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ABBREVIATIONS AND ACRONYMS

CAMPAS	Central Agency for Public Mobilization and Statistics
CCIMD	Curriculum Center for Instructional Materials Development
CISD	Computer Information System Department
ECE	Early Childhood Education
EEP	Education Enhancement Program
EGP	Egyptian Pound
EIHS	Egypt Integrated Household Survey
EMIS	Education Management Information System
EU	European Union
GAEB	General Authority Education Buildings
GDP	Gross Domestic Product
GER	Gross Enrollment Rate
HE	Higher Education
HEEP	Higher Education Enhancement Project
HTI	Higher Technical Institutes
IFPRE	International Food Policy Research Institute
IT	Information Technology
KG	Kindergarten
LE	Egyptian Pound
MENA	Middle East and North Africa
MOE	Ministry of Education
MOF	Ministry of Finance
MOHE	Ministry of Higher Education
MTI	Middle Technical Institutes
NCEEE	National Center for Examinations and Educational Evaluation
NER	Net Enrollment Rate
NGO	Non-Governmental Organization
OECD	Organization for Economic Cooperation and Development
PPMU	Program Planning and Monitoring Unit
PTA	Parent Teacher Association
SEEP	Secondary Education Enhancement Project
TDC	Technology Development Center
UNDP	United Nations Development Programme
VT	Vocational/Technical
WEI	World Education Indicators

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EXECUTIVE SUMMARY

Strong and impressive commitment to education. In 1996 the Government of the Arab Republic of Egypt (the Government) initiated a Basic Education Enhancement Program to extend full coverage to vulnerable groups, especially girls, and to raise the quality of instruction. In support of this program, the World Bank and the European Union agreed to jointly finance an ambitious set of activities including training teachers and school directors, providing schools with appropriate modern technologies, encouraging communities for more participation in the education process through awareness campaigns and more active roles for PTAs & NGOs, and constructing classrooms to cover unserved and underserved areas and to permit the elimination of multiple shifts.

The basic education reform program was followed in 1998 by the government's Secondary Education Reform Program, supported by the World Bank. Its objective is to improve the school-to-work nexus through improving access to general secondary education, renewing technical education, and aligning curricula with the skills needs of employers and higher education. The program also supports local accountability for quality through parent councils and boards of trustees.

In the interim year, 1997, the Minister of Higher Education convened a National Commission on Higher Education Reform, and this lead to a National Conference in 2000. The outcome of the Conference was a long-term reform program to occur over a period of seventeen years. It was proposed for three main reasons. The first reason was to raise the level of efficiency by granting universities more autonomy and by rationalizing government funding. The second objective was to raise quality through faculty and staff training as well as through the introduction of a competitive fund. And, thirdly, the Conference addressed the quality and relevance of midlevel technical education and determined that reformed curriculum, strengthened management, and consolidated small institutions would raise its standing. The higer education reform program is supported by the World Bank.

In addition to these reforms, the Government has committed itself to the increase of coverage for kindergarten for 4 to 5 year olds from 12 percent to 65 percent of the age group.

Taken together, few countries in the developing world can match the commitment to reform one finds in Egypt. Furthermore, the Government's commitment to reform is matched by an equally strong commitment to education on the part of private households. Households are estimated to spend approximately three percent of GDP on admission fees, textbooks, supplies, and private tutoring lessons.

Progress to date. One result of Egypt's commitment to education has been increased coverage; today almost all children have access to basic education. Net enrollment rates for primary education (grades 1-5), the preparatory level (grades 6-8), and the secondary level (grades 9-12) are 97 percent, 74 percent, and 65 percent, respectively. In addition, higher education enrollment is growing very fast; it increased 28 percent, or 500,000 students, just between 1996 and 2000.

This study assesses the educational progress of Egypt, especially in basic education, and identifies the issues that still need to be addressed. At the level of basic education real progress has been made on narrowing regional disparities, reducing gender disparities, reducing class size,

eliminating multiple shifts, increasing class instructional time, and introducing technology in the classroom. The evidence of declining repetition and dropout rates may be its attribute.

Egypt's progress in basic education reflects, in part, a dramatic change in sectoral priorities and a consequent reallocation of resources within the sector. Since 1990 resources have been shifted from higher education to basic-secondary education. Expenditures per student in higher education have shrunk by 45 percent, while expenditures per student in pre-university education have increased 33 percent. The ratio of per-pupil expenditures at the university level to per-pupil expenditures at the primary level has decreased from 8.2 to 3.5 over the same period.

While Egypt is to be lauded for its significant achievements, problems persist in the education sector, as they do in every country of the world. Of particular concern are the problems of the poor. The poor face numerous disadvantages in educating their children—more children per household, low parental education, very limited access to kindergarten, and a high private cost of public schooling. As a result, of all children age seven to eleven who are not attending school, 50 percent are from the poorest population quintile.

Government policy has ensured that all children have access to primary school. However, the cost of attending school and the compulsory examinations that screen students at the end of each grade level constrain poor children's possibilities. Thus, while the poorest population quintile represents 25 percent of all primary school students, they have 14 percent of secondary school students and only 4 percent of higher education students.

Inequality in public spending is exacerbated by the tradition of households paying for private lessons, or tutoring to complement public education and to prepare students to pass screening examinations and gain entrance to preferred types of education, especially, general secondary schooling and university education. This process is a problem for the poor. Firstly, it presents a real financial burden. And, secondly, the share of household budget allocated to tutoring is much greater for the poor than for the rich. Ironically, strong popular support for the examinations has constrained the Ministry of Education's ability to reform the system and, thus, reduce the associated cost for the poor. While international experience shows that changes to improve quality are difficult and often take considerable time to bear fruit, it is imperative, however, that further progress be made.

The Challenges Ahead. While Egypt has embarked on an ambitious and comprehensive education reform program, it faces numerous challenges to attain its educational goals. Foremost among the challenges is to *improve the quality of schooling*—from primary through university—to create the knowledge and problem-solving skills required to improve global competitiveness by changing teaching practices, modernizing curricula, and creating the feedback loop between secondary and tertiary institutions and employers. A second challenge is *to strengthen management* of educational institutions by decentralizing decisions, promoting accountability, and ensuring educational managers at all levels have the information required to inform their decisions. A third challenge is to *increase efficiency* in the use of resources by reducing over-staffing and, at the higher education level, introducing new financing mechanisms, and giving higher education managers increased autonomy and accountability in internal resource allocation. Finally, a fourth challenge is to *improve equity* by ensuring the children of the poor are adequately prepared to begin school, reducing the private costs of education to the poor, and better targeting higher education subsidies.

Policies to Improve Quality, Strengthen Management, Raise Efficiency, and Improve Equity. This report concludes by making a number of specific policy and program recommendations, drawing on the analysis of Egyptian data and international experience with education reform. These policies are, briefly:

To improve quality:

- Replace the existing examination system with rigorous, continuous, cumulative and comprehensive evaluations.
- Create a Learning-Innovations Fund managed by the school council.
- Develop teacher capacity in new curriculum, teaching practices, and technology use.
- Continue to introduce new technology in the classroom.
- Establish a competitive fund to foster change in higher education.

To strengthen management:

- Involve local communities and school staff in the education process.
- Provide information to schools on teaching practices and student learning outcomes.
- Train managers at all levels to use EMIS for decisionmaking and decentralize decisionmaking authority to school managers.

To increase efficiency:

- Rationalize higher education funding and introduce quality assurance mechanisms.
- Rationalize enrollments in public higher education institutions and encourage private provision and open universities.
- Redeploy and retrain excess teachers and administrators.

To improve equity:

- Expand Early Childhood Education programs in disadvantaged areas.
- Target subsidies on the poor to reduce the private costs of schooling.
- Initiate parent education programs to improve child development in the home.
- Replace end of primary school leaving examination with continuous assessment.

Conclusion. Egypt has laid out a vision of the education system it wants to have in the future and has begun a process of reform that will take time to fully implement. A number of policies could be adopted to expedite the process of change and more quickly attain that vision. The reform program is affordable in the long run if recommendations on quality, equity, and efficiency are carried out in tandem and regulatory barriers to redeploy resources can be overcome.

I. INTRODUCTION

1. The review's key objective is to support the Government of the Arab Republic of Egypt (the Government) in its efforts to improve the provision and quality of education. Specifically, the review supports the Government in better understanding the progress it has made in the education sector since 1996 when it launched a comprehensive program to tackle not simply lack of access (which was largely addressed by then), but issues related to equity, quality, management, and efficiency, mainly focusing on the basic education level. Progress will be measured in these areas through the analysis of outputs/outcomes and international comparisons. The review also aims to assist the Government in prioritizing policies for further improving education provision and quality at all levels through the analysis of alternative policy options and attendant financial implications.

2. This review builds on work already carried out by the Government, the World Bank, and donors in Egypt. The most notable among past initiatives was a 1996 visioning exercise of the Ministry of Education, supported by the World Bank international expertise, to begin formulating a long-term education strategy for the 21st century. A process of participation with stakeholders was pursued, and the strategy for the basic education level was agreed upon in the context of preparing the basic Education Enhancement Project (EEP). The issues in secondary and higher education were identified, and policies for addressing them were agreed upon in 2000 and 2001, while preparing the Secondary Education Enhancement Project (SEEP) and the Higher Education Enhancement Project (HEEP), respectively. The Government's education framework sets out goals for improving equity, raising quality, heightening relevance, and increasing efficiency through reforms in management and governance.

3. Since the implementation of reforms was initiated at the basic education level, this review will focus on assessing the Government's progress in achieving the basic education framework goals. The Government's progress in secondary and tertiary programs cannot yet be assessed, because the respective challenges have just recently been identified. Nonetheless, this review, as part of the task of identifying the remaining challenges and possible policy responses at all education levels, does substantiate the need for reform programs at the secondary and tertiary levels.

4. The Basic Education Framework marks the beginning of a new phase in Egyptian education. The focus has shifted from simply *increasing access, which by in large had been accomplished in the mid-1990s, to improving equity and quality* as measured through student performance. The Framework recognizes that the reform process is evolutionary and that it will require guidance and feedback through periodic assessments of the implementation reforms.

5. For the analysis, the review team has used raw data available from the MOE, General Authority Education Buildings (GAEB) 1993-2000, and the household survey undertaken by the International Food Policy Research Institute (IFPRI) in 1997; the data tape was available to be the Bank team for further analysis. IFPRI's international reputation for excellence in survey work lends special credence to the household survey results. Additional data were collected through an 'achievement test' and a 'classroom observation' study, which took place in April to May 2001. In addition, findings from a number of recent household surveys and analyses (for example, Social Fund Survey, UNDP) have been reviewed. Results of these surveys are cited where appropriate but are not used as primary data sources since original data tapes were not available to the World Bank review team. Financial data were obtained from the Ministry of Finance (MOF), MOE, and interviews at the school level.

6. The review relies on GAEB and MOE data for analyses and projections of enrollment rates. For information pertaining to household expenditures on education, it relies on the IFPRI household survey data. Enrollment rates were found to vary widely by data source. The differences are due largely to

differing population projections by various national and international agencies, including CAPMAS, UNESCO, and the World Bank. For the purpose of the present review, GAEB population data was used as it contained governorate-level population data and projections from birth registrations,[1] permitting a more detailed analyses at disaggregated levels.

7. Education data collected by the MOE from school administration records consist mostly of head counts of students, teachers, and schools at various levels of the education system. Considerable effort at each school has been devoted to record-keeping, and no significant data problems or errors were detected.[2] Data submitted by schools each year go through manual reviews and computer checks for inconsistencies and potential errors at the district and the governorate offices. Inconsistencies and errors are resolved through telephone follow–ups with school administrators. These procedures help to ensure good quality and accurate data. Unfortunately, the accurate data at the school level are not fully captured by the National Education Management Information System.

8. Student achievement pre–tests (1997) and follow–up tests (2001) were conducted by the National Center for Education Examinations and Evaluations, and the results are presented in this review. An observational study of teaching methods and classroom interaction was conducted in May 2001.

9. It is important to reiterate that this review serves as a progress report on the reform measures of the Government. The review expects to find some areas of progress, and other areas where more effort needs to be invested. This type of feedback will enable the Government to undertake new actions to steer the reform process toward the broad goals of its long-term education strategy. Areas of expected improvements include those where the Government has provided specific inputs such as school facilities, teacher training, curriculum reform, technology introduction, etc. The outcomes of these efforts in terms of actual student achievement and employment usually require more time to manifest.

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[1] Some analysts have cautioned that birth registrations may not be 100 percent accurate as some parents may have failed to register births.

[2] Generation of required data and analysis for policymaking is inadequate and is discussed in Chapter III.

II. THE CHANGING CONTEXT FOR EDUCATION REFORMS

10. Since the early 1990s, the key focus of the Government in the education sector has been to increase access to basic education in order to reach universal coverage as affirmed the Jomtian declaration. As a result, during the early 1990s the Government started invested in a large construction program to increase access to basic education. Substantial financial support was made available to this program since 1992 with the establishment of the National Project for Education by President Hosni Mubarak. Education was identified as the best mechanism for improving social stability and for providing national defense. It was deemed a national priority.

11. The Government's commitment to improve access, equity, quality, and relevance of education is much more than rhetoric. Despite an overall decline in government spending, between 1992 and 1996 allocations to education increased by 53 percent in real terms, or from 14 to 23 percent of the total government budget. Concurrently, the number of classrooms increased by 10 percent, facilitating enrollment growth from 10.1 to 12.2 million at the basic education level. By 1997 a household survey showed that 99 percent of all villages in Egypt had access to primary education, and 92 percent had access to preparatory education.

12. Since 1996 the Government has step by step developed a comprehensive strategy of educational development covering all levels of education. At the basic education level, the focus began to shift from increasing access to improving equity and quality in education. The framework that was agreed to, and the Education Enhancement Project, which was supported by the World Bank and the European Union (EU), were specifically designed to address these issues. Subsequently, in the late 1990s, the problems of secondary education, especially those of quality, relevance, and efficiency, were addressed; a twenty-year improvement strategy was developed; and financial support was requested of, and approved by, the World Bank. Also, beginning in the late 1990s, the Government initiated a stakeholders dialogue that culminated in agreements for a long-term (2002-2019) systemic reform of higher education to improve governance and efficiency, raise quality and relevance, and diversify provision through use of low-cost, distance learning. The World Bank has committed itself to supporting this long-term process of reform.

13. Egypt's effort to reform all levels of education is motivated, in part, by a changing global context that places high priority on a flexible, skilled, and creative labor force. In this review the changing context in which Egyptian education functions is briefly described; key issues and new educational challenges are identified; and policies to address the new challenges are discussed.

II.I CHANGING GLOBAL CONTEXT AND EGYPT

14. It is clear that the ever closer integration of most countries into the world economy of trade, investment, and finance will increasingly and profoundly affect Egypt as well. As integration proceeds, major sectors now contained within national economies will increasingly become part of global markets either through trade or investment or both. As discussed in *The Global Competitiveness Report 2000*, economic growth increasingly depends on technological innovation and diffusion. For developing countries like Egypt, a key determinant of growth will be its capacity to adapt new technologies. This capacity will, in turn, be dependent on having laborers who are skilled and flexible. Unfortunately, Egypt does not fare well in terms of growth competitiveness, an index of a country's predicted future growth. Egypt ranks 42nd out of a total of 59 countries evaluated. However, this ranking is better than Egypt's ranking in terms of average years of schooling (48th), the coverage of tertiary education (44th), research and development spending (50th), and the quality of education management (50th). In short, the quality and coverage of education constrain Egypt's ability to compete in global markets.

15. A good education system does not, however, guarantee economic development. An educated workforce in a dysfunctional economic environment will produce high unemployment and costly youth unrest—not high growth and wages. Evidence suggests that from 1965 to 1987, economic growth in a sample of 60 developing countries was strongest where high education levels coincided with macroeconomic stability and openness. In conjunction, education and economic systems form a virtuous circle. For example, in East Asia rising skilled labor wages in tradable sectors generated high demand for education. The resulting increase in skilled labor led to rising productivity and, thus, made exports even more competitive.

16. Since the late 1970s, Egypt has taken important but cautious steps toward economic liberalization, culminating in its acceptance of the Uruguay Round agreement and the signing of a Partnership Agreement with the EU in 2001. This liberalization, however, is inadequate and has only barely touched business services. Egypt's legal framework was also recently revised for more favorable foreign investment, yet the legislation's impact will continue to be minimal until action is taken to liberalize trade in goods and services as well as to improve the overall business environment.

17. The Government recognizes that globalization is increasing rapidly, accelerated by, among other things, the computer and telecommunications revolutions. In this context Egypt's cautious approach to globalization, as embodied in its international commitments to date, is likely to soon give way to a more proactive approach, leading to expanded trade and foreign investment. This will result in greater integration of Egypt into the world economy and greater demand for high-quality, adaptable, and trainable human resources.

18. Perhaps the most important impact of globalization, however, will be increased competition in *domestic* markets within Egypt. Increased entry of foreign goods and investments into domestic markets will force Egyptian companies to compete. For these companies to succeed in both domestic and export markets, it will require: (a) an improved business climate—less regulatory burden, more efficient public services, and superior business services; and (b) a more productive labor force—more adaptable and trainable at all levels as well as sufficiently skilled in technology and management.

19. While not as mobile as goods or finance, qualified technical people now have worldwide employment opportunities. The brain drain that moves students and specialists from developing to developed countries operates concurrently with a smaller, reverse flow of experienced technical and managerial personnel in the opposite direction. Many of the high-level workers moving to Egypt work in multinational corporations, including Egyptian-owned multinationals. While mobility is still limited by immigration controls, both flows tend to raise compensation and working conditions in high-level Egyptian jobs toward European levels, further increasing demand for highly qualified personnel.

III.II NEW SKILL REQUIREMENTS

20. In the above context, Egypt's education system has commenced confronting various sectors' rising demand to provide the requisite skills for the new economy. Computer technology, management, and financial skills will be needed to increase productivity. This, in turn, will necessitate learning numerical, problem-solving, and complex literacy skills starting at the basic education level and moving up.

21. Unemployment rates for Egypt as of 1997 were: 16 percent for males and 49 percent for females of those with vocational secondary education; 10 percent for males and 33 percent for females with a general secondary education; and 10 percent for males and 14 percent for females with university education. The unemployed population with secondary education is the highest among nine Middle Eastern and North African (MENA) countries (World Bank, 1998). These indicators are symptomatic of

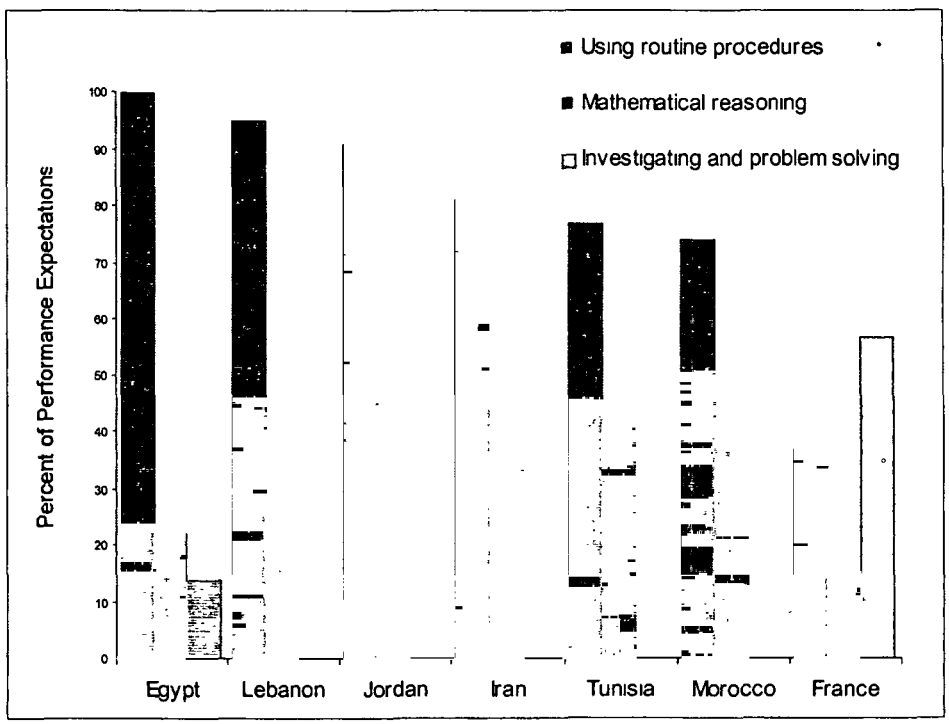
a mismatch between the labor market needs and the education system output. Developed in an era when education prepared students largely for the public service,[3] the system does not prepare graduates with the skills required for the evolving economy.

