Current Usage of Facilities and Equipment.

This analysis is important to determination of future needs. Shared and multiple usage of existing facilities and

equipment is an important avenue of potential cost savings. Barriers to and opportunities for sharing need to be examined closely.

8.3.2 Summary Issues

Recommendation 1: Increase the Capacity of the University for Self-Study, Evaluation, and Planning.

A prerequisite to increasing capacity is the identification of strengths and weaknesses in current administrative and supervisory functioning. The prime weaknesses already identified are in the area of data collection, management, and analysis. While the existing core staff is excellent, it is unduly constrained by the lack of access to the necessary support manpower and computer resources. Both these problems are subject to relatively inexpensive solutions. Cooperative arrangements with the Educational Research and Development Center, instructional staff, and graduate students here and abroad could be arranged.

Recommendation 2: Institute Some Form of User Financing.

Sub-options with respect to user financing combined with increased provision of access to capital in the form of loans have been discussed earlier. Greater study of forms of access to and repayment of loans appropriate to the YAR is needed.

Recommendation 3: Transfer the Subsidy of Education Students to the Profession.

Subsidies once in place often are difficult to remove. The benefits and costs of subsidizing one branch of study rather than further improvement of salaries needs review in terms of the ultimate goal of expediting Yemenization of the teaching force. Similarly, as teacher salaries and other incentives are improved, the need for incentives at the University level should continue to be examined.

Recommendation 4: More Efficient Coordination of Donor Financing.

Efficiencies would result from requesting that donors present in-depth studies of the recurrent cost implications of the capital projects they are interested in supporting. All capital projects should originate from YAR long term planning rather than from a short term consideration of funding availability.

Recommendation 5: Begin Consideration of Possible Tradeoffs Between Incomplete SFYP Projects and Potential TFYP Projects.

The University must remain flexible in responding to shifting priorities as the availability of resouces and the needs of the country change. This may require trade-offs among planned (or as yet incomplete projects) and different projects which are more consistent with changing needs.

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9.0 NONFORMAL EDUCATION

9.1 STATUS

This review of the status of nonformal education (NFE) identifies government goals and strategies in the Yemen Arab Republic (YAR) for the eradication of illiteracy and for the support of adult basic education.* The structure and programmatic concerns of the nonformal education subsector will be described, major issues analyzed, and appropriate options for policy and research will be presented.

9.1.1 Historical Setting

Yemen has long been one of the countries where Islamic education has played an important role, with young Yemeni men attending centers of Islamic education to study the Koran and the Hadith with religious scholars. The coastal town of Zabid was, and still is, a center for such education. However, prior to the establishment of the republic, the rural Yemeni had no access to formal education apart from occasional and limited Koranic teaching. The method of such instruction was invariably rote memorization and did not include the subjects in a modern educational curriculum.

Until 1962 there were practically no schools in Yemen other than the Koranic ones and the few centers of Islamic studies. Even as recently as 1962, the lack of modern education facilities had resulted in an inevitable legacy of a substantially high illiteracy rate. In 1975 the rate of illiteracy was estimated at over 87 percent for the society as a whole. The 1975 census figures indicated that nationwide only 25.4 percent of Yemeni males had such skills while less than two percent of all females were defined as literate. At present the formal school system is

*For the purposes of this analysis, nonformal education is defined as "any learning activity outside the structure of the formal education system that is organized to achieve specific and explicit education or training outcomes." For the YAR, the programs considered under this definition are the National Literacy Campaign and the District Training Centers.

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expanding rapidly, but these achievements do not affect the educational status of those already too old to enter the formal school system as well as the majority of those of all ages who reside in the rural areas.

The urban population of the YAR is much more literate and has higher rates of school attendance at all levels. Again, as indicated by the 1975 census, more than 20 percent of all literate Yemenis are concentrated in the three cities of Sana'a, Taiz, and Hodeidah yet this population represents only six percent of Yemen's total inhabitants. This concentration of the literate population is estimated to have increased since 1975 both because of continued urban advantages in educational access and because of urban migration by the educated rural youth.

The widespread incidence of illiteracy and the shortage of skilled workers at all levels and in all sectors of the economy are a major constraint to the development of the nation. The sectors from which most Yemenis derive a living, such as agriculture, and wholesale and retail trade, require some basic ability in literacy and numeracy. The participants in these sectors would benefit from an appropriately designed basic education program emphasizing literacy, numeracy, and skills training. In response to this need, the MOE's Department of Nonformal Education began in 1976 to establish District Training Centers (DTC's) in rural towns, and Literacy Training Centers (LTC's) in villages to provide literacy classes for men and women.

9.1.2 National Goals and Strategies

The Government's Second Five Year Plan, 1982-1986 (SFYP), has six major objectives for the educational sector. Among the basic objectives are the following:

1. Providing equal educational opportunities to all citizens in cities and rural areas and for both sexes, and reinforcing the values and traditions of Yemeni society.

2. Achieving quantitative and qualitative development of education at all stages and levels, and ensuring full and efficient utilization of existing capacities.

3. Giving attention to adult education, eradication of illiteracy and expanding informal education to achieve equal opportunities to citizens of both sexes.

These three basic objectives are directed toward equal educational opportunities for all citizens including those citizens above the normal age for entering primary education. The policies, strategies, procedures, and methodology of how to accomplish the expansion of nonformal education to achieve equal opportunities for all citizens, and to eradicate illiteracy, are detailed in the planning of the "National Campaign for the Eradication of Illiteracy," or, as it is commonly known, the National Literacy Campaign (NLC). The campaign was designed by the High Commission of the National Campaign for the Eradication of Illiteracy, as a result of a decree issued by the President in June, 1981. The decree underlines the commitment of the government to the eradication of illiteracy and requests the support of all the ministries and other public institutions for the Ministry of Education (MOE) in order to reach this goal.

The High Commission of the National Campaign for the Eradication of Illiteracy planned and designed a program to eradicate illiteracy in twelve years starting in 1982; the plan was divided into three sequential phases. The first phase (of five years) started with the beginning of SFYP in 1982 and is aimed toward the eradication of the illiteracy of 50 percent of the then current illiterates in Yemen. Priority has been given during this first phase to the areas of high population density, such as the capitals of the governorates, the largest towns in the districts, and to the organized employment areas within both the public and private sectors of the economy. Examples of these last groups were the ministries, the army, the security forces, and the employees of large factories and corporations.

The second phase, also of five years' duration, will begin in 1987 under proposed Third Five Year Plan. The second phase is aimed at the eradication of illiteracy among the remaining illiterate population.