22. A key problem of this mismatch is the inability of the education system to impart higher-order cognitive skills, such as problem-solving skills, for flexible use in all situations. These skills are needed by workers who will face frequently changing tasks and challenges in increasingly complex work environments. Instead, the system teaches students mainly through rote memorization and, thus, rewards only those skilled at being passive knowledge recipients. The MOE has is introducing problem-solving skills into the learning process and the examination questions.

23. Instead, the system teaches students mainly through rote memorization and, thus, rewards only those who are skilled at being passive knowledge recipients. The MOE is infusing problem-solving skills into the learning process and the examination questions.

24. A 1995 study of final mathematic examinations in MENA countries' schools shows that all MENA countries emphasize the use of 'routine procedures' more than 'mathematical reasoning' and 'investigating/problem solving' skills (see figure 1). The reverse is true for OECD countries (in this example, France). And, yet, it is encouraging to note that Egypt is the only MENA country with *any* expectations for 'investigating/problem solving' skills on exams.

Figure 1. School Leaving Examinations for Mathematics Where the Region Emphasizes Rote Learning



Source: Valverde, Schmidt and Bianchi, 1995.

[3] Once guaranteed by the government upon college completion, and an expectation still held by many tertiary level students

II.III NATIONAL CONSENSUS

25. The development of a long-term vision that emphasized equity, quality and relevance, management and efficiency issues was initiated in 1996, and evolved in a highly participatory manner in stages over the course of several years. The result of this long and deliberate process, comprising all levels of education, is summarized in table 1 below. Issues, objectives and outcomes for the basic education level were agreed to first in the context of preparing the Education Enhancement Program (EEP). The Government's strategy included three specific objectives (a) improving equity and access, especially for girls; (b) improving the quality of student performance; and (c) improving efficiency of the system. These objectives have been supported by the EEP, with demonstrated gains in access by girls. While a student achievement test has been designed under the EEP, it's still too early to demonstrate significant change in student outcomes.

Table 1. Government's Education Framework: Objectives and Performance Indicators

OBJECTIVES	*PERFORMANCE INDICATORS*
Access and Equity	
Provide basic education to all including second chance education	Increase annual enrollment by 2% for girls and 1.2% for boys until 100% for the 6-13 age cohort
Maintain enrollment ratio for secondary education	Enrollment ratio is maintained at 62%
Maintain enrollment on full public subsidy in higher education and allow private sector to absorb additional enrollment	Enrollment of students on full public subsidy should not exceed 20%; private sector enrollment increase by 5% per year
Quality and Relevance	
Improve the quality of student performance in basic and critical thinking skills at the basic education level	Student performance on standardized tests in basic and critical thinking skills shows an increase
Provide flexible secondary education which maximizes opportunities for all students	Majority of the vocational schools converted to general secondary schools and rules for transfer between streams implemented
Better align secondary education curricula and assessment with the skill needs of employers and higher education	Employability of secondary graduates improved
Improve the quality of higher education so graduates acquire the skills necessary for the information age and global economy	Quality of instruction and improvements in student learning outcomes evidenced in both universities and technical colleges
Improve the use of technology at all levels	Faculty and students have the technology skills appropriate to each level of education
Efficiency, Management, Governance	
Improve the accuracy of data for education planning and management at all levels, and the use of data for decision making purposes	Policy decisions in the sector are based on data analysis and objective criteria
Devolve the school management responsibilities to local levels and involve parental participation in primary and secondary schools	School management judged competent to carry out added responsibilities with increased parental involvement
Accord financial and administrative autonomy to higher education institutions linked to accountability measures	Fifty percent of the universities receive block funding

26. Government objectives for the secondary level were agreed to in 1997 during the preparation of the Secondary Education Enhancement Project and include (a) striking a better balance between technical and general education; (b) improving the quality and relevance of education; and (c) improving quality assurance mechanisms and improving the efficiency with which education services are delivered. With the support of SEEP, the Government is now implementing several activities aimed at attaining these objectives including establishing mechanisms for converting commercial schools to general schools, providing training to parent councils in the schools, and providing a fund for school improvement. While the secondary school enrollment rate has been maintained, it's premature to measure progress towards meeting other objectives.

27. At the higher education level, an *ad hoc* National Commission on Higher Education Reform was formed by the Minister of Higher Education in 1997. The twenty-member Commission consisted of prominent Egyptians from all walks of life, from industrialists and parliamentarians to members of the academic community. The Commission formed six sub-committees involving expert groups, held a series of public hearings over the course of a year, and participated in an international symposium with world-class experts on higher education. The work of the Commission led to a National Conference on Higher Education Reform in February 2000. The Conference Declaration, which was endorsed by President Mubarak, outlined a program of reform over a seventeen-year period and became incorporated into the long-term vision. The aims of the reform program are lengthy. First, to improve efficiency by (a) granting universities more, especially budgetary, autonomy, (b) rationalizing funding by introducing a funding formula, and (c) creating a quality assurance council as precursor to a national accreditation system. Secondly, to raise the quality and relevance of university education through (a) inservice training to faculty and staff, (b) development of an inter-university library system, (c) and improvement in teaching and learning through creation of a competitive fund. Third, to improve the quality and relevance of midlevel technical education through (a) the consolidation of small institutions, (b) curriculum reform, and (c) strengthened management. The endeavors to attain these goals will be supported by the new World Bank-funded Higher Education Enhancement Project (HEEP).

28. The results of this bottom-up process of consensus-building for each education level are a broad strategic vision and an ensured synergy at the various levels of the education system. Education reform is most effective when it involves reforms at all levels, as changes at one level affect other levels. In Egypt, the Government worked with donors to develop projects and programs that were aligned with the vision.

III. PROGRESS ON EDUCATION

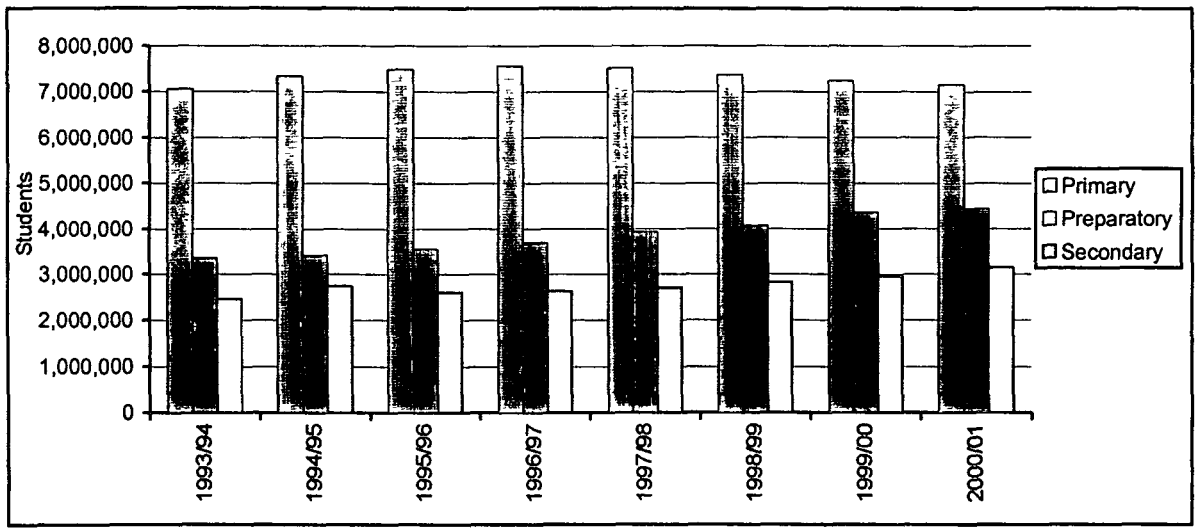
29. This chapter provides a short description of the structure of the Egyptian education system. It then assesses the progress made by Egypt in improving access, equity, quality, management, and efficiency of resource use. The focus of the assessment is on progress made since the mid-1990s, though discussion of earlier periods is also presented to put recent progress in perspective.

III.I THE EGYPTIAN EDUCATION SYSTEM

30. Egypt's education system is the largest in the MENA region and among the largest systems in the world. As of 1999-2000, the system reported an enrollment of approximately 16 million, of which 7 million in primary education, 4 million in preparatory education, 3 million in secondary education, and over 1.8 million in tertiary education. The system also employs the largest number of civil servants in Egypt, about 3.8 million employees.

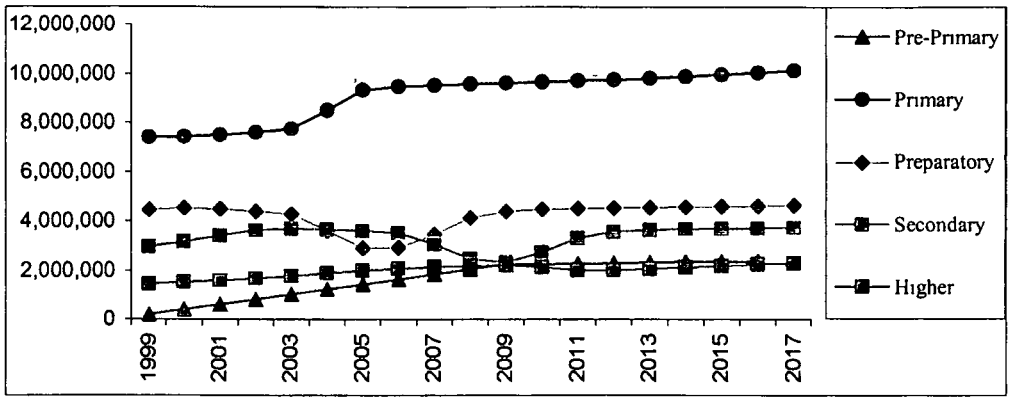
31. Until 2000 formal pre-university education in Egypt was comprised of three levels: five-year primary (ages 6-10 years); three-year preparatory (ages 11-13 years); and three-year secondary (ages 14-16 years). A law adopted in 1999 added an additional year to the primary cycle (thus reversing Law 233 passed in 1988) and established compulsory education as nine years (six primary and three preparatory). The expansion of student enrollment in Egypt since the early 1990s is shown in figure 2. Primary-level enrollment peaked in the mid-1990s and is starting to decline due to declining fertility rates.

Figure 2. Enrollment Trends for Primary, Preparatory, and General Secondary Levels



32. However, with the additional year of compulsory education of adding grade 6 to the current five-year primary education mentioned above, enrollment in primary education is expected to increase approximately 20 percent in 2004 (see figure 3). The increase will, however, level off by about 2008. Preparatory enrollment will level off (after the fall attributed to the structural change) at about 2009, and secondary enrollment is expected to level off by 2012. In 1992 the Government initiated a two-year kindergarten (KG) to primary schools. As a result, enrollment in preprimary increased by 44 percent from 246,074 in 1993-1994 to 383,616 in 2000-2001. This represents an increase in the KG gross enrollment rate from 7.9 to 11.8 percent. It is expected to rise to well over 2 million by 2009, increasing the gross enrollment rate to over 60 percent.

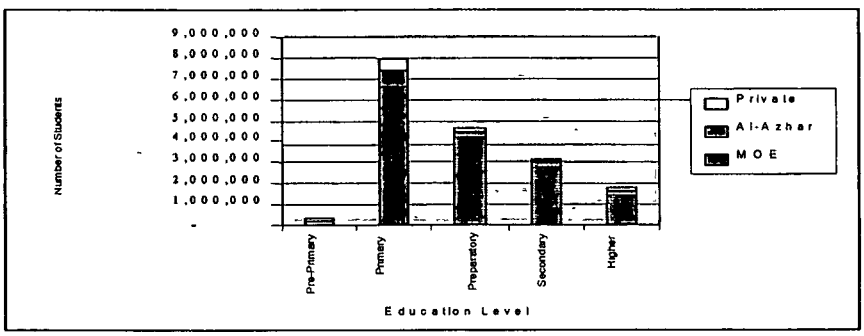
Figure 3. Projected Enrollment for Public Sector



33. At the preparatory level, about five percent of students are tracked into vocational preparatory schools. At the secondary level, several tracks of vocational education—industrial, agricultural, commercial—are available, about 60 percent of total enrollment. Higher education is diversified with two-, four-, or six-year degree programs. This includes two-year middle technical institutes (MTIs), four-year higher technical institutes, and universities (four to seven years, depending on specialization and degree).

34. Egyptian students attend three types of schools—publicly-funded and publicly-managed schools, privately-funded and privately-managed schools, and publicly-funded but privately-managed schools, called Al-Azhar, offering religious instruction as part of the curriculum. As can be seen from figure 4, over 90 percent of students at each levels are enrolled in public institutions, except for kindergarten where private enrollments exceed public enrollments The Al-Azhar share is largest at the primary level and progressively declines at higher levels.

Figure 4. Distribution of Students among Public and Private Schools



35. As shown in table 2, when compared to the MENA region, and some Latin American and Southeast Asian countries of the lower-middle income level, enrollment rates in Egypt are fairly average in primary education and considerably above average in secondary[4] and tertiary education.

[4] For international comparison purpose, "secondary" refers to both lower secondary and upper secondary combined. In Egypt, the lower secondary stage is referred to as preparatory and is part of the compulsory basic education.

Table 2. Gross Enrollment Ratio 1998

	Primary	*Secondary*	*Tertiary*
Egypt	100	81	39
Middle East and North Africa	92	60	15
Lower middle income countries	101	64	22
Guatemala	102	33	8
Indonesia	113	56	11

Note. If the 1998 data are not available, the most recent data available within two years are used
Source· World Bank, Edstats; MOHE for Egyptian tertiary education.

III.II PROGRESS ON ACCESS AND EQUITY

Progress on Access

36. Table 3 shows how gross and net enrollment rates have evolved in Egypt since 1996. Enrollment rates have improved at all levels, building on gains in the previous decade. At the primary level (grades 1-5), net enrollment increased from 92 percent in 1996 to 97.5 percent in 2000. At the preparatory level (grades 6-8), net enrollment rates increased even more, from 66 percent in 1996 to 78 percent in 2000. Net enrollment rates at the secondary level increased somewhat more modestly. Relative to the starting point, enrollment rates in higher education increased more rapidly than any other level. By the year 2000 1.8 million students were enrolled in higher education, an increase of 507,000 students, or 28 percent, over 1996.

Table 3. Gross and Net Enrollment Rates 1996–2000

GER, Including Al-Azhar Schools					
	1996	*1997*	*1998*	*1999*	*2000*
Primary	99%	104%	104%	105%	106%
Preparatory	83%	86%	89%	92%	97%
Secondary	69%	72%	69%	70%	70%
Higher	20%	21%	21%	24%	N/A
NER, Including Al-Azhar Schools					
	1996	*1997*	*1998*	*1999*	*2000*
Primary	92%	94%	95%	97%	97%
Preparatory	66%	70%	71%	74%	78%
Secondary	63%	65%	66%	65%	68%
Higher	N/A	N/A	N/A	N/A	N/A

37. The rapidly growing demand for higher education is a result of (a) a demographic surge in the tertiary education age group; (b) the expansion of access at the pre-university level; (c) the traditional governmental guarantee of a job in the public sector for all university graduates; and (d) the overly generous subsidies to university students, including free room and board. In addition, the policy that changed the primary education system from six-years to five-years in 1987 resulted in a double cohort of students—influencing student flows throughout all levels of education for the next ten years. Part of the Government's policy response to high demand was to lift the ban on opening private higher education institutions in 1997.

38. The transition rate from the primary to the preparatory level is 97 percent[5], and the transition rate from the preparatory to the secondary level is 81 percent. The transition rate from secondary to higher education varies greatly by secondary school track. Vocational track graduates are eligible to enter the MTI system, but not the university system except for the top five percent. In 1998-1999 the number of

[5] Compulsory education covers both these stages, together called 'basic' education level.

vocational-track students that passed their graduate examinations was 523,000, but only 8.4 percent of them, or 44,000, entered the MTIs. The ratio of new entrants to the MTIs in that year to total technical track enrollments was 2.4 percent. In the same year, 243,000 academic-track students passed their examinations, and new university enrollments in that year were 221,000, a ratio of 91 percent. The ratio of new entrants to the universities in that year to total academic-track, or general secondary, students was 24.3 percent. A student's performance on the preparatory level examination has an immense bearing on her/his future education and earnings, since it determines whether she/he enters the vocational or academic secondary track and, thus, her chances of enrolling in higher education.

Progress on Equity Issues: Narrowing Regional Disparities

39. *Equity of access to education in various regions of the country has improved.* Figures 5 and 6 show the relationship between a governorate's per capita GDP and its gross enrollment rate (GER) in primary and preparatory education, respectively. Figure 5 demonstrates that not only has the average GER in primary education increased over the time period but that the GER has also increased most in the poorest governorates, which are also the governorates targeted by the EEP. The data show the largest improvements in enrollment were made in Fayoum, Beni-Suef, Menya, Souhag, and Qena (Upper Egypt). Historically these have been the most disadvantaged governorates. Most of the urban and Lower Egypt governorates showed less improvement, largely because they had already attained high levels of enrollment during the mid-1990s.

Figure 5. Primary Gross Enrollment Rate by Governate 1996–1997 and 1999–2000

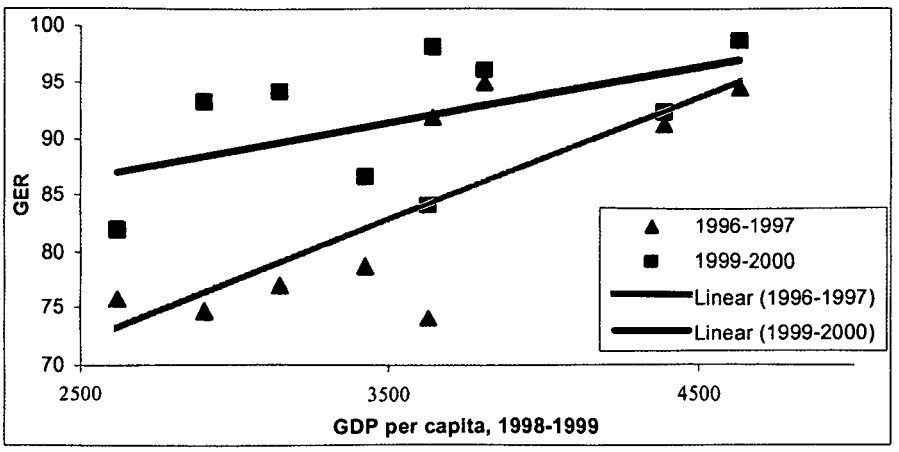
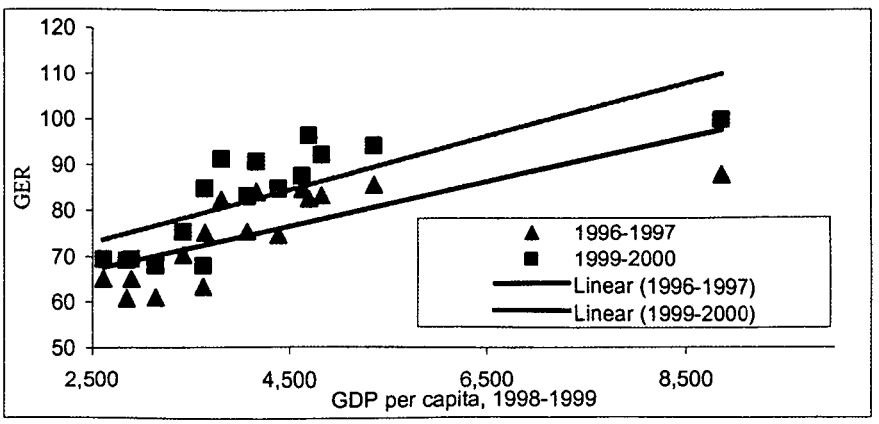


Figure 6. Preparatory Gross Enrollment Rate by Governate 1996–1997 and 1999–2000



40. As shown in figure 6, increases in the preparatory level GER did not increase disproportionately for those governorates with lower GDP per capita. The average GER increased nationally, but it increased at the same average rate for both rich and poor governorates.

41. Major factors that account for the improvements observed in Upper Egypt and the Frontier regions during this period were (a) school construction programs in those areas (supply type interventions); (b) policy change to empower parent - teacher associations; and (c) awareness campaigns combined with subsidies for disadvantaged students to increase demand for education—particularly for girls in these disadvantaged areas (demand-type interventions). The construction program specifically targeted (through school mapping procedures and community participation) the regions with the greatest need for the expansion of school facilities. As a result, more schools were built in Upper Egypt regions where the demonstrated need was the greatest.

Progress on Equity Issues: Narrowing Gender Disparity

42. During the period between 1996 and 2000 there was a significant reduction in gender disparity in access to basic education. Gender disparity in education has been a persistent problem in Egyptian education. Household opportunity costs and other cultural factors dampen household demand for girls' education, especially in disadvantaged areas. Comparative international experience shows that educating daughters is more costly than educating sons for families in rural areas because of the need to have the females perform household work; a cultural value that does not view the education of females as highly as that of males; and the fact that when females marry they will no longer contribute to the financial benefit of their primary family. Consequently, while universal primary education was achieved for boys as early as 1987, only 79 percent of girls were enrolled in primary school that same year (World Bank, 1995). As can be seen in figure 7, the average GER for girls has progressively improved over time, reaching universal enrollment by 2000. The difference in boys' and girls' GERs also decreased between 1996 and 2000. The data further show that relatively greater improvement was made for girls in Upper Egypt where average GERs were lowest for girls at the beginning of the time period.

43. In addition to increasing the number of schools, the Government has—through the Education Enhancement Program (funded by the World Bank and the European Union)—organized over 700 "Awareness Campaigns," covering about 38 districts (15 percent of the total number of districts). Since these efforts were targeted on the poorest regions, their success may help explain increasing enrollments in those regions since 1996. The Campaigns involved organizing workshops to assess enrollment, identify low enrollment areas, and probe causes of school dropout and repetition in each governorate. Local community leaders, preachers, women's societies, non-governmental organizations, and even children were invited to actively participate in the workshops. The main outcomes of the workshops included (a) defining and prioritizing low enrollment areas based on statistics; (b) exploring governorate-specific problems and potential solutions; (c) developing teams and networks; and (d) designing campaigning strategies. Since poverty has been identified as a root cause of non-enrollment or dropping out, a subsidies program has been developed to provide school uniforms and stationery for economically under-privileged families. Some 12,000 pupils, at an average per-pupil cost of LE50, have benefited from this program to date. The program prompted 3,900 pupils who dropped out to rejoin basic education, of which about 18 percent enrolled in second-chance education. The Awareness Campaigns reached not only the parents, who were convinced of sending their children to school, but school administrators as well, who were made aware of the rules and regulations that proved to be barriers to enrollment.

Figure 7. Primary Gross Enrollment Ratio 1996–2000

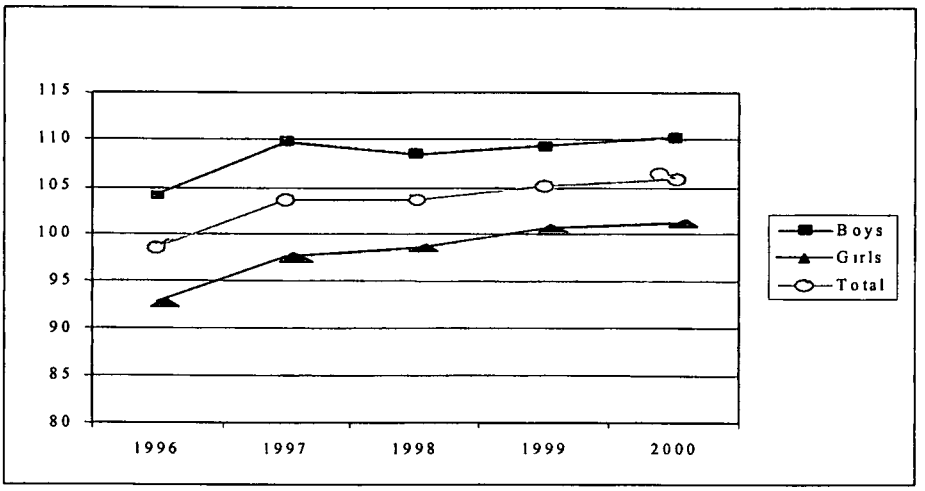
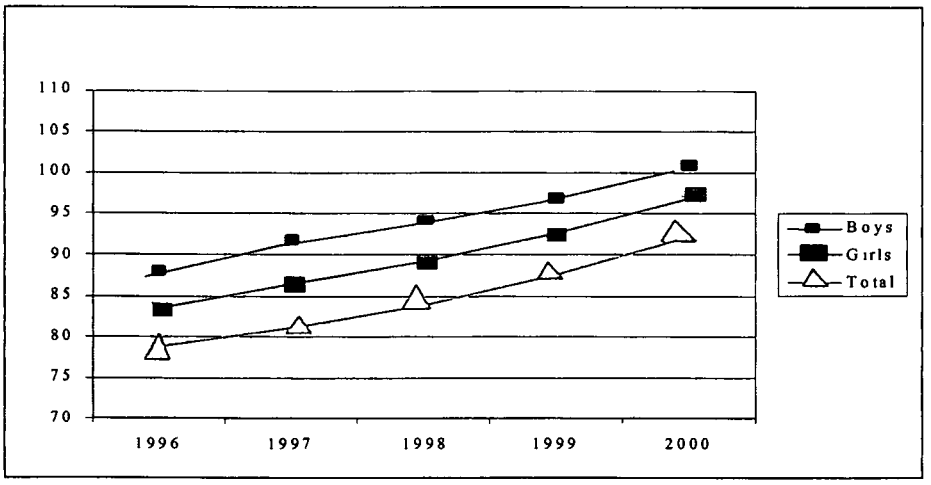


Figure 8. Preparatory Gross Enrollment Ratio 1996–2000



44. The improved equalization of GERs between boys and girls at the primary level was not repeated at the preparatory level. As shown in figure 8, the average preparatory school GER increased for both boys and girls between 1996 and 2000, but the difference in GERs between boys and girls remained almost constant at about 9.5 points.

III.III PROGRESS ON QUALITY AND RELEVANCE

45. Since the mid-1990s, the Government acutely recognized that the quality of the Egyptian education system needed improving in order to become more flexible, diversified, and relevant to the emerging social and economic needs of the country. The Government realized how vital it is to encourage the new generation to 'face the challenges of the 21st century, including the scientific developments of the future and their daily applications, such as the increasing use of computers' (EADC, 1993). For the purposes of this review, improvement in 'quality' is defined in terms of both 'inputs for improving student achievement' (input variables such as teacher characteristics) and increased 'student achievement results' (outcome variables such as reducing repetition and dropout rates). Policy and program initiatives of the Government and donors (including the World Bank) in improving quality at the

basic education level have been substantial, and broad trends in improvement can be assessed for impact. Robust programs at the secondary level have only recently been initiated. Those at the tertiary level are expected to be initiated soon; therefore, they cannot yet be evaluated.

Input Variables

46. A wide variety of policies and inputs, tailored to specific conditions, can bring about changes in the learning environment and produce effective learning. National-level studies designed to explore inputs that produce better student achievement are limited. However, one such study was conducted in Egypt between 1990 and 1991. The results of this study will largely make up the basis for our choice of important variables that affect (influence) student learning at the pre-university level.

47. This National Survey of teaching practices, student achievement, and school effectiveness conducted amongst fifth and eighth grade students presented the following broad conclusions.

On teachers, teaching practices, teacher training, and experience:

- The practice of more interactive, integrative teaching methods in the classroom is likely to boost teaching effectiveness in all key basic education subjects.
- Instructional aids, in particular the student textbook, are instrumental for student learning.
- Requiring students to do homework can be an effective way to reinforce student learning.
- Longer teaching experience is related to higher student achievement more consistently than any other teacher characteristic studied.
- Preservice teacher education programs available over roughly the past decade have not produced teachers with greater teaching effectiveness.

On private lessons, school tutoring, and examinations:

- Grade repetition is not an effective form of low achievement remediation in any subject or in any grade level.
- A student's participation in private lessons, or, school tutoring are not effective in increasing achievement relative to that of other students.

On class size and school facilities:

- Within a reasonable range, large class size produces no detriment to learning and may even stimulate learning in grade 5.
- Equipping schools with libraries can enhance school effectiveness.

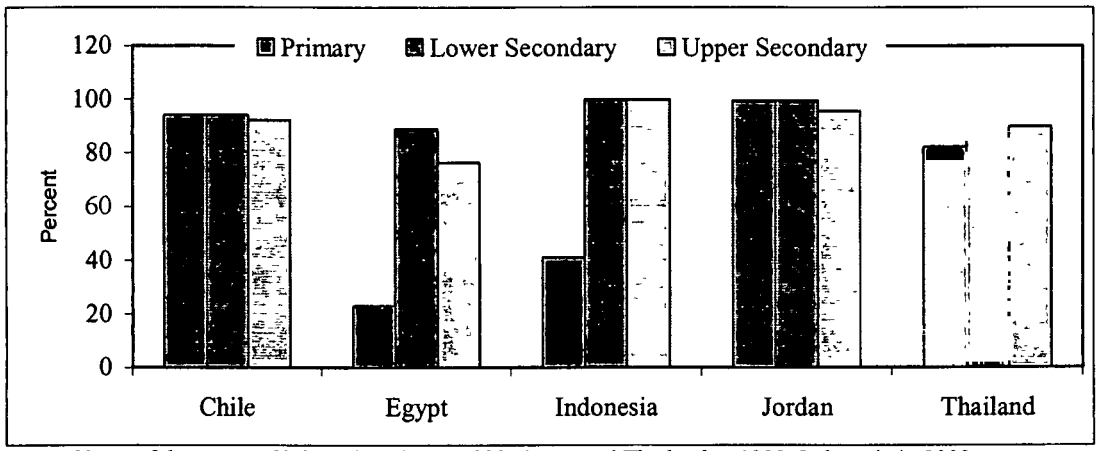
48. These results are generally consistent with findings from studies conducted around the world. For example, it has been shown that teacher knowledge and experience, availability of libraries and laboratories, and student homework assignments are determinants of effective learning at the primary level (Fuller and Clarke, 1994). In addition, these results are consistent with a recent study using 1997-1998 data to analyze the relationship between school characteristics and repetition and dropout in Egyptian preparatory schools (Lloyd, Tawila, Clark, and Mensch, 2001). That study finds that the probability of students dropping out is higher if they attend schools with multiple shifts, if the ratio of temporary to full-time regular teachers is high, and if teachers have not had inservice training in the past two years.

Progress on Improving Teacher Qualifications

49. Several international studies show the important relationship between teacher knowledge and experience and student achievement. For example, a study by Ferguson (1991) found that teacher expertise (as measured by teacher education, licensing examination scores, and experience) explained the largest share of the variance in student achievement more than any other factor (about 40 percent of the total). The most effective approach to ensure that teachers have adequate subject knowledge is to recruit educated teachers whose knowledge has been assessed.

50. As shown in figure 9, when compared to similarly situated countries in 1999, Egypt's teaching force was inadequately qualified at the primary level but was better qualified at the lower secondary (preparatory) and upper secondary levels. The low qualifications at the primary level are largely due to policies that allowed (until recently) teachers with less than tertiary education to be hired into the system. Another issue affecting the quality of the teaching force was the policy of recruiting teachers from faculties other than education, who have not received any preservice training. For example, in 1998 the number of new teachers inducted into the teaching force was 25,000, of whom 13,000 had no pedagogical training.

Figure 9. Percentage of Teachers with Tertiary-Level Qualifications 1999



Note· Years of data vary. Chile and Jordan in 1998, Egypt and Thailand in 1999, Indonesia in 2000.

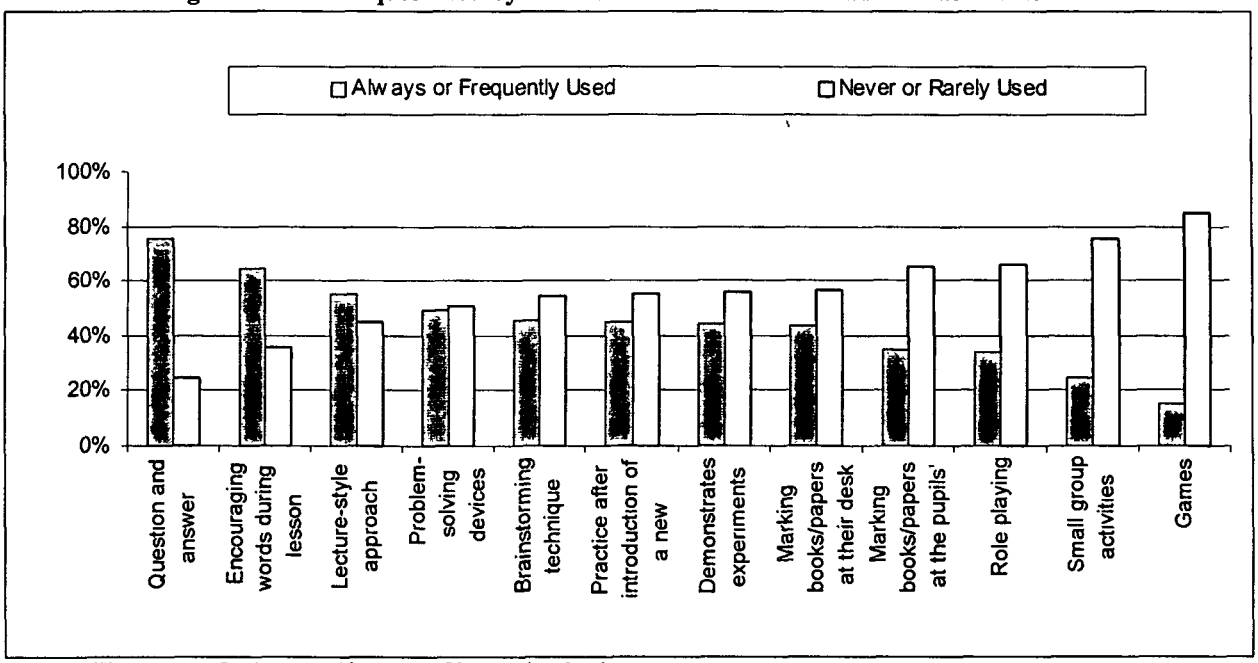
51. Recognizing this was an issue, the Government compensated for this lack of qualification by a particularly aggressive inservice teacher training program that reached over 575,000 trainees between 1996 and 2000. These include the Newly Appointed Teacher (Internship) Program based on a three-phase approach, including practical lectures, supervised school-based training, basic computer instruction, and the Distance Training Program. While the impact of these measures on instructional quality has not yet been assessed in Egypt, similar programs in other countries have had success (UNESCO, *World Education Report: Teachers and Teaching in a Changing World*, 1998).

Progress on Teachers' Classroom Behaviors

52. The 1990 National Study mentioned above showed how teachers and students fared on key 'teaching behavior' variables that are known to impact learning. Effective approaches were being used by most teachers, but other methods were not (such as giving real-life examples, asking students questions, using textbooks, etc.). While some progress has been made in improving teacher behavior in the classroom with respect to new models of teaching, there is still room for improvement. A classroom observation study was also conducted in 2001 in the governorate of Fayoum to assess teacher behavior in

the classroom. The observations were carried out in 53 classrooms in grades 1 and 5. While it is not possible to compare the new results with those presented above, the findings on the use of modern, interactive approaches to teaching are still mixed (see figure 10). The study found that textbooks are the primary and only instructional material in the class for about 80 percent of all teachers. While teachers use lesson plans and know the content, they do not use teaching materials when they are available. Observers reported that 98 percent of the students were paying attention to teachers and 90 percent seemed interested, but interactive learning was limited. In spite of the fact that all Egyptian schools have a multimedia room, 56 percent of the classes do not use it. This may be due to the lack of sufficient teacher training in the use of technology. The MOE is, therefore, planning a large amount of teacher training in the use of technology and interactive methods.

Figure 10. Techniques Used by Teachers in Grade 1 and Grade 5 Classrooms



Source. The Fayoum Project - A Classroom Observation Study.

53. There are currently a few issues hindering the development of teacher expertise in Egypt. One issue is that the school system is examination-driven; this dampens a teacher's desire to experiment with new teaching methods. Another is that most teachers rely on direct-teaching as a method of instruction; this is an embedded tradition and, therefore, difficult to change. The Government's effort to establish a distance learning program—a program that facilitates modern teaching approaches to teachers—has commenced nicely and has been well-received by trainees.

Progress on Student:Teacher Ratios, Class Size, and School Facilities

54. Progress has been made in reducing student:teacher ratios from 24 in 1996 to 22.3 in 2000. Class sizes went from 44 in 1996 to 41 in 2000. School facilities have been improved. The expansion of access to education at the basic level has been substantial and has reduced class size as well as student:teacher ratios. As shown in table 4, Egypt's student:teacher ratio at both the primary level and the secondary level is lower than that of many other countries. At the primary level, Egypt's student:teacher ratio is lower than that of Chile, Guatemala, and the Philippines, countries where comparable 1996 data was available. Currently, Egypt is closer to the Indonesian average, which is unduly low. Further reduction is unwarranted, as research suggests it would not lead to higher student achievement.