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The third sequential phase is designed for two years only; it will be directed toward the provision of literacy for any individuals who were not reached during the first two phases. This last phase will target those in the most remote areas or areas where the population is the most scarce.

The qualitative objectives of the illiteracy eradication program are to equip the participants with information and skills that will have an impact on their daily life. To achieve this goal the participants will be offered (in addition to the literacy courses) the following supplemental programs: agricultural guidance (in the rural centers), general education, health education, Islamic studies, and skills basic training (wherever the District Training Centers exist). Women participants will be offered special skill programs.

The quantitative objectives stated for the program are to enroll 1,250,000 nonliterates during the first phase, and to provide an opportunity to 24,000 of those who became literate to participate in a follow-up program. The separate follow-up program is designed to prepare the participants for entry into the preparatory phase of the formal schooling system at the end of their training.

9.1.3 Organizational Structure

The administrative system of the MOE remains highly centralized in structure and in operation. The recurrent attempts to improve the managerial capacity of the MOE have been constrained by pressures from the continuing demands for expansion of the formal educational system. The reorganization of the MOE in the late 1970's caused the General Directorate of Nonformal Education to lose status and influence. It was reduced to a department and was grouped with five other former general directorates under the Director General of Education. This restructuring decreased the access of the staff of the nonformal education department to the senior executive administrators of the MOE. The NFE department is in charge of recommending the policies and curriculum of nonformal education as well as of implementing the adopted policies.

Under the present system the Directorate of Nonformal Education (DNE) has a division in each governorate office of education. The division is formed of a director, an administrative officer, an advisor, and an NFE specialist. Those divisions exist in all the governorates except in Ma'reb, Mahweet and Al-Jawf. The divisions are in charge of monitoring the implementation of NLC programs locally as well as recommending changes in the curriculum.

In addition to the nonformal education department at the MOE a High Commission headed by the Minister of Education was established; its responsibilities are to set the policies of the National Literacy Campaign and to recommend sources of funding in order to implement and evaluate the NLC. Among the members of the High Commission are the deputy ministers of concerned ministries, and representatives of the Army and Security Forces, the General Federation of the Local Councils for Cooperative Development, and the Chamber of Commerce. The department of nonformal education at the MOE is considered as a technical secretariat for the High Commission.

At the level of the governorates, committees were established, headed by the governors and having as members the directors of the regional offices of the concerned ministries, and representatives of the organizations that were members of the national High Commission of the NLC. Committees were also established at the district levels headed by the government's administrative director of the district.

9.1.4 Programmatic Concerns

This section examines what has been achieved in nonformal education through 1984 and identifies programmatic concerns relating to participant enrollments, trainers, curriculum, evaluation, facilities and equipment, costs and financing, and donor support. Two major public nonformal education programs will be discussed: The National Literary Campaign and the District Training Centers (DTC's); also supplementary nonformal education activities implemented by the Local Councils for

Cooperative Development (LCCD's) and the Yemeni Women's Organization will be examined briefly.

9.1.4.1 The National Literacy Campaign

The implementation of the NLC started with the beginning of the academic year 1982/1983. An official survey indicated that in 1981 the number of illiterates within the age bracket of 10 to 45 had reached 2,826,405; this number included 1,106,300 males and 1,710,105 females. The campaign planned an educational program involving two stages:

1. An eradication stage of two academic years' duration, by the end of which students were to reach a level equivalent to the fourth year of formal primary education; and
2. A follow-up stage of two further academic years' duration, by the end of which students were expected to reach sixth grade equivalency.

Following completion of the following stage, the participants will be eligible to sit for the primary school certificate exam. If successful, this would allow them to proceed to a formal preparatory school. The NLC established a goal of attracting 110,000 participants for 1982; 240,000 participants for 1983; 382,500 participants for 1984; 567,500 for 1985, and 702,500 participants by 1986 (the end of the first five-year phase).

9.1.4.1.1 Participant Enrollments and Characteristics

During the first year of the illiteracy eradication campaign 110,000 participants were to be enrolled. Official figures indicate that 98,347 adults began the program and that 80,242 completed the year. This number represents 81.6 percent of the initial participants but only 72.9 percent of the original target for enrollments. In addition, 16,000 from the army and security forces enrolled in literacy programs. In the second year, total enrollments were scheduled to increase to 240,000. However, 109,922 were enrolled and 81,356 completed the year. No detailed breakdown is available to allow one to distinguish between new students and returnees; the 81,356 represents a retention rate of

74.0 percent but is only 33.9 percent of the NLC program target for year two. These figures do not include the 24,678 participants from the different public and private institutions such as the army and security forces and the employees of industrial firms. By adding the participants of these organized institutions to the number of those who enrolled in the MOE literacy centers, the total number would become 134,600.

In addition to lower initial enrollments than expected, a second factor faced by the campaign was the extremely low enrollment of females. During the first year only 13,217 or 13 percent of those enrolled were females. For the second year only 22,059 (20 percent) were females. The following chart indicates the number of participants and percentages of drop-outs, by sex, for the year 1983/84.

Number of Participants and Percentages of Drop-outs

By Sex, For the Year 1983/84

	Those who registered at beginning of year	Those who completed training	Percentage of those who dropped out
Male	87,863	64,306	26.8%
Female	22,059	17,050	22.7%
Total	109,922	81,356	26.0%

A third major characteristic of the illiteracy eradication campaign has been the concentration on the governorates of Sana'a, Taiz, and Hodeidah. These three governorates include the three major cities of the YAR but also incorporate substantial rural areas. In the second year of the campaign, 1983/84, 80,300 adults enrolled in the literacy centers of the Sana'a-Taiz-Hodeidah governorates. Only 24,378 enrolled in the rest of the country; proportionally this meant that 76.71 percent of the participants were from within those three governorates and only 23.28 percent from the rest of the country. Given the fact

TABLE 9.1

NUMBER OF PROJECTED AND ACTUAL PARTICIPANTS IN LITERACY PROGRAMS BY GOVERNORATES, 1983/84

Governorates	Per Governorate			Inside the triangle of Sana'a Taiz, Hodeidah; and outside the triangle		
	No. of projected partici-pants	No. of actual partici-pants	Percent-age	No. of projected partici-pants	No. of actual partici-pants	Percent-age of actual
Sana'a	40,699	21,586	53%			
Taiz	27,335	14,577	53.3			
Al-Hodeidah	32,401	19,885	61.4	162,428	80,300	76.71%
Ibb	38,783	14,432	37.2			
Dhamar	23,210	9,820	42.3			
al-Beidah	7,530	4,373	58.1			
Hajjah	19,102	8,091	42.4			
Sa'ada	9,194	5,412	58.9	51,518	24,378	23.28%
Mahweet	9,659	4,055	42.0			
Ma'rib	3,333	1,111	33.3			
Al-Jawf	2,700	1,336	49.5			
TOTAL	213,946	104,678	48.9	213,946	104,678	48.9%

Source: Ministry of Education, Education Statistics, 1984.

that the population of these three governorates is already more literate and has higher access to formal school attendance at all levels, this means that the literacy campaign is concentrating on the same population groups already benefitting from the formal education system.