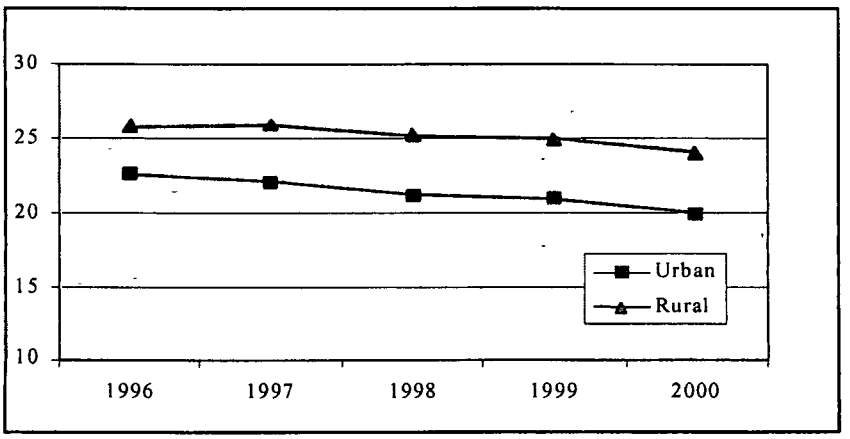
Table 4. Student:Teacher Ratios: Primary Level, Selected Countries 1996

Country	*Ratio*
Chile	30
Egypt, Arab Republic of	24
Guatemala	35
Indonesia	22
Philippines	35
MENA	26
Lower middle income	25

Source: World Bank Edstats.

55. Figure 11 indicates that the primary level student:teacher ratio in rural areas remained constant between 1993 and 2000, largely because teacher recruitment kept pace with expanding student enrollment at this level. In urban areas, the ratio has been falling, from about 23:1 in 1993 to about 20:1 in 2000. This indicates that the number of teachers recruited during this period grew faster than student enrollments in the urban areas. This trend indicates that while the Government has been proactive in recruiting teachers to keep pace with student expansion, teacher recruitment may have started to exceed the need. Excessive recruitment of teachers further reduces resources available to provide performance-based financial incentives to existing teachers. Furthermore, smaller student:teacher ratios and class size in themselves are not strong predictors of student achievement, as shown by studies in and outside of Egypt.

Figure 11. Student:Teacher Ratio by Regions 1996–2000



56. Libraries and other facilities have increased/improved in the schools over the last decade. School facilities such as libraries have been shown to positively impact student achievement. As can be seen from table 5, over 70 percent of Egyptian schools at the pre-university level currently have libraries. However, there is a need to increase educational resources at the school level. In rural areas where the school library may be the only source of reading material, the ability to lend books assumes an even greater importance. Librarians who were interviewed in Souhag and Luxor mentioned that they receive 200 books each year from the MOE but were eager to acquire more. Furthermore, most of these books were cheaply produced on poor quality paper, lessening their lifespan and making it more difficult to increase the total number of titles in the collection over time.

Table 5. School Facilities in Public Schools (Basic and Secondary) 2001

	Library	*Theater*	*Music Room*	*Painting Room*
Number of Schools	14,150	321	2,169	5,199
Percentage	70%	1.5%	10.3%	24.6%

Source: GAEB.

Progress on Instructional Time

57. Progress has been made in increasing the amount of time children spend in the classroom, keeping in line with international standards. The amount of time for learning is consistently associated with student achievement. More time spent on wider coverage of the curriculum results in both increased learning in general as well as less variation among achievement levels (Stevenson and Baker, 1991). Internationally, the school year averages about 880 hours of instruction at the primary level.

Table 6. Annual Hours of Instruction, Selected Countries 1997

	Primary	*Preparatory*	*Secondary*
Argentina	675	888	900
China	771	893	860
Egypt	918	999	724
Chile	925	1,005	860
Jordan	777	999	860
Malaysia	964	1,189	778
Thailand	1,080	1,167	1,176
Uruguay	455	863	712

Source: OECD Educational Database.

58. Table 6 shows that Egypt fares well on annual hours of instruction at the primary level. However, it is important to note that until 2000, Egypt's pre-university education was 11 years instead of the standard 12 years found in most countries worldwide. Given this fact, for the whole pre-university level, Egyptian children were receiving, on average, significantly fewer hours of instruction than their counterparts in most other countries.

Progress on Curriculum and Technology Introduction

59. Significant improvements have been introduced into the process of curriculum development (Kouchek, 2001). Prior to this period of reform, the curriculum promoted rote learning methods and was implemented poorly. There was no sequencing of concepts and skills, and there was a lack of integration among subjects. Issues of gender and environment were inadequately addressed. These issues, especially gender-bias in curriculum, are a major concern in Egypt, since women have been portrayed as passive, powerless, and in traditional roles in the standard curriculum. These messages can implicitly reinforce stereotypes and discourage girls from viewing themselves as intelligent and as capable as boys.

60. Currently, the Curriculum Center for Instructional Materials Development (CCIMD) is responsible for the development of all student texts, workbooks, and teacher guides for all areas of the curriculum. Clearly expounded criteria for content and format are followed in the development of each resource. The process for jury selection of author submissions is well-defined. The CCIMD is responsible for the introduction of each new resource, usually through video-conferencing and support to each governorate center.

61. In addition to the content-learning outcomes, there are 18 strands of current issues addressing the 'soft' curriculum (such as gender bias, environmental issues, and cultural tolerance). The CCIMD has also developed criteria for the creation of software (CD-ROMs) that is used by the Technology Development Center (TDC), which is another agency in the MOE. There is a questionnaire that accompanies the CD-ROM to schools so that they may provide specific feedback and, thus, contribute to the revision of the software.

62. Each year the Government distributes about 190 million textbooks to all children in MOE schools free of charge at a cost of about LE36.7 million. In addition, student activity books and teacher guides accompany every textbook. Field visits indicated most children received their books on time.

63. The TDC has developed and provided 30 CD-ROMs to the primary and preparatory schools. The CD-ROMS are of two types: those used for reference purposes; and those used to assist in the delivery of content. Some of the educational CD-ROMs provided by the TDC are more suited for one-to-one use, as in the case of drill and practice exercises. The reference CD-ROMs and the use of the Internet are better suited to large group lessons.

64. *Technology introduction.* Prior to the mid-1990s, schools were not equipped with technology to aid learning. Where technology was available, it was not used systematically as a teaching aid. In the late 1990s, use of the computer was introduced as a new compulsory subject for students starting from first grade. Major progress has been made in putting one or more computers and other technologies in schools to aid teaching and learning (see table 7). All primary and preparatory schools were provided with one multimedia lab consisting of a computer attached to a projection device, a television, and a VCR. Most schools also have, or will be receiving, a satellite dish and a receiver. The Program Planning and Monitoring Unit of the MOE has cooperated with the TDC to provide this equipment through the Education Enhancement Program. Each school has a multimedia specialist (usually a teacher) who has received training from the regional TDC on how to operate the equipment and in basic computer skills. This specialist is present whenever a teacher brings a class to the multimedia lab.

Table 7. Number of Public Schools with Multimedia Lab (Computer and Printer) 2000

Educational Level	*Number*	*Percent*
Kindergarten	2,538	100
Primary	14,236	99.6
Preparatory	6,784	100
General Secondary	1,267	100
Industrial Secondary	718	96.6
Agricultural Secondary	213	95
Commercial Secondary	895	100

Source: MOE, Education Technology Center.

65. At present, students are receiving limited hands-on access to computers as sometimes 40 to 50 students per class share one machine. While they can learn in a limited way what the computer is capable of and how the internet operates, and the multimedia lab can expose them to a computer as means for delivering audio and visual information through the Ministry's educational television channels, it is still unrealistic to expect that students will develop sufficient computer skills with only one computer in each school. The MOE is, therefore, planning to introduce 10 computers per basic education school. At the secondary level, computer labs do have at least 15 to 20 computers in the general secondary schools but fewer in the agricultural, commercial, or technical secondary schools.

66. Access to the internet is limited to some schools (see table 8). Where there is a phone line, it is often needed by the school administration. The reliability of connectivity is problematic at times, and results in frustration for the teaching staff and multimedia specialist as it can interfere with planned lessons and teaching. There are plans underway to complete the installation of phone lines to all schools, and this should be followed immediately with a second phone line to ensure a dedicated line for educational purposes. With advances in connectivity, about 300 schools have ISDN lines that eliminate the need for a second phone line. The challenge ahead is to ensure that schools are either fully budgeted to pay for internet connection charges or that schools are exempt from such payment. In Korea, free access to the internet was made available to schools for five years.

Table 8. Number of Public Schools with Internet Access 2000

Educational Level	*Number*	*Percent*
Pre-Primary	695	29.5
Primary	5,520	38.6
Preparatory	3,370	50.2
General Secondary	880	70.2
Industrial Secondary	0	0.0
Agricultural Secondary	0	0.0
Commercial Secondary	0	0.0

Source: MOE, Education Technology Center.

Outcome Variables: Progress on Repetition/ Dropout Rates

67. Repetition and dropout rates have been declining since the early 1990s, indicating both a gradual improvement in the quality of teaching and learning as well as improvement in the level of parental support for education. These indicators can be considered 'proxy' outcome variables for quality. Exams are school-run for the first, second, fourth, sixth, and seventh grades but are run by the governorates for grades three, five, and eight.

68. School and governorate exams are standardized and evaluate pupils on a variety of skills twice annually. If teachers have not been able to adequately complete the course work, or if the teaching in general has been of inadequate quality, students are likely to fail exams and repeat grades. Repetition is costly for the education system as well as the pupil concerned. A 1990-1991 national survey, like many other studies around the world, showed that repetition does not help improve student achievement. In fact, it further encourages dropping out.

69. In Egypt, repetition and dropout rates are expressed as a single number in the data on education system performance. The numbers reported in figures 11a-c, therefore, include dropouts who may no longer be in school. While the figures do not show trends in repetition and dropout rates independently, they do show declining trends in the last several years for both of these variables combined at the pre-university levels. There are plans to improve the data collection and methodology.

70. Repetition and dropout rates at the primary level rose slightly between 1993 and 1996 but have been declining since—with about 5.5 percent in the rural areas and 4.6 percent in urban areas as of 2000. As evidenced in figures 12, 13, and 14, at the preparatory level, the decline has been steady from 1993 onwards. Rates were about 7.3 percent and 7.2 percent in rural and urban areas, respectively. At the general secondary level, a significant drop from about 6.5 percent in 1993 to about 2.5 percent in 2000 is evident, with no substantial urban-rural differences.

Figure 12. Repetition-Dropout Rates, Primary

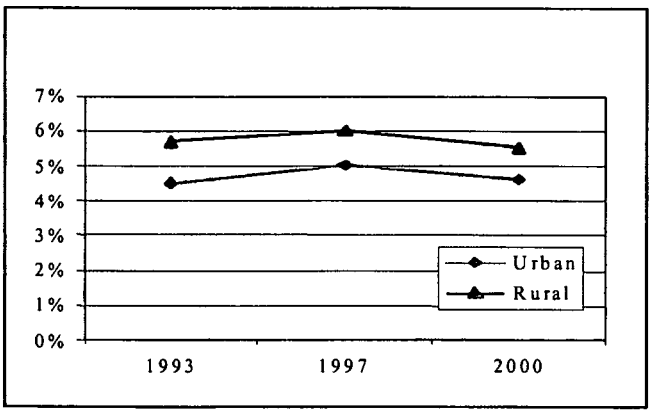


Figure 13. Repetition-Dropout Rates, Preparatory

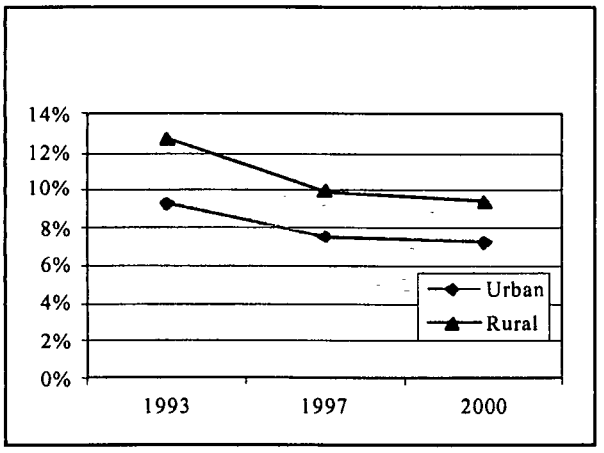
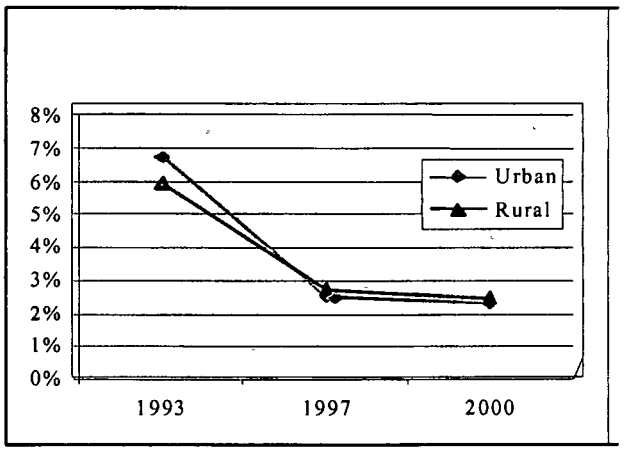


Figure 14. Repetition-Dropout Rates, Secondary



71. The opportunity costs of sending children to school are higher for families in rural areas, which, combined with higher poverty rates in rural than urban areas, increases the incidence of repetition and dropout for rural children (Datt, Jolliffe, and Sharma, 1998). On average, rural children have also received less schooling and health care in the early childhood years. Intervention in the early childhood years has been shown in international studies to be highly effective in curbing repetition and dropout at the basic education level. The rural-urban differential at the secondary level is small, since secondary school students are a more selective group.

72. Repetition-dropout rates have fallen, particularly for girls, and they are more pronounced at the preparatory and general secondary levels. As can be seen from figures 15 and 16, the decline is lower at the primary level, since the starting point was lower to begin with. The greater decline in general, and for girls in particular, seems to coincide with the timing of major government initiatives for awareness campaigns and policies introducing involvement of communities and parents.

Figure 15. Repetition Dropout Rates, Boys

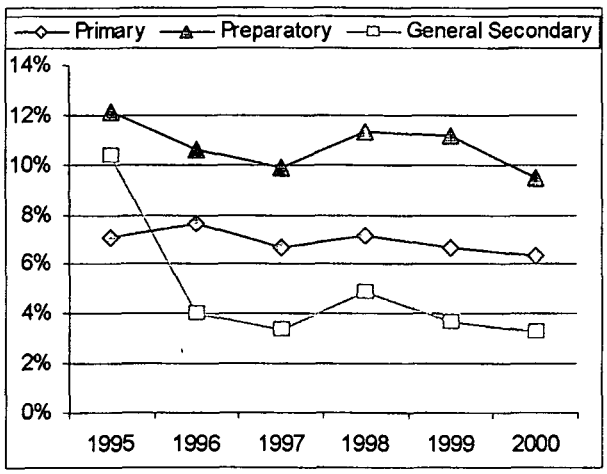
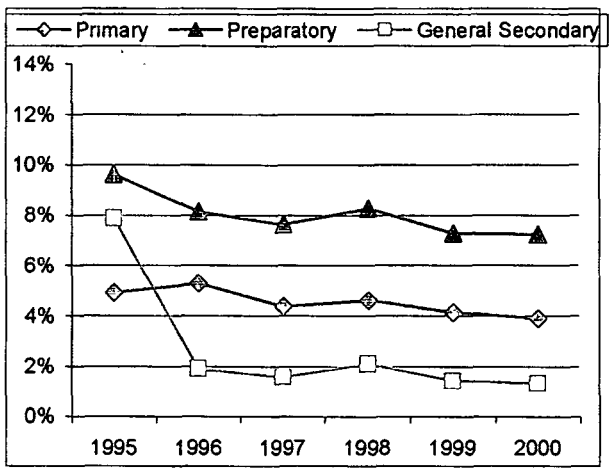


Figure 16. Repetition Dropout Rates, Girls



73. School completion rates have also improved since 1996. While the examination scores are not comparable over time, the number of pupils who took and passed the examination is an accurate indicator of completion. At the primary level, the number of students who passed general examinations increased by approximately 34 percent between 1993-1994 and 1997-1998. In the same periods, the total number of those who passed preparatory examinations grew by 21 percent; however, the most notable increase occurred at the secondary level. The total number of students who passed general secondary examinations has increased by 59 percent since 1996. Similar growth occurred in the number of students passing the commercial and technical secondary examinations in the same period.

Progress on Student Achievement Results

74. While achievement tests between 1997 and 2001 do not show significant progress according to a recent EEP study, the government is working diligently to improve student outcomes. The EEP study surveyed 5,940 students in the fifth grade and 4,440 students in the eighth grade, in four governorates: El-Sharkia, El-Fauyoum, El-Behira, and Qena. Standardized and pilot tested instruments in Arabic, math, and critical-thinking skills were used to establish baseline scores in 1997. A follow–up test (using the same instrument) was carried out among fifth and eighth graders in 2001 in the same schools of El-Fauyoum governorate.

75. In 1997 none of the fifth and eighth graders in the four governorates achieved 'mastery' levels in any subject. In 'critical thinking' the range in grade five was between 50 and 52 ('pass' but less than 'satisfactory') and in grade eight between 54 and 56 (between 'fail and less than satisfactory'). In mathematics, student achievement for both grades in all governorates is 'less than pass.' In Arabic, only El-Sharkia fifth graders and El-Sharkia and El-Behira eighth graders had pass grades. On average, both grades (in all governorates and in all subjects) had less than satisfactory scores, indicating inadequate teaching quality and learning. Overall, the results also showed that there was little difference in the achievement of males and females in the three areas studied. In addition, and as expected, students in Lower-Egypt governorates (El-Sharkia) performed slightly better that those in Upper-Egypt governorates (Qena).

76. The results of the follow–up test conducted in 2001 in Al-Fayoum governorate showed that few improvements had been made as a result of the teacher training and other interventions carried out during the past several years. Tests were carried out to assess differences between the pretest results discussed above and the post-test results. For critical-thinking skills, out of the four domains investigated for grades

5 and 8, only one domain (inference and reasoning) showed improvement for grade 5. All others showed significant difference in favor of pretest scores or showed no difference at all. For mathematics, out of the two domains studied for grades 5 and 8, one domain (geometry and measuring) showed improvement for grade 5, and one (statistics and algebra) showed improvement for grade 8. Other domains showed no significant difference between pre–test results and follow–up test results. Tested in grade 8 only, Arabic language 'listening' showed improvement, 'writing' showed decline in performance, and 'reading' showed no difference at all. Overall the results are mixed.

77. Improvements in student achievement are a result of numerous inputs (e.g., teacher training, availability of educational materials etc.). When these inputs are consistently provided to students over time the achievement scores are expected to improve. In Egypt, as was discussed earlier, these inputs to improve quality were only provided beginning in the late 1990s, and the effects of these inputs may take longer to translate into student outcomes.

III.IV PROGRESS ON MANAGEMENT AND GOVERNANCE

Management

78. Reforms in education management are conducted to improve both stakeholder participation and ownership. They are also conducted to provide accountability mechanisms that stakeholders can use to assess the performance of the system and strengthen the representation of their interests vis-a-vis the Government. Ultimately, these reforms are designed to help achieve the nation's education objectives of access, equity, and quality.

Progress Involving Local Stakeholders

79. There has been some progress towards involving local stakeholders and parent-teacher associations (PTAs) in the decision-making progress. Until the mid-1990s, the education system in Egypt had a highly centralized management structure. Most decisions were made at high levels and local stakeholders, including parents, communities, and even districts and schools had little control over decisionmaking at the local level, including decisions related to school-level activities.

80. Some progress has been made in the last several years. Stakeholder participation in education reform, especially at the grassroots level, is now well-recognized. Various ministerial decrees that have been issued such as Number 5—Parental Involvement and Number 30—Involvement of Non-Governmental Organizations (NGOs), which are examples of this recognition. Anecdotal evidence from the field suggests that the parental involvement decree has started to facilitate parental involvement in schools. In one rural area, when questioned about their role and recent accomplishments, members of the PTA identified three actions that they were proud of: (a) successfully urging officials to build a new school to reduce overcrowding; (b) signing agreements to keep smaller children with their siblings; and (c) establishing a resource committee to assist poor children.

81. This initiative clearly illustrates the potential power of well-functioning PTAs. However, given the need to further deepen this initiative in the context of the WB-EU-funded Education Enhancement Project, the staff of the Program Planning and Monitoring Unit (PPMU) conducted a series of workshops that were designed to review the policy and to increase parental involvement in schools. These workshops were held in both Upper and Lower Egypt and were attended by PTA representatives, MOE staff, and other representatives from social agencies. These workshops generated a number of recommendations designed to enhance the role of the PTA, including: (a) possible amendments to the decree, including clearer guidelines; (b) strategies for improving the finances of each PTA; (c) new communication to increase awareness and encourage school attendance; and (d) additional support

mechanisms to provide guidance to PTAs. It is clear, however, that meaningful participation can only be accomplished through further development of skills that enable stakeholders to participate effectively.

Progress in Building School Management Capacity

82. Research has shown that strong leadership at the school level is essential for the development of effective schools, quality instructional practice, and high student achievement. With this in mind, a professional development program for directors, deputy directors, and principals was initiated at the governorate level. To date, all staff at these levels have completed the six-day program that began in 1999. The program included the following areas: school personnel motivation, activation of parent/community relationships, development of social interaction skills, better utilization of school facilities, evaluation of staff and students, application of decision-making skills, and upgrading of knowledge of financial administration. The feedback has been positive. Reports suggest that the school leaders who received the training commented that the financial and administrative aspects of the training were most helpful and that they felt more capable when they returned to their schools.

IV. EDUCATION FINANCE AND EXPENDITURE

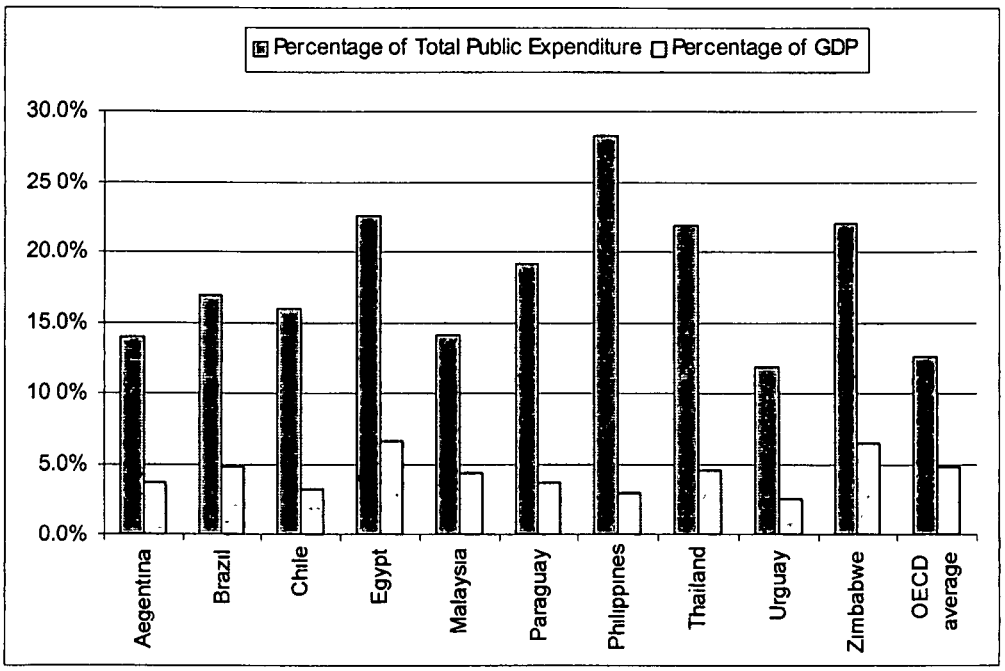
83. This chapter assesses education finance and expenditure in Egypt. Egypt's fiscal commitment to education is compared to other countries, and the allocation of educational spending is analyzed to reveal policy priorities. Finally, the efficiency and equity of government and household educational spending is studied.

IV.I EDUCATION EXPENDITURE

84. The Government's commitment to educating its children and youth has been strong and consistent. In 1999 to 2000 the Government budgeted LE16,140 million for all levels of education. This equals approximately 5.3 percent of GDP. While public finance of education has increased in real terms over the past decade, it has remained relatively constant as a percent of GDP. This effort is similar to that of the Middle East and North Africa region as a whole and that of OECD country average; it is higher, however, than the effort found in most developing countries outside the Middle East and North Africa region.

85. The high priority that the Government places on education is revealed further by its share of the government budget. Public education expenditures increased by 80 percent in real terms during 1990 to 2000, while other public sector expenditures were reduced due to a sharp fiscal contraction. As a consequence, education's share of the government budget increased from under 10 percent in 1990 to 1991 to 17 percent in 1999-2000. In 2002 public education expenditures reached a high of 20 percent. As shown in figure 17, Egypt's 1996-1997 share was higher than comparable 1996-1997 shares found in countries of similar income level, such as Malaysia (14.1 percent), as well as the OECD country average (12.6 percent).

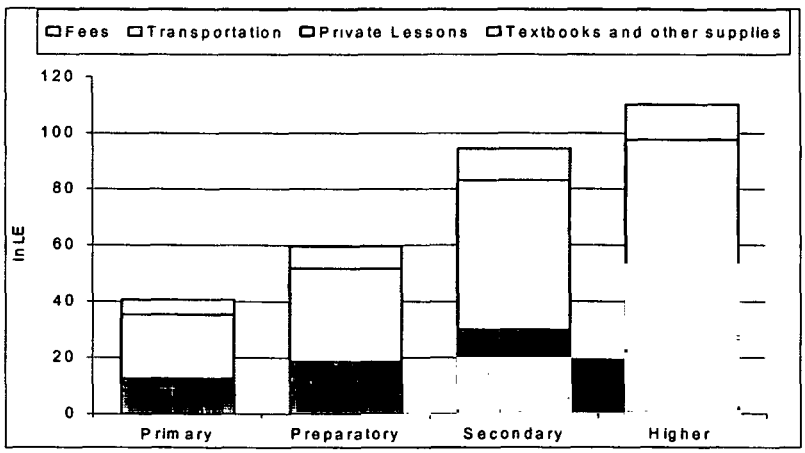
Figure 17. Public Expenditure on Education as Percentage of Total Public Expenditure 1996–1997



86. Household spending on education reflects the Government's precedence. The *1998-1999 Egypt Human Development Report* estimated that, in aggregate, households spent almost as much as the Government at the pre-university level. As shown in figure 18, private lessons are by far the single largest household education expense. This is true both for households with children in public and private schools. In aggregate, households spent LE4.81 million on tutoring at the pre-university level, equivalent to an additional 1.6 percent of GDP.

87. Households with children in higher education have much larger education expenditures than do households with children at the basic-secondary level. The average expenditure per student is LE954 at the higher education level and LE147 at the basic-secondary level, while households with children in private higher education institutions spend about LE1,605 per student. The pattern of household education spending remains the same at the tertiary as at the basic-secondary level. Tutoring is the household's largest education expense, even exceeding tuition and fees in private institutions. In aggregate, households spend about 0.6 percent of GDP on tutoring at the higher education level.

Figure 18. Monthly Education Expenditures by Household in Public Schools 1997

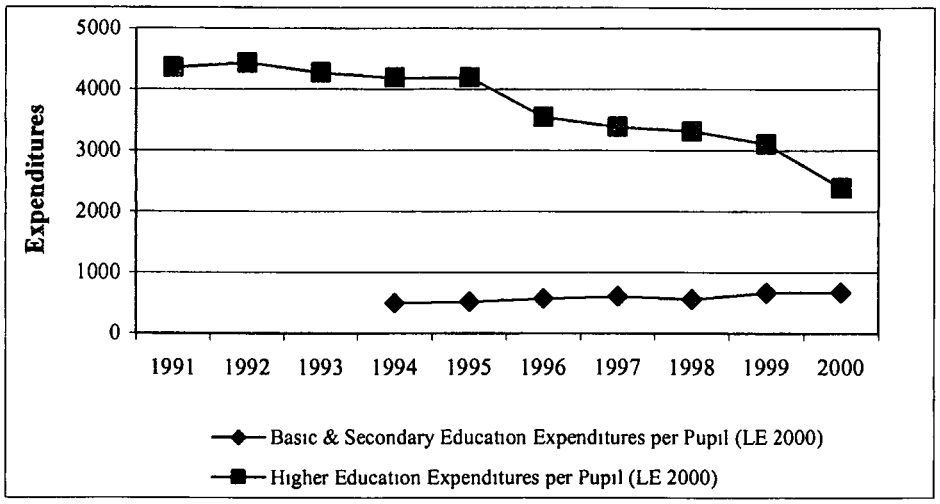


88. These statistics reveal the very large role that households play in financing both public and private education at all levels in Egypt. Adding the tuition and fees paid by households with children in private schools and universities to the amount households spend on tutoring at all levels, total household finance of education is about 3.5 percent of GDP, and this figure excludes outlays for transportation, textbooks, and supplies.

89. Total education expenditures in Egypt are at least 8.8 percent of GDP, with 60 percent publicly financed and 40 percent privately financed. This figure far exceeds OECD averages of public plus private education spending as a percent of GDP and puts Egypt in the top rank of developing countries. This effort reflects a commendable commitment by both the government and household to education in Egypt. Of different matters are how effectively the system uses the monies and how equitably those monies are distributed.

90. *Expenditures by level.* Egypt has undertaken a major reallocation of education spending since 1990. In 1990 government spending on basic-secondary schooling was 58.8 percent of total public education spending. This figure increased to 64.9 percent by the year 2000. Conversely, government spending on higher education was 35.7 percent of total education spending in 1990, decreasing to 24 percent by the year 2000.

Figure 19. Basic, Secondary, and Higher Education Expenditures per Pupil 1991–2000



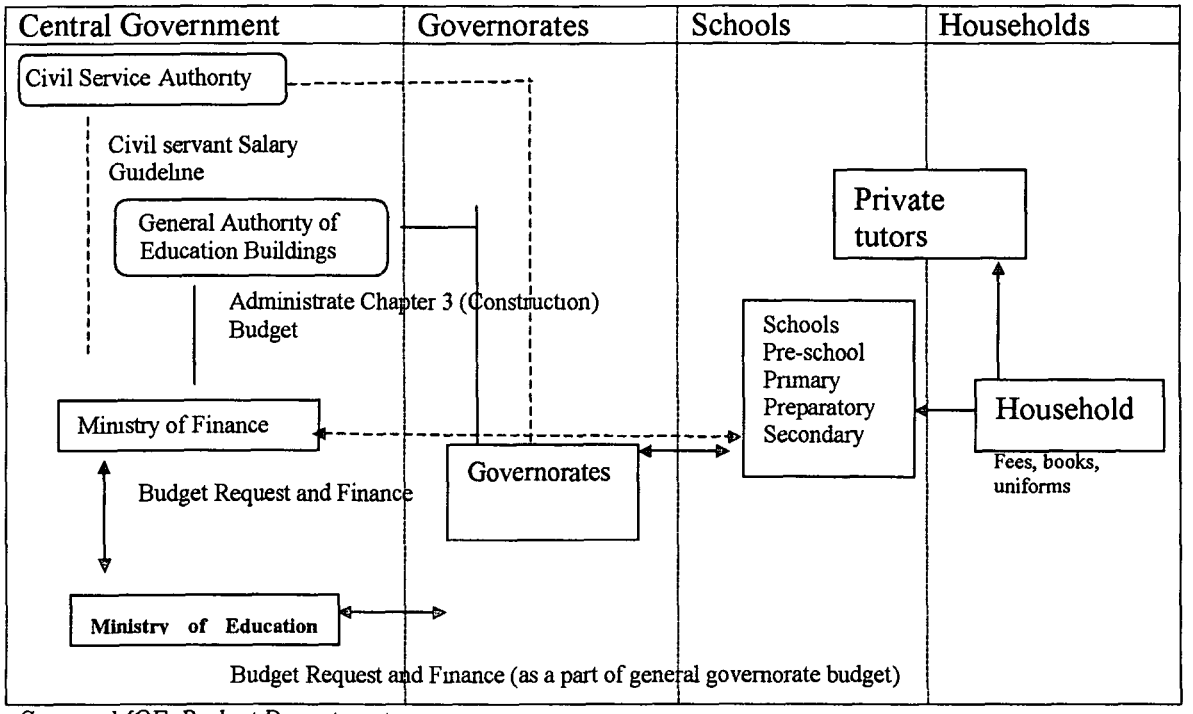
91. As shown in figure 19, the reallocation of public spending across education levels was reflected in a sharp reduction in spending per higher education student, from LE4,354 in 1990 to LE2,388 in 2000, a reduction of 45 percent. This reduction is the result of a stable budget in the face of rapidly increasing student enrollments. Meanwhile, per-pupil spending in basic-secondary education increased over the same time period, from LE511 in 1993 to LE683 in 2000, an increase of 33 percent. Furthermore, per-student spending increased at the same time that the number of basic-secondary school students increased by 2.1 million, or more than 15 percent. The ratio of higher education per-pupil spending to basic-secondary education per-pupil spending decreased from 8.2 to 3.5 between 1993 and 2000, a dramatic change that reveals the Government's education priorities in favor of basic education over this time period.

IV.II EDUCATION FINANCE

92. As noted above, households and the public sector play an almost equally important role in financing education. However, the public sector remains the predominant source of finance for the public schools themselves. While households pay tuition and admission fees for public education, fees represent less than five percent of total public education spending. The Government does not provide financing of any significance for private institutions.

93. *Basic and secondary levels.* Government financing of public education in Egypt is still highly centralized. For basic and secondary education, the Ministry of Finance (MOF) allocates the funds to the MOE, the 27 governorates, and the Al-Azhar schools (see figure 20). The MOE budget is for national administrative services. The funding for the governorates covers the administration and operation of the schools. The funding allocation to each governorate is determined based on the previous year's budget and the governorate's request to the MOF, which is based on changes in the number of classrooms, teachers, and students.

Figure 20. Education Finance in Egypt, Ministry of Education Channel (Basic Education)



Source: MOE, Budget Department

94. Line item budgeting at the school level limits the scope for transfers of funds between budget categories, though schools may request such transfers. It is usually the governorate that receives and accedes to or rejects the school's request. The process is bureaucratic and lengthy.

95. The MOE prescribes the fees to be charged by public schools at each level. Official per-student fees increase with the level of education, rising from about LE20 per annum at kindergarten to an average of LE70 at the secondary level. (Unofficially, per-student fees are much higher.) In general, revenue from fees does not stay with the school; it instead goes directly to the MOE. Furthermore, fees that are collected at the central level are not necessarily allocated to the same level from which they were collected. Activity fees and health insurance fees are collected at the school level, but only 28 percent of their revenue remains at the school level. While total tuition and admission fees paid by household for public education are small—less than four percent of total school expenditures—allowing those revenues to remain at the school level could contribute development of a culture of schools being responsible for their own improvement.

96. Preprimary education is financed a bit differently from other levels of pre-university education. Funding comes from two ministries, the MOE and the Ministry of Social Affairs, plus small private contributions. Kindergartens are part of primary education, and most of the kindergartens are attached to primary schools and financed in the same way. While public Arabic kindergartens cannot charge fees (only a symbolic amount is requested), the Public Language schools (English, French, and German) and the private Arabic and Language schools set their own fees.

97. *Higher education.* The centralized financing found at the pre-university level is mirrored in higher education. Higher education institutions are almost completely dependent on one source of finance—the MOF, with tuition and admission fees paid by households representing only 8.2 percent of total higher education spending.

98. Budget allocations to higher education institutions are determined by the MOF for the recurrent budget and by the Ministry of Planning for the investment budget. As with the pre-university level, budgeting is by line-item, and institutions do not have the latitude to shift resources across line-item categories. Budgeting is also incremental in nature, with budget allocations determined by mechanical adjustments to the previous year's budget and line-item allocations. Budget allocations are not informed by sector policy, nor are they linked to the needs of individual institutions. While the Supreme Council of Universities goes through the exercise of establishing program guidelines for universities, this has little if any influence on budgets.

99. Recent initiatives of the Ministry of Higher Education (MOHE) offer the promise of significant change in higher education financing in Egypt. The creation of a Higher Education Enhancement Fund (HEEF) introduces the concept of competition for resources based on peer review using technical criteria, and there is the promise of greater institutional autonomy in the management of financial resources and a more rational procedure for determining individual institution budgets.

IV.III EFFICIENCY

100. The Government has been aiming to improve the education system in terms of producing the skills demanded by the labor market and in terms of producing effective learning in schools. However, more needs to be done in order to achieve the desired results. The lower unemployment rates and higher rates of return for general secondary school graduates and for university graduates argue for improving access to these areas. Improving the responsiveness of schooling to the labor market and teaching the skills sought by employers, as opposed to the knowledge required to pass the next entrance exam, could contribute to reducing unemployment.

101. *Employment and wages*. Unemployment statistics calculated from the 1997 household survey show that graduates of academic secondary schools have much lower unemployment rates than graduates of technical secondary schools and graduates of universities have lower unemployment rates than graduates of non-university tertiary education. The differences are especially striking for females who have substantially higher unemployment rates than males at all educational levels. In some cases this may be due to cultural barriers against women working outside the home setting.

102. Among secondary school graduates, the unemployment rate for females in the academic track is 33 percent and in the technical track is 49 percent; the comparable rates for males are 10 percent and 16 percent, respectively. Among tertiary-level graduates, the unemployment rate for university-educated females is 14 percent—close to the 10 percent for males. This compares with an unemployment rate of 31 percent for females with non-university education; the comparable rate for males is 11 percent.

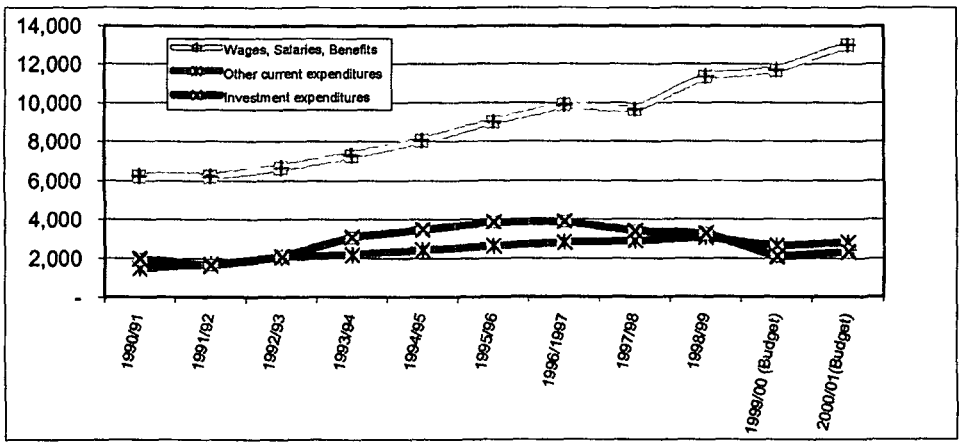
103. High unemployment rates do not necessarily reflect a low demand for educated workers. Rather, they demonstrate that schools and universities often produce the wrong kinds of skills. Even in light of high unemployment rates and obvious signs of an over-educated labor force, employers complain that they cannot find workers with the right skills.