Based on the 1975 census figures, more than 20 percent of all literate Yemenis were concentrated in the three cities of Sana'a, Taiz, and Hodeidah. Similarly, about 45 percent of literate Yemeni women lived in these three cities, despite the fact that the population there represented only 5 percent of all Yemeni women. The literacy rate in the three main cities was about 43.8 percent in contrast to 10.8 percent in rural Yemen. Table 9.1 indicates the number of the projected as well as the actually enrolled participants, by governorates, for the year 1983/1984.

As in most aspects of Yemeni life, the NFE subsector of the human resource system reflects great regional diversity beyond the simple urban-rural distinction. One report ("A Social and Institutional Profile of the Yemen Arab Republic," 1984) notes that overall literacy in the governorates of Sana'a and Taiz is twice that of the percentage for Mahweet and Hajjah. Female literacy in Taiz, for example, is 13 times greater on a percentage basis than in the governorate of Sa'ada. Table 9.2 shows the literacy rates by governorate and by sex according to the 1975 census.

The statistics collected and published in the progress report of the National Literacy Campaign fo 1983/84 show that the regional diversity among the governorates still exist and in nearly the same proportions. Table 9.3 presents, by governorate and sex of participant, the number of participants in the literacy classes (3 years) and in the follow-up classes (2 years) for the year 1983/84. The table shows that Sa'ada, for example, has only 5,587 total participants of the aggregate national fivure of 109,922. This represents 5.1 percent of those reached by the Literacy Campaign. The number of women participants in Sa'ada is 580 out of a total of 22,059 female participants in the country or 2.6 percent. In Ibb, female participation represents 21.8 percent of the total female participants.

TABLE 9.2

LITERACY RATES, BY GOVERNORATE AND SEX
1975 CENSUS

Governorate	Male Literacy Percent	Female Literacy Percent	Total Literacy Percent
Taiz	37.2%	4.6%	18.4%
Sana'a	31.5	2.5	16.5
Ma'rib	26.2	0.6	13.2
al-Beida	28.6	2.0	12.8
Dhamar	24.5	0.6	11.3
Sa'ada	20.4	0.2	9.5
Ibb	16.7	1.6	9.1
Hajjah	17.9	0.5	8.7
Mahweet	16.1	0.5	7.5
TOTAL	25.4%	1.9%	12.6%

Source: Ministry of Education, Directorate of Nonformal Education.

TABLE 9.3
NUMBER OF PARTICIPANTS IN LITERACY AND FOLLOW-UP CLASSES FOR THE YEAR 1983/84, BY GOVERNORATE AND BY SEX

Governorate	Literacy Eradication (2 years)			Followup Program (2 years)			Grand Total
	Male	Female	Total	Male	Female	Total	
Sana'a	17192	4394	21586	1564	342	1906	23492
Taiz	11013	3564	14577	509	203	712	15289
Hodeidah	16744	3141	19885	746	[illegible]	916	20801
Ibb	9717	4715	14432	548	91	639	15071
Dhamar	8803	1017	9820	76	--	76	9896
Al-Beida	2994	1379	4373	466	138	604	4977
Hajjah	6926	1165	8091	42	70	112	8203
Sa'ada	4832	580	5412	175	--	175	5587
Mahweet	3298	757	4055	--	--	--	4055
Ma'rib	1048	63	1111	54	--	54	1165
Al- Jawf	1066	270	1336	50	--	50	1386
Total	83633	21045	104678	4230	1014	5244	109922

Source: Progress Report on the National Literacy Campaign for the year 1983/84.

It is important to note that 24,678 of the participants in the NLC were recruited from the organized sectors of both the public and private economies. A decree issued by the Prime Minister in 1982 made it obligatory that all those working in the organized sectors join literacy centers. The decree also stated that:

1. There will be a freeze on promoting illiterates in the organized sector, and that four years after the 1983/84 academic year, promotion will be given only to those who have joined the National Literacy Campaign; and

2. Beginning five years from the date of the decree, no illiterates may be hired by the ministries or other government institutions.

As a result of this decree, institutions in both the public and private sector began enrolling their employees in literacy classes. The following is a list of the institutions (with number of participants) that have joined the campaign:

Army and Security Forces	23,744
The Oil and Mineral Company	215
Yemenia Airline	10
Veterinarian Services	15
Ministry of Social Affairs	15
Seven-Up Company	50
Pepsi Cola Company	50
Various Institutions in Taiz	149
The cement factory in Bagel	180
The Yemeni Women's Organization in Hodeidah	155
The salt enterprise	95
Total	24,678

With regard to the age bracket of the participants, the vast majority are under 30 years of age. The age group that has the highest percentage of women's participation is that between 15 and 20 years of age. Of the total women participants, 43 percent are under 20 years of age. Many of these did not have the chance to enter, or the opportunity to continue, primary education. For the men, the age group with the highest percentage (37.7 percent) is that between 20 and 30 years of age.

9.1.4.1.2 Teachers

The total number of those working for the National Literacy Campaign in 1983/84 was 3,827; 3,297 of this number were teachers, 487 were supervisors, and 43 were administrators. By the end of the 1983/84 project year the number of teachers had declined to 3,028. Due to the high attrition rate of participants, approximately 269 classes had to be cancelled. Of the original 3,297 teachers, only 629 (19.1 percent) were Yemenis; the remaining teachers were from other Arab countries.

Teachers of nonformal education are recruited from the populations of primary education teachers. Thus, nearly all of them teach in the morning in formal education schools and in the afternoon (for women) or in the evening (for men) in nonformal literacy classes.

The original design of the NLC planned for teacher training sessions which would help equip the teachers of primary schools to deal with adult education. In 1982/83 the MOE organized training sessions for teachers in selected governorates and a total of 2,857 teachers were trained. However, the average length of training was only one week. In 1983/84 teacher raining did not take place, even though the plans had projected training for an additional 1,143 teachers.