104. The analysis of unemployment data is reinforced by the evidence on the private rates of return to education in Egypt. The rate of return to male technical secondary school graduates is zero or negative, while the rate of return to male academic secondary school graduates is a respectable 6.25 percent. The rate of return to university graduates in the private sector is 19.4 percent, compared to a rate of return to non-university, tertiary-level graduates of 6.7 percent. Since these rates are not adjusted for individual differences in capacity, they to some extent reflect the fine screening of the Egyptian educational system.

105. *Internal efficiency.* As shown earlier in this review, the evidence demonstrates that there is room for improvement in the Egyptian educational system to produce more favorable learning outcomes. Standardized tests administered in four governorates in 1997 show that average student performance is less than satisfactory in all subject areas except Arabic. Furthermore, despite the increased spending and resources allocated to basic and secondary education since the mid-1990s, post tests administered in 2001 show little overall improvement, and average performance has declined in some subject areas.

106. A careful look at the use of the education budget over time reveals budgetary inefficiencies. Figure 21 shows that increases in spending over the past decade, especially since 1997, have been allocated almost entirely to wages and salaries. Since 1993 the number of teachers has increased 28 percent, and the number of non-teaching personnel has increased 30 percent, while the number of basic-secondary school students has risen by about 14 percent. The result is a significant reduction in the ratio of students to teachers and a significant increase in the number of non-teaching and administrative staff per classroom. The current student:teacher ratios of 22:1 in primary and 13:1 in secondary education are low relative to international averages.

Figure 21. Real Education Expenditures in 2000 LE Million



107. Investment spending rose over part of the period, in part to expand the infrastructure required to accommodate the three million new students entering basic-secondary schooling since 1990; but by 2000 capital investment had shrunk to less than one percent of the education budget. Furthermore, despite an increase in the stock of classrooms by more than 76 thousand since 1990, new school construction has had an almost imperceptible impact on average class size, which was still 42.6 pupils per classroom in the year 2000. The discrepancy between relatively large class size and relatively low student:teacher ratios suggest large numbers of teachers are not teaching. As noted in the *1998-1999 Egypt Human Development Report*, the motivation behind employment of more teachers and administrative staff than required appears to be the creation of employment for university graduates.

108. Some of the same efficiency problems found at the basic-secondary level are also found in higher education. The quality of instruction is low, as reflected in the preferences of some local employers for foreign-trained graduates. The middle technical institutes have a reputation for offering poor quality education with little relevance to labor market needs. There is also a problem of overstaffing, with large numbers of administrators employed with ill-defined job descriptions and whose skills have become obsolete. Over the past decade wages and salaries increased as a share of the budget, crowding out investment expenditures. There are some faculties, for example, medicine and basic science, where the ratio of students to faculty is 4:1 or less. There are high dropout rates in some faculties. The lack of a

credit system means that students may have to repeat several courses as the result of failing just one examination.

109. In one respect, higher education is very different from the basic-secondary level. Over the past decade while enrollments were increasing slowly at the pre-university level, they were increasing rapidly (123 percent) in higher education, especially in the public universities (150 percent). However, unlike the basic-secondary level, public financing failed to keep pace with enrollment growth. Indeed, real expenditures increased from LE3.6 billion in 1991 to LE4.3 billion in 2000, an increase of only 19 percent. As noted earlier, the result was a 45 percent decline in per-pupil expenditure.

110. *Policy Implications.* At the basic-secondary level, the efficient use of educational resources can clearly be improved by reducing numbers of non-teaching staff and using the savings in wages and salaries to invest in inputs that are likely to improve the quality of schooling, and learning. Efficiency could also be improved by continuing to reduce costly technical education in favor of general education courses at the secondary level, especially given the weak payoff to technical education in the labor market. Finally, efficiency in resource use could be improved by giving school directors greater autonomy in resource allocation, including reducing reliance on the line item budget.

111. Budgeting reforms are also necessary at the higher education level in order to give individual institutions the autonomy to allocate resources and the respective responsibility of autonomy. The quality of instruction needs to be improved and will more than likely require higher levels of spending per student. The supply of higher education will also need to be increased in the future, to ensure that the growing number of secondary school graduates have the opportunity for further education. The principal policy question is how improvements in quality and access will be financed. The role of the private sector, both in finance and supply, will undoubtedly need to be strengthened substantially.

IV.IV EQUITY

112. According to *A Profile of Poverty in Egypt: 1997*, 15.7 million persons, or about 26.5 percent of the population, were poor in Egypt in 1997, with the poverty rate being somewhat higher in rural (29 percent) than urban (23 percent) areas. Poor households are larger than non-poor households and have significantly more school-age children, especially in rural areas. The very poor household has an average 7.98 members, with 1.41 children under age 5 and 2.44 children between ages 5 and 15[6].

113. The large number of children in poor and very poor households means poor children represent a large share of basic-secondary school children. It also means that poor households are especially vulnerable to the high private costs associated with schooling in Egypt. According to the 1997 household survey, of all children aged 7-11 not attending school, 50 percent are in the first population quintile (i.e., the poorest 20 percent of the population), and 78 percent are in the bottom two quintiles. The percentages are almost identical for children 12-14 years of age. When asked why they never attended school, 52 percent of the poor and 57 percent of the very poor cited "financial reasons" as the primary reason. Among those who attended school but subsequently dropped out, 31 percent of the poor and 41 percent of the very poor cited financial reasons.

[6] The poverty line is defined as the cost of the minimum food bundle (defined as minimum per capita caloric requirements, disaggregated by urban/rural and geographic location) plus the cost of basic nonfood consumption (defined as the nonfood spending by the typical household whose per capita expenditure on *food* is just equal to the food poverty line). The extreme poverty line uses a different estimate of the cost of basic nonfood consumption. It is the nonfood spending by the typical household whose *total* expenditure is just equal to the poverty line. See Datt, et.al., 1998, for calculations of the disaggregated poverty and extreme poverty lines.

114. Large numbers of children per household plus high per-pupil-household costs associated with public education create a financial burden for poor families sending their children to public schools and contribute to non-attendance and dropout. The cost per household of sending children to public school, not including the cost of private lessons, or tutoring, is high for the poor. Relative to household income, the private cost of public education for poor (3 percent) households is more than double that for rich (1.4 percent) households.

115. Proactive government policy has resulted in near universal education school attendance at the primary level; according to official statistics, the primary NER rose to 97.5 percent in 2000. However, the NER declines at the preparatory level to 78 percent and further declines at the secondary level to 68 percent. The decline in net enrollment rates is larger for poor than other households. As a result, while children from the poorest population quintile represent 25 percent of primary school students, they represent only 14 percent of secondary school students and 4 percent of higher education students.

116. The decreasing participation rates by poor children as they progress through the education system creates inequality in lifetime educational investments. As shown in table 9, the distribution of basic-secondary public school spending is quite equally distributed across population quintiles. However, the low participation of poor children in higher education results in a very unequal distribution of public spending on post-secondary education across quintiles. Taken together, it is estimated that the poorest population quintile, with more than 25 percent of all school-age children, receives about 15 percent of total public spending, compared to the richest population quintile, with about 12 percent of all school-age children and 24 percent of total public spending.

Table 9. Public Education Expenditures Received by Population Quintile (Percent)

Quintile	*1*	*2*	*3*	*4*	*5*	*Total*
Basic-Secondary Education	20	23	20	20	16	100
Higher Education	3	13	16	23	45	100
Total	15	19	20	21	24	100

Source: Ministry of Education, Ministry of Finance, IFPRI, and World Bank staff calculations, 1997.

117. Table 9 shows the distribution of public education across education levels, but the table underestimates the inequality of total education spending in children across different quintiles. Rich households with children in public schools spend more on tutoring, textbooks, etc. than do poor households. This fact underestimates the inequality in total investments in children attending public schools. For example, households in the poorest quintile spend LE32 per month on education-related items at the primary level, compared to the LE67 per month spent by households in the richest quintile. If one were to include private spending on children attending private schools, the estimate of inequality in educational investments would be even higher.

118. *Policy Implications*. High enrollment rates at the primary level reveal a high degree of equity in access to schooling. However, the quality of schooling as measured by test scores is not as evenly distributed, and household expenditures that complement government spending also contribute to inequality in investments in children. Equity can be improved through policies that more effectively target additional resources to the children of the poor. At the higher education level, benefits disproportionately accrue to higher income households. Increased cost recovery in public institutions and increased supply by private institutions can help improve access and equity in spending.

V. KEY CHALLENGES

119. Egypt has demonstrated an important fiscal and political commitment to educational development as reflected in significant progress in expanding coverage and improving school inputs over the past five years. As noted in Chapter III, this progress is most obvious at the level of basic education, yet important developments have occurred at other levels of education as well. Most importantly, Egypt has made substantial, long-term commitments to systemic reform of secondary and higher education, as described in Chapter II. In addition, university enrollments have grown rapidly over the past five years. Obviously, many of these commitments are new and have yet to bear fruit. In this chapter, we identify the important challenges that lie ahead of Egypt in its path towards development of an educational system that gives the country the labor skills required to compete globally while improving equity among its citizens. For purposes of presentation, the challenges are classified into four categories, those having to deal with equity, quality, management, and efficiency. Options for addressing these challenges are presented and evaluated in Chapter VI.

V.I IMPROVE EQUITY

Improve Educational Attainment of Poor Children

120. As noted earlier, children of poor families are less likely to attend school and more likely to drop out. While children in the poorest population quintile represent 25 percent of all primary school children, they are only 20 percent of all students at the preparatory level, 14 percent of those at the secondary level, and 4 percent of those at the higher education level.

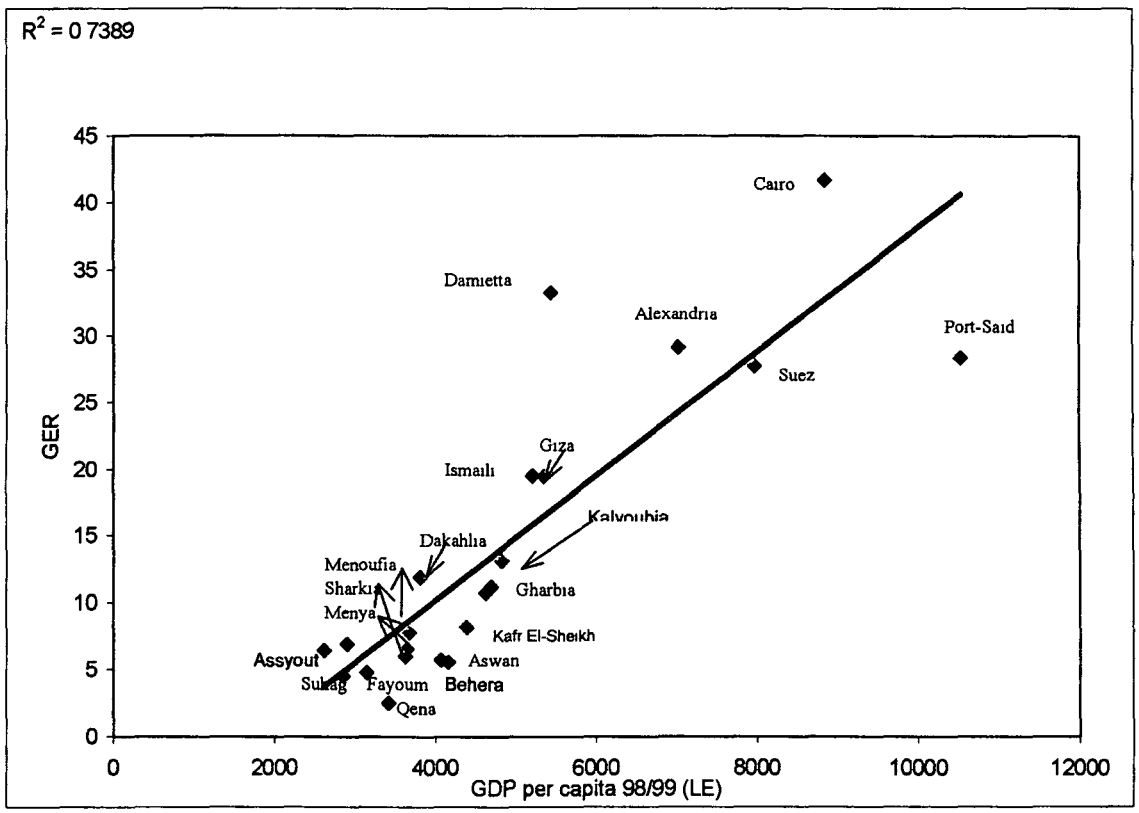
121. Research shows that both the family's socioeconomic status and the mother's educational attainment have a statistically significant effect on the probability of a child dropping out of school (Lloyd, Tawila, Clark, and Mensch, 2001). Research conducted in other developing countries demonstrates that among children who do attend school, those from poor households perform less well on standardized tests of achievement. One explanation for this finding is that parental education levels are highly correlated with family income, and the educational level of parents, especially mothers, is usually found to be among the most important factors in explaining student test performance. In Egypt, 76 percent of very poor adults have not completed primary school, compared to 64 percent of the poor, and 43 percent of the non-poor (Datt, Jolliffe, and Sharma, 1998).

122. Factors other than parental education and socioeconomic status, which may explain low educational attainment for poor children, are the high costs to households of sending children to public schools, low investment in children in the pre-primary years, and weak performance on the end of level examinations that determine the future educational chances of children. The direct costs to households of sending children to public schools increases with the level of education, with secondary education being 1.7 times as costly as primary education and higher education being 4.4 times as costly as secondary education (Egypt HDR 1997-1998). In addition, poor households spend a higher percentage of their income on education than do non-poor households, although in absolute terms they spend about half as much.

123. Pre-primary investments in children from poor households have an important impact on their school success. Children that participate in early childhood education (ECE) programs, for example, tend to enroll earlier in school and repeat fewer grades. Their dropout rate is lower, and they attain higher levels of schooling. Furthermore, these impacts are largest for children from poor homes. An evaluation of an ECE program in India, for example, showed that the dropout rate of richer children was hardly affected at all but that of poor children was reduced by 46 percent (Chaturvedi, et al., 1987). Numerous

other evaluations of ECE programs have shown large long-term benefits (see, for example, Garces, Thomas and Currie 2000; Karoly et al. 1998; Myers 1992; Reynolds et al 2001; Young 1996). Given this evidence on the effectiveness of ECE, Egypt's 10.5 percent NER for 4 and 5 year olds in kindergarten is surprisingly low. The fact that most children enrolled in kindergarten in Egypt are not poor means it contributes only minimally to the educational attainment of poor children.

Figure 22. Gross Enrollment Rate in Kindergarten by Governate



Source: GER data from MOE, GDP per capita data from INP.

124. Early Childhood Education services are steadily increasing in Egypt; as figure 22 indicates, however, the governorates most in need—those with the highest poverty and lowest income levels—have the lowest access. On the positive side, Cairo is the outlier with a gross enrollment rate of 41.7 percent. Lower Egypt governorates do somewhat better than Upper Egypt governorates.

Reduce Inequalities in Educational Investments

125. Chapter IV demonstrated that public spending on education is unequally distributed across households, with the poorest population quintile receiving 15 percent of total spending and the richest population quintile receiving 24 percent of total spending. However, public spending is only part of the equity story, especially in Egypt. The unusually large outlays by households on education in Egypt exacerbate inequality in total educational investments.

126. Private tutoring constitutes the largest portion of private expenditures on and pervades all levels of education—higher education and privately schooled children included. The cause of private tutoring is related to the common examination system in which both public and private school students partake. The

preparatory examination determines whether students are tracked to the dead-end vocational schools or to the general secondary schools, almost assuring university placement. The rich, therefore, are able to "invest" in the preparatory examination and benefit later on from highly subsidized tertiary education, necessarily incurring less private cost than earlier stages of education.

127. While there is little that the Government can do to equalize private education spending, public spending can be more equitably distributed across income groups by improving access for the poor, especially at the kindergarten level, and by improving the quality of instruction of poor children so they have a greater chance of making the transition to general secondary and higher education. Eliminating tuition and fees at the basic level and raising them at the university level would also significantly improve equality in public spending.

V.II QUALITY OF SCHOOLING

128. As noted earlier in this study, Egypt has embarked on a comprehensive strategy to raise the quality of basic, secondary, and higher education. Only that part of the strategy dealing with basic education—the Education Enhancement Program (EEP)—has been implemented long enough to yield results. It will take longer to see the payoff in terms of student achievement.

Raising the Quality of Instruction in Basic-Secondary School

129. The EEP supports a number of actions to raise the quality of instruction, with the objective of improving student achievement. These include reducing class size, eliminating multiple shifts, introducing inservice training through distance learning and other modalities, and creating preservice training internships and training of inspectors.

130. A major obstacle to improving teaching in the classroom is the poor system of support, feedback, and learning for teachers. The MOE has taken a proactive step in reviewing its quality assurance system and has conducted a study of the current inspection system. The study (PPMU, MOE 2000) outlines some of the system's weaknesses, including:

- the decline of inspectors' academic and administrative skills impacts negatively on their performance
- inspectors overlook the performance of some teachers as a favor to them or to their headmasters
- the work of inspectors is narrow, and the inspectors have ties neither to parents nor to local community leaders
- some inspectors are unfamiliar with relevant ministerial decrees
- many inspectors are incapable of operating new technologies such as computers
- the school headmasters do not take inspectors' instructions seriously
- inspectors lack authority and ability to hold teachers accountable, because their reports account for only 30 percent of a teacher's performance assessment.

131. The inspection system does not provide support to teachers. Anecdotal evidence suggests that inspectors evaluate teachers on the basis of their own concept of good teaching, which emphasizes rote memorization over active learning. Such an approach frequently prevents teachers from implementing the new pedagogy learned from training workshops. Given this situation, *the inspectorate system needs to be updated and modernized to become a valuable learning tool for the teachers* in order to improve teaching and learning in the classroom. The MOE is going to radically transform its inspection system.

Prepare a Better-Qualified and Relevant Workforce

132. As Egypt becomes increasingly integrated into the international economy through the free trade agreement with the European Union and other initiatives, it needs a labor force that contributes to international competitiveness. As noted in the previous chapter, the evidence suggests that secondary and tertiary schools do not at present produce the needed skills. The Government has committed itself to reforming secondary and higher education, but this is a difficult and long-term agenda. Furthermore, improving the capacity of the educational system to produce laborers with the right skills will not in and of itself solve problems of high unemployment and underemployment.

133. At the secondary level the challenge is to produce workers who are adaptable and can learn on the job, as opposed to producing workers with very specific technical skills that become outdated as technology advances or as labor market demands change in response to evolving markets. At present, two-thirds of secondary school students are tracked into 114 narrowly specialized trades, many of which are irrelevant to the modern economy and some twenty years out of date. By allowing increased enrollments in the general secondary track and decreased enrollments in vocational tracks, the secondary education reform goes part of the way to meeting this challenge. However, the fact that there are 1.9 million vocational students and less than one million general secondary students indicates the magnitude of the challenge. In addition, changing the system of tracking students is likely to be much easier than changing the curriculum and the teaching method to ensure that students learn to solve problems as opposed to memorize solutions.

134. The secondary education system must become more responsive to the labor market if it is to meet this challenge. Various options exist for doing this. One option is to create school advisory boards with representation from local employers to provide feedback to school communities—teachers, parents, and students—on how they could improve the marketability of their graduates. Another option is to generate and widely disseminate information on the labor market success of secondary school graduates. Tracking graduates and identifying what makes them employable can provide valuable information to help guide curriculum reforms. It can also help stimulate a culture of accountability in which parents and students demand that the schools produce the right sets of skills that lend to employment.

135. At the higher education level, the MTIs to some extent replicate the problem of vocation-specific education at the secondary level. The limited success of MTI graduates in the labor market confirms that they fail to produce the skills demanded in the market place. The Government's higher education reform proposals appear to address this problem by proposing to create larger Technical Institutes, which provide more general knowledge while retaining a vocational orientation. At the university level, there is also the problem of instruction that is not responsive to the market. Universities over-produce graduates in the fields of arts and humanities, social sciences, and education. They under-produce graduates in management, computer science, and engineering with strong information technology and English knowledge. The reform goals of increased university autonomy, management training, assistance in curriculum design, and quality-inducing incentives through the competitive higher education enhancement fund should help realign university instruction with labor market demand.

136. Additional challenges to be met in raising quality in higher education include finding the resources—from cost-recovery or elsewhere—to provide the needed inputs after a decade of sharply decreasing per-pupil-expenditures and providing incentives for students to finish their studies on time and to choose careers on the basis of labor market demands, rather than respond to the demand provided by government-guaranteed employment in the public sector, albeit with a 8 to 10 year lag. Incentives for university reforms could be further strengthened by providing prospective university students with feedback on the instructional quality and labor market performance of graduates of different universities

and faculties and then tying university budgets to student enrollments. Egypt might look at the Brazilian example where all graduating university students are tested in their field of study and results are published by faculty and university. The simple act of providing information on student achievement has created strong incentives for universities to improve their instructional quality in Brazil.

V.III MANAGEMENT OF SCHOOLS AND HIGHER EDUCATION INSTITUTIONS

137. While some progress has been made in decentralizing the management of public education, the system still needs local governments, communities, and civil society to become more involved. Furthermore, incentives need to be provided for good, innovative management, and proper authority (including budgetary and expenditure decisions) needs to be delegated to good managers at decentralized levels.

Decentralize Management

138. The Government has requested that the EEP expand the target for management training of primary and preparatory school directors from 2,000 to 40,000. The benefits of this training depend, in part, on the scope of responsibilities given to school directors.

139. At the pre-university level, parents should have a greater voice in school management, as authorized in a 1999 Ministerial decree. This should include consultations with parents as part of the MOE policy decision-making process, as well as the creation of mechanisms to give parents more say in school management. To facilitate accountability and parental involvement, community members, teachers, and school directors need periodic and objective feedback on their performance, both from the inspectorate system discussed above, as well as public information on student performance.

140. Higher education also suffers from overly centralized control. The sheer size of the system—with over 1.5 million students—and its complexity, including different types of institutions serving a diverse set of clients, mitigates against a centralized system. A rigid and outdated legislative framework governs the system. A moribund civil-service code regulates staffing and promotion policies. Public sector control over mundane operational details raises costs. And, inefficiencies in resource allocation and utilization destroys incentives for improved performance and quality.

141. The Government has appointed high-level, consultative committees to identify and draft needed reforms to higher education legislation. Consideration is being given to changing or to modifying regulations applying to governance structures, institutional autonomy, the degree of control institutions exercise over budgetary resources, and their capacity to mobilize extra-budgetary resources. The Higher Education Enhancement Project (HEEP) will support the development and implementation of these initiatives.

Improve the EMIS System and Its Utilization

142. Over the past several years Egypt has initiated serious efforts to upgrade its ability to collect timely and reliable data for the purpose of making informed decisions and developing sound policies in the education sector. While progress has been made in the comprehensiveness of data collection at the school level, as well as processes for cross checking to ensure accuracy, several key issues remain to be addressed. Challenges remain in the areas of questionnaire design, data analysis, and utilization of findings. This has resulted in MOE's inability to produce education indicators according to international definitions. Lack of qualified personnel who can understand and use education data in the school administration is a major concern and subsequently effects data analysis at the national level.

143. Furthermore, no credible comprehensive assessment of teaching practices, curricular contents, and student learning outcomes has been systematically carried out. Recently, the National Center for Examinations and Educational Evaluation (NCEEE) developed tests for language, math, and critical thinking skills in pilot governorates. However, these assessments have not been institutionalized and used as a tool to provide feedback to teachers and administrators. These *pilot assessments need to be generalized nationwide and used to track progress over time.*

144. The management information system (MIS) problems that were identified at the pre-university level are replicated in the system of higher education. The Government's strategy, supported by the HEEP, is to introduce an effective institutional and systemwide MIS that will support better monitoring of system operation and performance and inform policy decisions. Specifically, it will support monitoring of student flows, student performance, faculty teaching, and faculty research performance. Supported by the introduction of a National Quality Assurance Council, this system will also establish conditions under which universities and associated faculty can be held more accountable on issues of quality and student performance.

V.IV IMPROVE EFFICIENCY

145. As discussed in Chapter IV, Egyptian education can make more efficient use of its scarce resources. While the Government allocates excessive amounts of its resources to personnel, especially administrative personnel, it has yet to achieve adequate student learning and relevant employment skills demanded by the labor market.

Reduce Spending on Wages and Salaries at the Pre-University Level

146. As a result of government-wide public sector job creation policy, the MOE has been hiring more teachers and administrators than needed to cover increases in enrollment (see table 10). Since 1990 expenditures on personnel have increased from 76 percent to 82 percent of the total education budget, while the percent allocated to teacher materials has been cut in half. In short, the MOE has been asked to use its scarce resources to provide public employment rather than to produce quality education. If current trends continue, by the year 2010 the ratio of students to teachers will fall below 20 at the primary level and below seven at the secondary level; the ratio of teachers to administrators will also fall below 1:1. Even if the Government maintains the current student:teacher ratio and current teacher-administrator ratio, outlays on personnel will double, from LE8.7 million to LE16.7 million, over the next decade.

Table 10. Percentage Increase of Students, Teachers, and Administrators 1993–1999

	Students	*Teachers*	*Administrative*
Primary	1%	11%	21.0%
Preparatory	32%	36%	40.7%
Secondary	27%	52%	33.8%

147. If Egypt is to succeed in raising the quality of instruction while improving equity, *it needs to use its education budget more efficiently and to reallocate spending from excess administrators and teachers to other non-personnel resources.* Alternatively, the MOE budget will need to continue to grow and consume an increasing percentage of the total government budget. Given the fiscal impact of the problem, the MOE is beginning to address this problem by putting a cap on the number of personnel permitted in each school based on student enrollment.

Rationalize Higher Education

148. The allocation of resources to higher education institutions is driven by historical spending patterns that do not reflect either institutional needs or system priorities. Once universities and MTIs receive their budgets, they do not have the discretion to allocate budgets across different faculties according to needs. This has resulted in a system that is totally supply-driven without accountability for student results or market needs. Current budgetary practices stifle rational planning, do not promote efficiency, and discourage the development of sound management.

149. As a result of these budgetary practices, funding levels and staffing are skewed. They reflect neither student demands nor changing market needs. Recent data show that the four faculties that enroll three quarters of the students—commerce, arts and humanities, education, and law—have an average student:teacher ratio of 119:1. If associate faculty (teaching staff without a Ph.D.) are excluded, the ratio increases to 201:1. The situation is very different for the faculties enrolling the remaining quarter, notably medicine, agriculture and economy, and political science, where faculty-student ratios can be as low as 2:1.

150. *The system needs to adopt more rational resource allocation mechanisms*, including: (a) allocating government monies to universities on the basis of student enrollments, weighted to reflect cost differentials across faculties; (b) providing financial incentives to students and universities to minimize the time for students to fulfill their degree requirements and graduate; and (c) providing financial incentives for universities and MTIs to respond more quickly to changing labor market demand. Higher education institutions should then be given autonomy with accountability to reallocate budgets across expenditure items and across faculties. These policy changes are supported as part of the HEEP, though experience in other countries suggests implementation to be difficult.

VI. POLICIES, FINANCIAL IMPLICATIONS, AND FINANCING OPTIONS

151. Despite the progress Egypt has made in educational development over the past decade, it faces immense challenges to improve the quality, management, equity, and efficiency at all levels of education—pre-primary, basic, secondary, and post-secondary. The key challenges were identified and discussed in Chapter V. In this chapter, proposals for addressing these challenges are presented and assessed. Table 11 summarizes in matrix form where the challenges lie.

Table 11. Locus of Key Education Challenges by Sub-Sector

Sub-Sector	*Access and Equity*	*Quality*	*Management*	*Efficiency*
Kindergarten	Improve access by poor to ECE			
Primary	Reduce private costs of public education	Raise quality of instruction	Decentralize management; Increase parental involvement	Reduce personnel budget
Secondary	Reduce private costs of public education	Produce workers who can learn	Decentralize management	Reduce personnel budget
Post-Secondary	Increase cost-recovery	Improve match with private labor market demand	Increase institutional autonomy	Rationalize finance and resource allocation
Systemwide			Create database for informed decision-making, including outcomes	

152. Given the sectorwide scope of this paper, it is not feasible to present and evaluate all possible options for addressing each challenge in each sub-sector. Rather, proposals are laid out that may be politically and administratively feasible, several of which have been analyzed in greater detail in sub-sector analyses carried out by the Government, the World Bank, and other donors. Annex 1 provides details on the costs of implementing the action program specified in table 16; the costs are estimated at LE6.1 billion over the next five years. Annex 2 provides details on the savings from potential, and politically difficult, efficiency gains. The potential efficiency gains from a likely scenario would be about LE3.1 billion over the next five years. The discrepancy between the additional costs and the potential savings in the medium-term suggests the need to identify additional financing until longer-term efficiency gains can be realized. This discrepancy also implies that not all the proposals presented here can be implemented and financed simultaneously.

VI.I POLICIES TO ADDRESS THE CHALLENGE OF IMPROVING EQUITY

153. Two main challenges to improving equity were identified in the Chapter V—increasing the educational attainment of children of poor families and reducing the inequality of lifetime educational investments in children. Five specific recommendations are made here to help meet these challenges. First, Early Childhood Education (ECE) programs should be expanded and targeted to the poor. Second, the primary and preparatory-level examinations should be replaced with rigorous, continuous, cumulative, and comprehensive evaluations. Third, initiate parental education programs. Fourth, target subsidies to cover the private costs of public education. Fifth, increase post-secondary fees for those students and their families with capacity to pay and encourage the expansion of supply of private higher education. The cumulative result of these recommendations would be to better prepare poor children for schooling and, thus, increase their chances of success in school; to remove obstacles for further schooling; to reduce the private costs of schooling; and to improve learning through parental involvement.

Table 12. Policies to Improve Equity

Challenge/Sub-Sector	*Kindergarten*	*Basic-Secondary*	*Post-Secondary*
Improve Access by Poor	Expand supply targeted on poor	Eliminate primary and preparatory level examinations Eliminate vocational-preparatory schools Educate illiterate parents	
Reduce Private Costs of Public Education		Introduce scholarships for poor children	
Increase Cost Recovery			Increase fees in public institutions and expand private supply

Expand Early Childhood Education Programs in Disadvantaged Areas

154. Having recognized the importance of quality early childhood education, the Government has been increasing its commitment to pre-primary education The MOE intends to increase the kindergarten enrollment ratio to 65 percent by 2010 from the current level of 10 percent. In 2010 approximately 3.5 million children will be in the relevant age group (ages 4-5). If the MOE achieves a 65 percent coverage rate, there will be 2.2 million children enrolled in kindergarten (KG) —1.9 million more than the current level. To achieve this target, the KG system will have to enroll 200,000 additional children each year. Based on these projections, approximately 70,000 KG classrooms will need to be built annually. Likewise, additional teachers and staff would also be required.

155. If ECE expansion takes place mainly in the public sector, and the private sector enrollment remains at the current level, the public costs of the expansion will be very high. Every year, approximately LE50 million would be needed for investment in construction and equipment. By 2010, total investment cost would rise to LE446 million. Salaries for teachers and other recurrent expenditures will rise steeply as the number of students increase, costing LE49 million in the first year alone. By 2010 this amount will have risen to an estimated LE500 million annually. After including the additional costs for supplementary activities, the total recurrent costs per year are expected to equal LE684 million. While providing one year of pre-primary is costly, it would yield a benefit to cost ratio of 2.29 under conservative assumptions (Janssens, Van der Gaag, and Tanaka, 2001). One year of pre-primary would increase net enrollment in basic education by about two percentage points. The analysis also shows that the benefits of ECE are greatest for the poor population, while the impact on the well-to-do is less significant. Hence, the private sector should be encouraged to maintain the current private share of enrollment (about 50 percent) to serve the well-to-do.

Initiate Parental Education Programs

156. According to MOE data, adult illiteracy is still 24 percent for males and 45 percent for females in Egypt. The children of illiterate parents will come to school disadvantaged in both adequately valuing education and getting needed educational support at home. Parental literacy programs that combine literacy with 'life-skills' can boost parental knowledge of nutrition, health, and education issues for themselves and their children. These programs, which have been shown to be successful in many parts of the world, would help reduce disparities in terms of preparation for schooling between children of illiterate and educated parents.

157. Parent education programs are typically inexpensive to implement, yet produce substantial benefits, including positive influences complementary to other policies aimed at reducing inequities. The Awareness Campaigns under EEP cited above could be expanded to cover all governorates, increasing the number of campaigns per governorate from 7 to 15 at an estimated cost of LE0.8 million for the next five years.

Replace the End of Primary School Examination with Diagnostic Assessments and Convert Vocational Preparatory Schools into General Education Schools

158. Despite the effort to expand education, some segments of the population remain outside the system. As of 2000 an estimated 0.1 million children at the primary level and 1.17 million children at the preparatory level were not enrolled. This demonstrates that dropout, rather than access, is a major problem. In a household survey, less than 1 percent of households responded that access to school was a problem. Furthermore, most of the children not entering the preparatory level are likely to be "push-outs" rather than "dropouts" —as a result of not passing the end of primary school examination or of not sitting for the examination because of the inability to pay for private tutoring. Almost 20 percent of primary school leavers indicated "no desire to continue" schooling. One cause could be the current two-track system at the preparatory level where about five percent of students who score the lowest on the examination are tracked into so-called "vocational preparatory" schools that provide students with neither vocational skills nor proper education. Going to such a school may impart a worse stigma than not going to school at all. There is an urgent need to convert existing vocational preparatory schools to regular preparatory schools.

159. As discussed earlier, among fifteen-year olds only 53 percent have completed compulsory schooling. Among the poor, with the rural population particularly affected, more than 30 percent of the school dropouts indicated financial difficulty as the main reason. Even the 'non-poor' are affected. As shown earlier, private lessons/tutoring is a major expenditure item for parents and students in Egypt. While private tutoring is a common phenomenon throughout the world (Bray, 1999), Egypt's private expenditure on education as a percentage of GDP (3.5 percent) is high compared to other countries like Jordan (1.1 percent). It is excessively high for a process that, according to the National Study mentioned earlier, does not yield added benefits in terms of student achievement. So, with little or no benefit, it is especially the poor who are effected, as they try to cope with costly additional demands.

160. A number of analysts have attributed the private tutoring phenomenon to low teacher salaries, but one analysis has shown that teacher income, including allowance, is comparable to other civil servants (Adams, 1997). More enterprising teachers who tutor privately do, in fact, have higher incomes than other civil servants.

161. Private tutoring is in high demand because of the highly competitive and restricted entrance to higher education through a one-time examination. The ripple effect of this requirement is felt at the grade 5 and 8 examinations as well. Furthermore, the grade 8 examination opens the gates for entry into academic tracks at the secondary level, almost guaranteeing a university place (transition rate from general secondary to higher is 95 percent). The transition rate from technical secondary education to higher education is, in contrast, only five percent. While the Government has taken the policy decision to ban private lessons and tutoring by public teachers (Ministerial Decree (#592 – 11/98), the practice of tutoring remains unabated

162. While there is a need for a rationing system through an end of compulsory stage examination at the secondary level, there is no reason to 'push out' students at the end of grade 5 using an examination process. This contradicts the compulsory education policy that has been extended to grade 9. Abolishing

the grade 5 examination would take away the need for tutoring at the primary level. This measure could result in savings for parents, who pay for private tutoring, as well as the Government, which pays to hold the examinations. Introducing diagnostic assessment at the basic education level will provide sufficient feedback to teachers to tailor their instruction to students.

Focus Subsidies on the Most Disadvantaged Population

163. International evidence shows that direct subsidies for the poor can substantially increase the probability of enrollment and retention, even with a low level of subsidy (e.g., Ravallion and Wodon, 1999). Since Egypt has already achieved a high level of enrollment, the focus of any subsidy program should be on prevention of repetition and dropout among the disadvantaged and out-of-school children by reducing the relatively large out-of-pocket household expenses for public education. Targeted subsidies have been piloted under the EEP, and this pilot should be extended to the 15 percent of the neediest population.

164. Identifying the disadvantaged population eligible for direct subsidy is very important. The MOE PPMU is successfully conducting the "Awareness Campaign with Subsidy Program" that is successfully raising girls' enrollment in basic education. Under this pilot project, the Government provided LE50 to 4,000 children (approximately 0.05 percent of the targeted population). The subsidy is used to cover the private cost of education (for example the cost of school uniforms). It is estimated that a gradual expansion of the current subsidy program to 15 percent of the population who are disadvantaged would cost LE141 million over the next five years.

Raise the Fees of Public Higher Education Institutions and Encourage Private Provision

165. During the last decade, the number of students in higher education has increased by 118 percent. This growth is expected to continue or accelerate in the future, with the projected number of students increasing from the current 1.8 million to 2.6 million by 2015. In the absence of increased cost-sharing, public higher education expenditures would require an increase from 1.3 percent of GDP today to 2 percent by 2015. As shown earlier in table 12, most of this increase in government subsidies would benefit the 40 percent of households with the highest incomes in Egypt.

166. A government strategy of increasing student fees in public post-secondary institutions and simultaneously encouraging an expansion of the supply of private higher education could significantly improve equity in public higher education spending. Results from the household survey show the average household is already spending LE1,400 per year for higher education (including fees and private tutoring), which suggests a willingness to pay for higher education. We recommend that fees be increased from the current level of LE50 per year to LE900 per year, which would generate LE6.4 billion in additional revenue for higher education institutions over the next 15 years.

167. It also seems feasible to increase the private sector's share of higher education enrollments. Since the ban on establishing private higher education institutions was lifted in 1997, enrollment in private higher education institutions has increased by 30 percent. Further reduction in barriers to entry through regulatory reform would enable the private sector to accelerate expansion.