Fiscal limitations were given as the reason for cancelling the training sessions. However, the number of supervisors in the nonformal education system increased from 390 in 1982/83 to 487 in 1983/84. This occurred even though the ratio of supervisors to teachers was already high. With the added number of supervisors, each supervisor is now responsible for an average of 6.2 teachers. Given the financial constraints that prevented the implementation of the teacher training, one can question the justification of this increase in nonteaching staff. Better monitoring of the programs was given as the justification for this increased number of supervisors. Recently in 1984/85 the High Commission of the NLC saw the need to halt the expansion of the number of supervisors; hence the number of nonteaching staff did not increase at the same rate as in the previous years.

The following table summarizes the number of teachers, supervisors, and administrators that worked in the National Literacy Campaign in 1983/84.

	Teachers	Supervisors	Administrators	Totals
Yemeni	629	480	43	1,152
Non-Yemeni	2,668	7	--	2,675
Total	3,297	487	43	3,827

9.1.4.1.3 Curriculum

In the design of the National Literacy Campaign, the curriculum was intended to contain both literacy subjects as well as skills training. The latter activities were to add economic value to the daily life of the participants. The plan complemented the literacy, numeracy, and religious education with agricultural instruction (for rural areas), health instruction, training in women's skills, and general information. The progress reports on the campaign and personal interviews with both participants in, and those responsible for, nonformal education indicate, however, that the NLC classes teach basically literacy, numeracy, religious education and agricultural instruction. The two-year follow-up program continues to teach literacy, numeracy, and religious education, but again does not cover manual skill training. The only addition to the basic three subjects in the follow-up program are primary school topics (e.g. history or geography) of the fifth and sixth grades, taught from the same textbooks used in the primary schools.

Selected literacy classes visited at the end of October, 1984 had not yet received their textbook allotments even though classes officially begin on the 15th of October. For the last academic year most of the nonformal education classes did not receive their textbooks until a few months after the beginning of the program.

The curriculum is being implemented over a period of two academic years with three 40-minute sessions a day, six days a

week. Those adults who complete the two-year curriculum have the opportunity to enroll in a two year follow-up program which, if completed, will allow them to have reached a level equivalent to the completion of primary school.

9.1.4.1.4 Evaluation

Progress reports covering the first two years of the NLC have been written by the Department of Nonformal Education of the MOE. The DNE reports measure the actual achievements of the campaign as compared to the projected achievements. The major issues identified are:

1. The lack of training sessions for NFE teachers of the campaign in 1983/84;
2. The shortfall in the number of those enrolled in literacy classes as opposed to the number originally projected to participate; and
3. The high ratio of supervisors to teachers.

The Directorate of Nonformal Education, based on a decision of the High Commission of the NLC, evaluated the curriculum of the first year in 1984; however, no comprehensive evaluation has yet been done of the curriculum as a whole and of it's impact on the daily life of the participants. Additional issues that have not yet been addressed, measured, and evaluated are:

- the future employment opportunities of those having participated in the nonformal training program,
- the increased possibility of promotion for those undergoing training while already employed,
- and, the increased possibility of adding value to the household income for those having received the literacy education.

9.1.4.1.5 Facilities and Equipment

A positive element of the Yemeni system of formal and nonformal education is the efficient use of facilities. The nonformal education programs have not tried to build separate

facilities to teach those outside the formal system. Instead, the programs have utilized the schools of the formal system in second and third shifts. Women are receiving literacy instruction in the afternoons between 3:00 and 5:30 or 6:00; and men receive training between 6:30 and 9:00 P.M. The same classrooms that were used in the morning for formal primary, preparatory or secondary education are used for the NFE instruction. In a few instances, when the school is occupied in the afternoon by a second formal education shift, the Local Development Agency has assisted in providing a location for the nonformal education classes.

9.1.4.1.6 Costs, Financing and Donor Support

The National Literacy Campaign depends on three sources of financing: national, Arab nation donors, and multilateral donors. The national portion includes what the central government contributes to the campaign and what the local community contributes, specifically the support of the LDA's. For the launching of the campaign in 1982, the central government contributed YR 15,700,000; local communities, YR 20,000; the Arab League, YR 12,155,000; and UNESCO, YR 260,000. This amounted to a total of YR 28,135,000 for NLC activities. The following table describes the financing during the first two years of the campaign:

Financing of the Literacy Campaign
for the Years 1982/83 and 1983/84 (in Yemen Rials)

Year	National Financing		Arab financing (ALESCO)	International financing (UNESCO)	Total
	Government	People			
82/83	15,700,000	20,000	12,155,000	260,000	28,135,000
83/84	15,700,000	--	585,000	26,000	16,311,000

Source: Progress Report on the National Literacy Campaign for the Year 1983/84.

9.1.4.2 District Training Centers

9.1.4.2.1 Trainees and Curriculum

The periodic World Bank Sector memoranda on education in Yemen stress the fact that for the next decade the majority of school-age Yemenis will remain out of school. In addition, the memoranda project that the skills needed by the agricultural sector and at the lower levels of the modern sector will not be provided by the formal education system. According to the Bank's reports: "The projected 1985 primary school enrollments would still leave the equivalent of 53 percent of the age group in the year outside the school system while less than half of those who will enter primary schools between 1974 and 1985 are likely to complete 4th grade." This situation is further aggravated in the YAR by the lack of relevance in the primary school curricula to the lives of the vast majority of students. Whether primary school graduates or drop-outs, they must find employment in agriculture, at the lower skill levels of the modern sector, or through migration to neighboring nations. The last option is available only to males.

Based on this reality, the World Bank proposed a basic training scheme which was agreed to by government. The objectives of the basic training scheme are:

1. To provide opportunities for the nonliterate population past primary school age to acquire a degree of literacy and numeracy to a level appropriate to their own and national development, and

2. To provide opportunities for the adolescent and adult population to acquire basic skills relating to agriculture, village and community life, artisanal pursuits, and home and family life, and thereby contribute to increasing productivity and well-being.

To implement the basic training scheme, seven District Training Centers (DTC's) were established by the government with World Bank support under the first and second education projects. The three DTC's established under the first education project are located at Bagel, Kaida, and Amran. The second

educational project established the DTC's of Sa'ada, Reida, Hajjah, and Zabid. The seven locations are widely spread throughout the country in six of the ten governorates. Five of the locations are considered centers of underdeveloped rural areas with a potential for socio-economic development.

The DTC's are providing courses in such fields as literacy, agricultural skills, electricity, carpentry, automotive mechanics, construction, handicrafts, home economics, health, nutrition, and sewing. In 1982/83 the total number of trainees taking courses in the seven DTC's reached 13,329 and approximately 3,944 have completed the skills training courses. An eighth DTC has been built in Rada'ah with the assistance of the Dutch government. This DTC started functioning in October, 1984; it offers training solely for women with courses in literacy, sewing, knitting, embroidery and typing.

The seven original DTC's and the new DTC for women are a promising beginning but at present the program covers only a small fraction of the nonliterate and unskilled majority of the population. The projected labor demand and supply for the period covered by the Second Five Year Plan indicates that the manpower shortage in semiskilled manual occupations would be approximately 46,000 persons. This underlines the necessity for expanded opportunities for adult skill training. Table 9.4 indicates the number of trainees, by program, in the seven DTC's.

The DTC's courses are organized on an eight-month basis. Afternoon classes are generally planned for women, and evening classes for men. The skills training courses, due to demand and limited equipment, are organized into four-month training periods of four hours daily. Those who complete the courses are qualified to move into semiskilled positions in the local labor force or to advance to higher level training or employment within their occupational area.

9.1.4.2.2 Teachers

The teachers of literacy in the seven DTC's are recruited from the general pool of primary school teachers. The skills

TABLE 9.4
NUMBER OF PARTICIPANTS IN THE DISTRICT TRAINING CENTERS FROM THE YEAR 1979/80 THROUGH 1982/83

Program	1979/80	1980/81	1981/82	1982/83
Specific basic skills	120	742	933	991
Specific women's skills	165	395	649	615
Literacy training	1465	3162	6009	9385
Agricultural information	150	333	1420	1630
Health information	300	400	794	583
Typing	--	--	49	125
Total	2200	5032	9854	13329

Source: Department of Nonformal Education, Ministry of Education, 1984.

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trainers are specially hired to be instructors in the District Training Centers. The vast majority of teachers and trainers in the DTC's are non-Yemenis. Detailed statistics on numbers and characteristics of DTC instructional staff are not available.

9.1.4.2.3 Facilities and Equipment

Originally the basic training activities were to be provided in the villages or towns at whatever site may be found suitable or capable of being adapted for the purpose with limited financial investment. School buildings, for use in off-school hours, or Waqf buildings, were the type of facilities the program intended to use. However, given the nature of the equipment needed to implement the training, special facilities were required and seven buildings have been constructed specifically to be used as District Training Centers. The equipment in the DTC's is provided by the World Bank and consists of sets of basic tools for woodworking, rural construction, basic mechanics, and sets of auto mechanic tools. The Dutch government provided the equipment of the Rada'ah District Training Center and a mobile training unit for Al-Baida.

9.1.4.2.4 Costs and Financing

The estimated capital costs for the seven District Training Centers that were projected for the World Bank's first and second education loans were US $1.75 million or approximately US $0.25 million for each center (1975 prices). The annual recurrent costs have been estimated at US $56,000 for each DTC, and are expected to increase to US $100,000 by 1985. In the "Staff Appraisal Report of the Sixth Education Project," a 1984 World Bank report, the construction, furniture, and equipment costs of two new District Training Centers were estimated at US $2.35 million. The MOE estimated the costs of yearly salaries in 1985 for those working in each DTC will be YR 475,200. The agreement between the World Bank and the YAR states that the Bank will finance the construction, furniture, and equipment of the DTC's and the MOE will be responsible for the recurrent expenses.

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9.1.4.3 Other Concerns

Other than the MOE, two other institutions contribute to nonformal education in Yemen: the Local Development Agencies and the Yemeni Women's Organization.

9.1.4.3.1 The Local Councils for Cooperative Development

The Local Councils for Cooperative Development (LCCD's) are multifunctional organizations, legally autonomous from the government, but performing a number of civic and state-like functions in rural areas. Most LCCD's have concentrated their efforts in four areas: roads, education, water, and health. In education LCCD's contribute in two different ways: the first by building schools that are used by both formal and nonformal systems of education; the second, by conducting workshops to train rural populations in skills requested by the people of the region. During the eight years, from 1973 till 1981, the LCCD's have built 7,317 classrooms at a cost of YR 278,962,051. The LCCD's also have assisted the MOE in either finding or providing housing for teachers.

With regard to skill training, the LCCD's conduct workshops that last two to three months; few of their workshops last for as long as six months. The workshops take place in the major cities and towns of each governorate and the trainees are provided with housing and a daily stipend. Among the workshops organized for women were three midwifery workshops (that took place in al-Kafr and Hajjah) and a workshop in rug making (in Zabid). For men, the workshops are fairly diversified. Training has been offered in agricultural machinery usage and maintenance, pump maintenance, auto mechanics, agricultural marketing, accounting, electricity, welding, waterpipe making, and animal husbandry.

The LCCD's are organized under the General Federation of Local Councils for Cooperative Development (GFLCCD). The GFLCCD also supervises a number of cooperative agencies that also contribute to nonformal education. In the YAR, there are eleven vocational associations, 40 agricultural cooperatives, and three fishery cooperatives. The vocational cooperatives include:

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goldsmiths, tailors, potters, jambiya (dagger) makers, waterpipe makers, leather craftsmen, woodworkers, rope makers, and blacksmiths. The GFLCCD through its individual LCCD's and cooperatives, has been focusing on skill training in order to meet one of its primary goals, that of generating new sources of rural income.

9.1.4.3.2 The Yemeni Women's Association

Yemeni Women's Associations are located in Sana'a, Taiz, Hodeidah, Dhamar and Ibb. These five associations are urban-oriented and undertake literacy classes in the five major cities of the nation. The associations endeavor to teach sewing, needlework, knitting, and home economics courses, all of which incorporate a literacy component. The MOE provides the literacy teachers while the associations hire the skilled trainers directly. For literacy, the programs follow the same two-year curriculum of the National Literacy Campaign. For skills training, the length of the courses vary from six months to two years depending on the availability of the trainer and the needs of the trainees. Because of overcrowding at the present locations, the literacy and skills centers of the Yemeni Women's Organization have had to refuse admission to many women who want to learn these new skills.

9.2 ANALYSIS

This section analyzes the needs for literacy and skills training in Yemen, examines the future plans of both the public and private sector for the continuation and the expansion of nonformal education, and describes the constraints that face those plans. The section also discusses the issues of the external and internal efficiency of the existing NFE system and the issues of access and equity, administration and supervision, and costs and financing.

9.2.1 Needs

The needs for nonformal education appear to be even greater than what official documents project. The needs are both

quantitative and qualitative. The quantitative need, or the expansion of nonformal education in order to reach a wider and more diversified target group, is crucial if the National Campaign for the Eradication of Illiteracy is to achieve its goals. According to official MOE statistics, the campaign, in its second year, was capable of achieving only 33.8 percent of the originally projected number of participants; 81,356 participants completed training that year out of the originally projected 240,000.

However, if we add to the 81,356 participants who completed the training at the MOE nonformal education classes, the 24,678 participnats who enrolled through the organized sectors (i.e. army, security, factories ...) the total number of those who completed the training would reach 106,034 which would raise the percentage of achievement to 44.6%. If 1983/84 is a representative year of the level of efforts and the level of achievement, what the National Literacy Campaign had planned to achieve in 12 years will take a longer time to accomplish fully.

An even more important fact is that nonformal education usually performs a compensatory and complementary function to the formal education system. Normally, it serves different population groups than those served by the formal system. In Yemen the formal education system basically is most accessible to the population existing within the governorates of Sana'a, Taiz, and Hodeidah; the same is true of the MOE's nonformal system. The formal system has predominantly a male and urban-oriented enrollment; the same is true for the nonformal system. Therefore the compensatory nature of the nonformal education system is not fulfilled. This need for compensation through nonformal education for those who could not be encompassed by the formal system becomes more accute when one recognizes that:

1. Approximately 90 percent of the population can be classified as rural, with three-fourths of the people engaged directly in agriculture; a vast majority of this agricultural population suffers from illiteracy and low skill levels.

2. The projected 1985 primary school enrollments would still leave the equivalent of 53 percent of the age group in that year outside the school system; the majority of this 53 percent are rural and female.

3. Less than 50 percent of those who enter primary schools are likely to complete 4th grade; the remainder will drop out before completing what is considered the level needed for permanent literacy.

4. The primary school curricula lacks relevance to the daily lives and needs of the majority of students, whether primary school graduates or dropouts, who must find employment in agriculture or small productive enterprises that require low skill levels.

5. Basic skill training for adults, particularly in rural areas, is critical since more modern techniques are now becoming a part of the rural economy.

The source of this information is the "Yemen Arab Republic: Education Sector Memorandum Update," World Bank, February, 1984. If the World Bank data and projections are accurate, then, in order to eradicate illiteracy or even to reach a majority of the nonliterate citizens, the MOE cannot continue to concentrate its nonformal resources on the same segment of the population served by the formal system. Also, the MOE will have to make a substantial effort to reach women illiterates. Given the fact that the percentage of girls in primary schools is still at only 12 percent of the age cohort, formal education will require more time before it can have a substantial impact on the literacy rate among women. This situation appears to be improving given the recent statistics of 1984/85 which indicate a substantial increase in the first year, primary education enrollments. The improvement will become more effective if the retention capacity of the primary education system also increases.

The qualitative needs touch on the content and the process of the nonformal education program of the MOE. The literacy campaign focuses on reading, numeracy, and religion. Where affordable, it needs to provide more opportunities for the users of the NFE system to acquire basic skills relating to agriculture, small productive enterprises, village and community life, and artisanal pursuits. These courses of study would allow

the participants to increase their contribution to the household economy. In addition, the course would increase labor market productivity by upgrading the skills of the general work force.

9.2.2 Plans

The MOE and the National Literacy Campaign plan to continue the implementation of the campaign with the hope of eradication of illiteracy by the end of 12 years. The World Bank, with the MOE, is financing five additional District Training Centers and expanding the basic training scheme which was initiated under the first and second education projects and continued under the fifth project. The five new DTC's are located at Nadera and Yareem in Ibb governorate; at Al-Tourba in Taiz governorate; and in the Mahweet and Ma'rib governorates. In the latter governorates educational opportunities are few (the present literacy rate is ten percent among men and one percent among women) but the area has potential for socio-economic development especially given the plans for the construction of the new dam.

Also, the World Bank will undertake an evaluation of the DTC's programs in order to assist government with long-term development of the basic training scheme This evaluation will be conducted by the Educational Research Development Center in collaboration with the Directorate of Nonformal Education of the MOE. The study is scheduled to be completed in 1985.

The private sector plans to continue and to expand its activities in nonformal education. The GFLCCD's Second Five Year Plan states the objective: "...to ensure a fair and equitable distribution of services to the rural and urban areas." Among the activities that the GFLCCD's list to promote its objectives are: 1) contributions to the illiteracy campaign; 2) increases in the number of agricultural cooperatives to 70 and the establishment of agricultural marketing associations; and 3) implementation of skills training workshops for approximately 5.800 trainees.

9.2.3 Constraints

The major constraint to nonformal education at present is that the National Literacy Campaign program, which is reaching the largest number of participants, does not have resources adequate to provide an emphasis on training in practical skills relevant to the local and regional economic needs. In addition, the DTC's programs, which do emphasize economic functionality, reach only 3,944 participants through the skills training courses.

The second important constraint to expanding adult basic education is the present level of financial, human, and logistical resources allocated to nonformal education. NFE receives only 1.5% of the total allocations for education; the specific allocations of the National Literacy Campaign have not exceeded 19% of what was planned for during the design phase of the NLC. The financial resources allocated to the MOE are not sufficient to support the existing program goals and needs. To increase efficient utilization of the present resources, the MOE has issued a decree whereby the literacy teacher, who already receives only a stipend and not a salary, would not receive the full stipend of YR 700 if the number of participants in a class falls below 30. The monthly stipend of YR 700 is a small remuneration given to the fact that the YR 700 is reduced to YR 590 a month due to taxes. With regard to human resources, the present NFE system restricts teacher recruitment to the pool of the formal primary education system.

The allocated logistical resources also are insufficient. During the 1983/84 academic year, many literacy classes did not receive their textbooks with the beginning of their training. Printing of nonformal education textbooks does not seem to receive priority and distribution of textbooks appears to be a serious local problem.

A different type of constraint faces the expansion of the District Training Centers. The initial investment cost for a DTC is very high; the construction and equipment expense for a new DTC is estimated at over one million US dollars for 1985. This high cost limits the possibilities of rapid expansion of DTC's. If the essential element of the scheme is the development of

training activities at the village, town, and community level, then using physical facilities that either are already available within the community or that can be provided through community self-help should be emphasized. Once the initial cost problem is resolved, the most serious obstacle to the expansion of basic skills training in the DTC's will be removed.

9.2.4 Summary Issues

Five sets of issues emerge from the assessment of the current status of nonformal education in Yemen, and from the analysis of current needs, plans and methodologies in view of existing constraints. These five sets of concerns are classified as issues of external efficiency, internal efficiency, access and equity, administration and supervision, and costs and financing.

9.2.4.1 External Efficiency

The major issues of external efficiency concern the appropriateness and adequacy of the package of instructions that is being introduced, specifically through the largest nonformal education program of the MOE, the National Literacy Campaign, and the impact this package of information is having on the participants. The first of these issues is whether the information introduced will result in changes which will improve the quality of life of the participants, specifically by adding value to their everyday occupations. The instructional scheme of the National Literacy Campaign will need to emphasize more practical skills to become more externally efficient. First, the literacy that the package offers needs to become operational literacy that combines the acquisition of reading and writing skills with some basic operational skills. To be externally efficient, NFE programs have to relate to the everyday experiences of participants by attempting to increase the value of the practical operational aspects of their lives. This increase in external efficiency can be achieved only if the MOE receives resources adequate to provide both literacy and skill training.

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Second, in addition to functional literacy, numeracy, and religion, the program needs to offer special courses relevant to the practical agricultural and artisanal work of the rural population. Given the fact that almost 90 percent of the current work force in Yemen is in agriculture or in traditional crafts, this emphasis would seem to be an obvious one. These courses could be organized in coordination with the activities of the agricultural extension service. Some practical field demonstrations would be beneficial if integrated into the courses.

Third, basic practical skill courses for men and for women would increase the impact of the package of information offered. Skills similar to those offered at the DTC's or at the GFLCCD's workshops would be most beneficial. Skill courses do not need to be lengthy; to the contrary, the fewer demands the courses make on the participants to leave their normal endeavors for any extended period of time, the better the rate of continued participation will be.

Finally, in nonformal education, it is not expected that one national curriculum would be implemented throughout the country irrespective of the special needs of different regions, different sectors, different participant populations, and sometimes even different social conditions. An ingredient of success for NFE activities in general, and for skills training in particular, is that programs should be complementary to local development needs and opportunities. Nonformal education will have a greater appeal if it leads to increased productivity in the home and improved employment prospects. To do this, NFE programs must be relevant to the local environment.

9.2.4.2 Internal Efficiency

Concerning the internal efficiency of nonformal education, two issues emerge: the substantive aspects of the curricula and the teacher training activities. As mentioned earlier, the design of the National Campaign for the Eradication of Illiteracy emphasizes that literacy courses should be complemented by agricultural instruction, health instruction, and basic skills training. Where affordable, the curriculum needs to focus better

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on the practical sides of the training to implement fully the design of the NLC. Also, the need to widen the scope of the curriculum by offering specific courses that answer local economic needs might increase internal efficiency by increasing the retention of participants.

Finally, the teacher training issue merits serious examination. The teachers recruited in 1982 were given a training program of only one week. Those recruited in 1983 have received no training. To recruit teachers from primary schools and place them in basic adult education classes with no training ignores the belief that there is a substantially different methodology to teaching adults. It is unreasonable to expect the individual teacher to design and implement such an alternative methodology with no prerequisite training or experience. Among the basic ingredients of success for basic adult education is the need for the teacher to adopt a participatory method. Only with adequate training, can the NFE teacher be expected to implement the appropriate techniques.

9.2.4.3 Access and Equity

The two areas of major concern with regard to access and equity are: 1) the access of the populations outside the governorates of Sana'a, Taiz, and Hodeidah to nonformal education, and 2) the access of women within and outside the three governorates to nonformal education. Government has recognized the need for equalization of educational opportunities for urban and rural populations. However, the MOE lacks the quantity of trained personnel, supplies, and finances to counter the lack of facilities and opportunities in rural Yemen effectively. It is difficult to find teachers who wish to live in remote rural areas to teach either formal or nonformal education.

This problem is compounded by the small number of female teachers in rural areas. Because nonformal education recruits its teachers from the male-dominated formal system, it is difficult to recruit enough women teachers to staff classes for rural women. The following table shows the percentages of male

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and female participation and of percentages within the three governorates and outside Sana'a, Taiz, and Hoideidah.

Percentage of Male/Female Participants in the Literacy Campaign and Percentage of Participation Within and Outside the Triangle

	Number of participants	Percentages		Numbers	Percentages
Within the triangle	84,549	76.9%	Male participation	87,863	79.93
Outside the triangle	25,373	23.08%	Female participation	22,059	20.06
Total	109,922	100.00%	Total	109,922	100.00%

Approximately 98 percent of adult females in Yemen were illiterate before the launching of the national campaign in 1982. With the percentage of girls in primary school still at only 12 percent of the age cohort, it will take a long time for formal education to have a substantial impact on the literacy rate among Yemeni women. Even though the National Literacy Campaign has made substantial progress in reaching 109,922 MOE participants, and 24,678 participants in the organized sectors, female enrollment continues to be limited. Until female enrollment, as well as enrollment of participants outside the three major governorates increases substantively, the campaign will not be able to approach its goal of the national eradication of illiteracy.

9.2.4.4 Administration and Supervision

Major issues in this area include: 1) the high ration of supervisors to teachers; 2) the difficulties of field trips for the supervisors and administrators; and 3) the lack of training for most supervisors. The progress report on the National Literacy Campaign has mentioned that even though the number of supervisors was increased in the year 1983/84 to 487, (compared to 390 in 1982/83), the percentage of dropouts from the literacy classes has also increased. The report implies that the

attrition rate would have been lower if all supervisors were fulfilling their responsiblilities. The report also suggests that the whole system of supervision in nonformal education needs to be revised. It is important to repeat that the average ratio of supervisors to teachers in Yemen during 1983/84 is one supervisor per 6.2 teachers. This ration is even higher in Sana'a (one supervisor per 5.4 teachers) where transportation is easier and, thus, individual supervisors can visit a greater number of centers than in the rural areas. Also, it is important to mention that the number of administrators in the cities (Sana'a, 12; Hodeidah, 6; Ibb, 6) is greater than what was originally projected in the NLC. This higher level of supervisory capacity exists even though the number of participants in these cities is smaller than originally was projected.

The second issue with regard to administration and supervision is the difficulty of visiting remote rural centers. The MOE will facilitate a greater number of visit to centers of nonformal education by ensuring that transportation means are available to the guidance and supervision staff, as well as by facilitating the payment of per diem allowances to those supervisors. Any field trip that requires an overnight stay imposes a personal financial hardship; consequently, rural literacy centers are seldom visited. The result is an inadequate support system for the rural literacy centers which require the most assistance. This situation also results in questionable reporting of enrollments.

Finally, supervisors need to have special training sessions on administrative and guidance topics relevant to NFE. Then, the supervisors will be able to operate as instructional resource persons.

9.2.4.5 Costs and Financing

The pertinent issues here concern the new decree about nonformal education teachers' stipends and the high initial investments for the DTC's. The small size of the teacher's stipend will act as a disincentive to those who might consider

joining literacy teaching. This problem is aggravated by the fact that nonformal education teachers are paid only twice a year rather than every month. The MOE system of payment for nonformal education teachers is so centralized that only a committee from the MOE in Sana'a is allowed to pay the teachers. The committee visits the centers of nonformal education twice a year, and only then can the teachers be paid.

The second major issue with regard to costs and financing is the high initial investment for the construction and equipment of each District Training Center. The relative expenses required to build and equip a DTC is delaying the expansion of the basic training scheme. Originally, the World Bank had projected that 40 DTC's would be built; only eight are in operation now and five new ones will start operating soon. If the remaining 27 DTC's are to be built, they will cost between US $28 and $35 million in 1985 prices. The World Bank and the MOE need to develop a less expensive option for the DTC's by using existing physical facilities or facilities that can be provided from local community resources.

9.3 Major Recommendations

This section will consider three major recommendations with regard to the National Literacy Campaign and one basic option relevant to the District Training Center program. It also will examine the impact decisions these options would have on the programmatic concerns and the major issues of these two focal programs of nonformal education. An option independent of the two major programs also will be considered.

Concerning the National Literacy Campaign, three options merit examination:

1. Widening the substantive scope of the instructional program offered to the adult participants to include relevant basic skills training;

2. Examining the possibility of offering to those interested, some skills courses during the two year follow-up program; and

3. Making teacher training for nonformal education mandatory, and widening the pool of teachers eligible for recruitment to include suitably-qualified craftsmen from the local communities.

These options, if adopted, would have an impact on programmatic concerns as well as on the issues of external and internal efficiency.

9.3.1 Programmatic Concerns

If the option of widening the substantive scope of the National Literacy Campaign is found to be affordable, this would require a modification in the NLC curriculum. The modification would be to add, to the present package of educational information, practical agricultural courses and basic skill training in fields relevant to the specific needs of the different regions. Among the skills offered for men could be rural construction, irrigation, mechanics, maintenance and repair of agricultural mechanical implements, electricity, and automotive mechanics. For women, skills such as handicrafts (e.g. sewing, knitting), nutrition, child care, food preservation, and food processing need to be offered.

If these additions were to take place in the curriculum, a greater number of participants would be attracted to the National Literacy Campaign. The basic need of adult women and men in Yemen is to learn economically valuable skills (of which literacy and numeracy are the most important). If skill training were offered as part of the educational instructional package, it would create an incentive for a greater number of adults to join the campaign. Moreover, it would decrease the number of dropouts within the course of the program. Adults recognize that skill training holds the promise of access to more resources and may result in an improvement in their livelihood. Skill training, therefore, becomes a critical economic incentive.

Mandatory instructional training should be required for adult education teachers. Also, a more substantive teacher training program is necessary. Another option would allow recruitment of skilled individuals from the community who would be willing to

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train adults in the afternoon or the evening over a period of three to six months. The three options mentioned above could transform the National Literacy Campaign into a program much more responsive to the needs of both participants and society.

9.3.2 Summary Issues

By introducing the programmatic changes mentioned earlier, and by making the package of information offered to adults broader in scope and more responsive to economic incentives, the external efficiency of the National Literacy Campaign would be enhanced. Graduates of the program would have greater opportunities for increasing the productivity of their daily work, gaining a better job, increasing their participation in the modern sector, and improving their quality of life in general.

With regard to the District Training Centers, the options that need t be examined are whether to utilize the physical facilities that are already available in the community, to provide these facilities through community self-help, and/or to reduce the basic facilities requirement. The choice in this matter will have great impact on the cost and financing issue. The present initial investment could be reduced dramatically if more modest facilities were built and/or the facilities provided through community self-help. Even lower costs would result from utilizing already existing facilities. These savings in cost could be reallocated to program expansion of the present DTC's or to financing the recurrent costs of a greater number of DTC's.

9.3.3 Recommendations for Further Analysis

A final option that should be considered is the use of media, specifically radio and television, for the expansion of nonformal education. This idea is not new; it has been discussed previously and approved by the MOE. A decision has been made that a part of the US $.5 million allocated to nonformal education by UNESCO through the Arab Gulf Fund for 1984/85 should be spent on experimental educational programs in support of the eradication of illiteracy. This program emphasis should be given a high priority. Careful planning for the development and

implementation of this program is needed to overcome the initial financial constraints. This program option is of great relevance to women. Training in the home via radio or television is the option most adaptable to current cultural limitations on the participation of women in formal literacy or training programs.

The most dramatic aspect of change in rural Yemen is the influence that the media, both radio and television, is having in communicating new ideas and information. The use of this media to assist in the eradication of illiteracy and the transfer of skills to rural people is an alternative with considerable potential. Because of the well-developed communication network already in place (the vast majority of Yemeni villages have televisions as well as their own generators), the number of people that can be reached through media programming is over 90 percent of the population.

In fact, a media-oriented program probably is the only means by which the National Literacy Campaign can reach its goals. High-quality nonformal educational programming would advance the campaign's goals by reaching those populations hardest to attract to the existing literacy centers.

Basic literacy programs would be well received and could have important socio-economic impacts if the content were planned carefully to convey messages about such subjects as seasonal agricultural problems, child care, nutrition, or simple food processing. Appropriate, innovative use of radio or television for nonformal education will ensure reaching the highest percentage of rural Yemenis and may prove to be one of the most cost-effective methods of delivering literacy and basic skills training. This option requires detailed analysis before implementation because of the substantial investment costs involved. However, once in operation, the recurrent costs of media instruction are among the lowest of all forms of training.

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MINISTRY OF EDUCATION

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Zayd al-Shami	Director General, Education
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INDUSTRIAL BANK OF YEMEN

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AZAHL PRIVATE SCHOOL, SANA'A

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SANA'A SCHOOLS

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