VI.II POLICIES TO ADDRESS THE CHALLENGE OF RAISING QUALITY

168. Egypt faces two large challenges regarding the quality of education. One challenge is to improve teaching and learning in the basic-secondary system. A second challenge is to ensure that youth entering the work force are qualified with skills that better match labor market needs. The Government is already following strategies to attain these objectives, as specified in the Basic Education Enhancement Program, the Secondary Education Enhancement Program and the Higher Education Enhancement Program. In what follows, proposals are made for implementing several elements in those strategies, as shown in table 13. As regards raising the quality of basic-secondary education, recommendations are made for replacing the school inspection system with school evaluation, developing an innovations fund, further improving teacher capacity, and introducing technology in the classrooms. With respect to higher education, proposals are made for implementing a competitive fund to improve the quality of instruction.

Table 13. Policies to Raise Quality

Challenge/Sub-Sector	*Basic-Secondary*	*Post-Secondary*
Raise Quality of Instruction	Introduce external evaluation of schools Eliminate inspectorate system Create learning innovation fund Continue and expand inservice teacher training	Introduce competitive fund
Improve Match with Labor Market	Expand use of computers in schools	Encourage partnership between higher education institutions and private sector

Replace Inspection with Evaluation

169. The current inspectorate system creates a conflict of interest in the role of the inspectors, in that they are both teacher trainers and evaluators of their own training. A recently completed report on the inspection system notes the duplication of its evaluation role with those carried out by the National Center for Examinations and Educational Evaluation (NCEEE). The NCEEE provides a completely separate external inspection of selected schools that is much more comprehensive and objective than the "technical" inspection. It should replace the evaluation function of current inspectors. The NCEEE assessment is conducted by an external team that visits schools to assess the overall performance. The assessment includes a review of teaching performance, school administrative leadership, the learning environment, school facilities, and extracurricular activities. The team provides a written report to the Director of Education for the governorate, with a copy to the Minister of Education. The team serves as a consultant only, with authority for the implementation of the recommendations assigned only to governorate officials or the minister.

170. This comprehensive evaluation of school performance is similar to other models of school evaluation that operate well in other countries. Research clearly shows that effective schools have a caring atmosphere, a focus on teaching and learning, high levels of student and parent involvement, and high expectations for all children. The best schools are those that consistently review their progress based on feedback and data and that have a well-developed but flexible plan for school improvement. If comprehensively carried out, the reports provided by NCEEE would be able to assist the schools in developing and implementing such "improvement plans." With further refinement of the whole school evaluation instrument, combined with NCEEE achievement testing, the NCEEE will have the best indicators of school performance. Such performance reports should be published widely, and top schools should be rewarded. A successful example of this can be found in Chile (see box 1).

Box 1. The Chilean Experience

In 1996 the Chilean Ministry of Education introduced the National System to Evaluate School Performance (SNED) which provides merit awards to basic and secondary school establishments. The award funds are used strictly for teacher bonuses. Through competition, this system avoids many of the problems associated with merit pay for individual teachers and provides incentives to improve the quality of education.

Schools are categorized into homogenous groups (urban basic, rural secondary, etc.) taking into account the socioeconomic levels of the communities in which they are located so that competition between the schools is more equitable. Awards are based on a school's performance as measured by an index of six factors, each factor being made up of one or more indicators, such as absolute levels of student learning and other education outcomes. Awards are fully competitive, and schools may win repeatedly. Bonuses are distributed equally to the teachers of a winning school.

A system of merit awards to schools involves lower information and transaction costs than merit pay to individual teachers. Seniority is no longer a factor for salary increases/bonuses, and schools are held accountable for their performance. Schools are evaluated and awards distributed every other year. Teachers, directors, and teachers' unions express reasonable satisfaction with the system.

The MOE monitors and readjusts the system, mainly the composition of factors. The system was evaluated through questionnaires, in-depth interviews and focus groups of teachers and directors of various schools. Some suggestions for minor modifications, such as more communication directly to teachers about the system, have been incorporated. Although it is still too early to see major improvements in teacher performance and student learning, indications of positive impact, especially on the attitudes of teachers and directors, seem to indicate that the system is worth the effort.

For more information see *Implementing School-based Merit Awards: Chile's Experience*, Robert W. McMeekin, The Education Reform and Management Publication Series, Vol. III, No. 1, June 2000.

171. The regular supervision of, feedback from, and support to teachers is accomplished better at the school level through the newly decreed "Teacher Training Unit" rather than through the inspectorate system, which uses a traditional method to measure teacher performance. Teacher support should be more appropriately provided by the headmasters and senior teachers who are currently performing teaching duties and trained for this task. Some of the well-performing inspectors can be brought into the new Teacher Training Unit at the school level if there are shortages. The removal of the inspectorate system will not require additional expenditures and, in fact, will result in reduced expenditures as inspection staff are moved to other assignments.

Establish a Learning Innovations Fund

172. One concrete measure to engender innovation and unleash energy at the school is to establish a Learning Innovations Fund also at the school level. All funding would remain at the school level, and the Fund itself would be transparently managed by the Parent-Teacher Association, of which the school principal is a member. A good start could be made by transferring the school fee already charged to serve as seed money for this Fund. Currently, schools charge LE19.8 for kindergarten, a range of LE21.3 to LE43.8 for primary, LE55.7 for preparatory, and LE70.25 for secondary education. Only 28 per cent of the revenues from these fees remains at the school level. If schools were allowed to keep the fees collected, the typical primary school could annually generate about LE8,690, a typical preparatory school about LE26,850, and a typical secondary school about LE47,560. In addition, the Government should allocate funds directly to each school's Learning Innovation Fund. The cost of implementing this policy is estimated at LE865 million, assuming a three percent per annum increase over five years. The Fund could be used to purchase instructional materials, reward high-performing teachers, and provide routine maintenance of the buildings and facilities, thereby helping to improve the learning environment. Decisions concerning use of the Fund should be made at the school level.

Further Develop Teacher Capacity in New Curriculum, Methodology, and Technology Use

173. Teacher training programs for new and existing teachers should be continued to ensure improved teacher quality. Training of trainers should be targeted to senior teachers at the school-based Teacher Training Unit, as well as teachers themselves, rather than through the cascade method in which progressive loss of quality is a danger. The ability to teach in interactive styles needs substantial strengthening through training and ongoing, systematic classroom support. Expertise from NGOs and international consultants can be utilized to plan and implement training activities and lessen the reliance on university professors for the creation of content and delivery methods—as they tend to over-emphasize the lecture-style format. At least 25 percent of all teachers should also receive training in the use of technology in the classroom, including computers.

174. These continuous training programs are expected to costs LE178 million over the next 5 years under the assumption that 25 percent of the teachers receive some kind of training. To ensure the cost effectiveness, teacher training programs should be carefully monitored and evaluated in terms of their effects on teaching practices.

Introduce New Technology in Each School

175. Given the emerging economic context, there is a need to introduce technology, especially computer technology, in the school system. Findings such as those presented in box 2 show that computers and the use of the internet can boost student learning.

Box 2. Impact of Technology and the Internet on Student Learning and Skills

Since 1997 World Links, an NGO, has been working in developing countries to connect schools to the Internet, provide extensive teacher professional development in the use of technology and the Internet to improve teaching and learning, and evaluate the impact. Working with SRI International, a consulting firm, as external evaluators, World Links has carried out quantitative (teacher surveys) and qualitative (country case studies) evaluations in twelve countries in Latin America and Africa and conducted a student assessment in Uganda (which involved students taking a two-hour exam).

The results, while by no means definitive, are nonetheless extremely encouraging. For example, 45 percent of teachers surveyed indicated the World Links program had greatly improved students' scores on national tests and their performance on tests of academic subjects. Sixty five percent said the program had greatly improved student attendance and attitudes towards school. Seventy percent stated the program had greatly improved students' communication skills and ability to reason with information. Not surprisingly, 80 percent of teachers said the program had greatly improved students' technological skills. Perhaps most importantly, 60 percent of teachers said the program had a great impact on students' ability to get a job upon graduation, while 80 percent of students surveyed stated their ability to find employment after school had improved greatly.

Student assessment of the impact of technology and the Internet focused on three critical "knowledge-economy" skills: students' information reasoning skills, communication skills, and technological skills. On average, World Links students scored 27 percent higher than "control group" students who also had access to technology (but no training). For instance, 85 percent of World Links students were able to adequately find and categorize relevant information versus less than 60 percent of control group students.

Finally, with respect to the program's impact on teachers, more than 80 percent of teachers indicated that technology and the Internet had greatly improved their attitudes about teaching, and more than 75 percent indicated World Links had greatly improved their knowledge of their subject matter. Obviously, teacher enthusiasm and mastery of subject matter are key factors in improving student outcomes.

176. The MOE is in the process of addressing the problem of telephone line access in schools. Installation of a first phone line to all schools should be completed, followed by installation of a second line dedicated to teaching purposes. Considerations are underway to install one computer for each

classroom by 2010 and an additional computer for each library for research purposes. All secondary schools should be provided with an additional computer lab (with 15 to 20 computers).

177. Furthermore, improved CD-ROM resources need to be developed at international quality standards. Interactive teaching strategies need to be integrated into curriculum resources (such as teachers' guides) to ensure that these strategies become recognized as viable alternatives to direct instruction. Reference should be made to international models for exemplary curriculum resources in the areas of software and video. While developing in-country material, good use should be made of other materials to improve the quality of software and video.

178. Currently, every school is equipped with at least one computer. If the Government were to equip each classroom with a computer at basic and secondary levels and to provide teacher-training to ensure their productive use, it would cost LE83 million over the next five years .

Improve the Quality, Relevance and Efficiency of Higher Education through a Competitive Fund

179. Incentives to encourage efficiency, quality, and performance are absent in the higher education system. Deep and sustainable changes will be brought about most effectively if they are generated and supported by the key players—administrators, department heads, and instructors. Establishment of a Competitive Fund would encourage institutions to introduce "self-owned" initiatives by preparing proposals that would be evaluated through a transparent and fair system of peer review. It is recommended that the Fund have three windows: (a) an academic window, which will encourage program and course innovations to improve teaching and learning in academic departments; (b) an entrepreneurial window, which will support collaboration between universities and Technical Colleges and between each of these institutions in the private sector; and (c) a management window, which will support projects intended to enhance management and administration in the higher education sector. A successful pilot of the Competitive Fund has already been introduced to the Faculties of Engineering under a previous World Bank-supported Engineering and Technical Education Project. This pilot can be generalized to both the universities and middle and higher technical institutes. The estimated cost of this Competitive Fund (referred to as the Higher Education Enhancement Fund) is LE85 million over five years.

VI.III POLICIES TO ADDRESS THE CHALLENGE OF STRENGTHENING MANAGEMENT

180. Two challenges to improve management were identified—decentralize decisionmaking and improve quality and use of information. As shown in table 14, three policies are recommended to address these challenges for basic and secondary schools: (a) devolve decisionmaking to the school, with participation of key stakeholders; (b) raise the visibility of management information policy; and (c) institute the regular assessment of student achievement and teaching practices. At the post-secondary level, university managers should have the autonomy to allocate resources across faculties and programs.

Table 14. Policies to Improve Management

Challenge/Sub-Sector	*Basic-Secondary*	*Post-Secondary*
Decentralization and Autonomy	Devolve decisionmaking to school level Strengthen teacher and community role in governance	Devolve resource allocation to institutional level
Informed Decisionmaking	Stimulate use of information in decisionmaking Improve information on practices and outcomes	

181. International research and experience suggest that active participation and shared decisionmaking is much more likely to foster genuine ownership of reform programs. It is also likely to increase the possibility that solutions to local problems can be found at the local level. Furthermore, experience shows that such decision-making authority vested at the school level engenders innovation and creative solutions that address issues of access, equity, and quality.

182. Some reforms aimed at decentralizing management and involving local stakeholders have been initiated, but substantial work remains to be done. For meaningful reform to take place, it is important to solicit the full participation of MOE local offices, the various implementing agencies, and the local community. The current, rather rigid central planning process requires those at the regional and local levels to follow a strict framework, thereby doing little to encourage creativity and innovation.

183. Mechanisms are needed to build confidence in teachers, parents, and school administrators so that their ideas and solutions will be valued. This will require (a) awareness-raising and capacity-building at the local level to assume new responsibilities; and (b) devolution of responsibilities to the regional and local levels in specific domains. Decentralization should be phased in and monitored. For example, many decisions regarding school schedules, teacher supervision and support, and performance-related incentives could be handled by the schools and could improve the quality of teaching and learning. The awareness campaigns piloted under the EEP can be expanded to include this element. The cost implication would be minimal as shown by the cost-effectiveness of the current awareness campaigns.

Coordinate Data Collection and Improve Data Use

184. The MOE has made some progress in better management of education information through computerization. Further work is needed to ensure that educational data collected by various government agencies are streamlined and coordinated to avoid duplicated efforts, inconsistencies, or incompatibilities. This coordination should include the coverage of data contents, definition of data elements and derived indicators, timing of data collection, and data quality control procedures. In determining the definition of data elements and derived indicators, international convention or standards should be used.

185. Since data are expensive to collect, their use should be encouraged. The quality of a database is enhanced as more people use the data, largely because of the increased scrutiny. Evidence suggests that data collected by the Computer Information System Department (CISD) are neither widely used nor fully analyzed. Thus, it is recommended that: (a) CISD and program staff in the MOE (program directors, secretary generals, and governorate officials) work to generate statistics to explore and address policy issues; (b) user-friendly raw data files be made available for program staff, university researchers, and other professional organizations to conduct research or secondary analyses; (c) hands-on training be provided to staff to conduct high-level statistical analyses to address research and policy questions; and (d) all schools and district managers be trained in the use of education statistics for decisionmaking.

186. The Government has started the Education Management Information System (EMIS) project under EEP. The cost is estimated to be LE3.7 million for the next five years.

Assess Teaching Practices, Curricular Contents, and Student Learning Outcomes

187. Data to monitor the changes in educational practices in classes, curricular content, and student learning are essential for assessing progress or impact of any educational reform interventions. Thus, a comprehensive educational assessment on teaching and learning in basic skills is recommended for selected grade levels, such as the 5th, 8th, and 11th year of education in a sample of governorates. The assessment of educational practices should be combined with student learning assessments so that the teacher and student data can be analyzed together to determine the relationship of teaching practices to

student learning. The student learning assessment should be based on a set of learning or curriculum standards that are compatible with international standards. Such assessments should provide the Government, governorates, and schools with valuable information for improving their performance.

188. Assessments should be extended to private tutoring as well. As long as the *perception* exists that private tutoring has a benefit, it will be difficult to change this practice among parents and some teachers. The Government should support rigorous empirical research of the impact of private tutoring on achievement and disseminate the findings widely to the public. Parents should become wise consumers of private tutoring and choose to pay based on accurate information as well as scientific evidence.

VI.IV POLICIES TO ADDRESS THE CHALLENGE OF RAISING EFFICIENCY

189. Two challenges have been identified to raise resource efficiency: halt and reverse the growing outlays on wages and salaries and rationalize higher education finance and expenditures. Three recommendations are: (a) redeploy excess teachers and administrators or freeze new recruitment until reasonable student:teacher and teacher:administrator ratios are attained; (b) make higher education finance transparent and formula-driven; and (c) diversify funding of higher education and encourage expansion of private institutions.

Table 15. Policies to Increase Efficiency

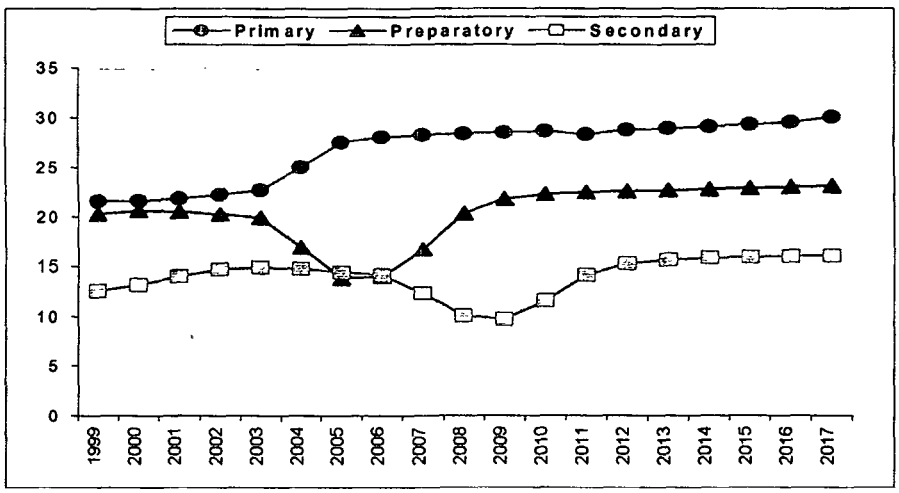
Challenge/Sub-Sector	*Basic-Secondary*
Reduce Personnel Budget	Align the number of teachers and administrative staff according to international norms.
Challenge/Sub-Sector	*Post-Secondary*
Rationalize Resource Allocation	Introduce transparent, formula-driven budgeting. Diversify financing.

Align the Number of Teachers and Non-Teaching Staff According to International Norms

190. The student:teacher and teacher:administrator ratios are already very low in Egypt and should be gradually increased to international norms. One way is to redeploy personnel within the system and at the same time freeze the hiring of new staff.

191. *In basic and secondary education, the need for teachers varies greatly among levels of education.* If the Government stops hiring new teachers, student:teacher ratios will increase gradually at the primary education level. On the other hand, as shown in figure 23, student:teacher ratios will drop sharply in preparatory and secondary education over the next decade due to the decrease in number of students resulting from the one-year addition to primary education. Hence, the Government should transfer teachers from the preparatory level to the primary level.

Figure 23. Student:Teacher Ratio, No Teachers Hired



192. By 2010 the number of additional teachers needed in primary education will be 21,000. This is in addition to the 61,500 additional teachers needed in preprimary education. At the same time, there will be 31,000 excess teachers in preparatory school and 65,000 in secondary school if the Government successfully increases the student:teacher ratio. Rather than hiring new preprimary and primary teachers, a large share of the need can be covered by transferring teachers within the system. The Government needs to develop a detailed plan to identify the need for future teachers and potential transfers from the preparatory and secondary levels to the primary education level.

193. There are multiple scenarios that the Government could carry out to improve efficiency of the system. Two hypothetical situations are considered here. In a *first scenario*, if the Government were to successfully increase the student:teacher ratio to 27:1 (primary), 26:1(preparatory), and 16:1 (secondary) by 2010 and increase the teacher:administrator ratio to 2:1 at all levels of education, there would be substantial savings. As shown in Annex 2, the savings generated over the next five years as a result of personnel reduction would be more than LE3.5 billion for basic and secondary education and LE2.9 billion for higher education.

194. *A second scenario* is to reduce excess personnel by freezing the hiring of new staff and to subsequently take positive actions in 2005 to further reduce ratios of students to teachers and teachers to administrators. Countries such as Algeria have already taken initiatives to freeze the hiring of teachers. In the case of Egypt, student:teacher ratios can be increased from 20:1 to 22:1 for the total pre-university education level by 2010—if the Government does not hire new teachers and can mobilize the existing pool of teachers. As shown in Annex 2, a policy of an immediate hiring freeze followed by reductions in staffing ratios would yield savings of LE488 million in basic and secondary education and LE322 million in higher education over the next five years.

Rationalize Funding of Higher Education and Introduce Quality Assurance Mechanisms

195. Higher education institutions should be authorized to manage personnel and budget. The level of funding for each higher education institution would be determined according to a formula based on student enrollment, disciplines offered, and other agreed criteria that applies to all institutions. Once agreed upon, each institution would be provided funding in the form of a block grant and would have the authority to re-allocate it according to needs. This would help improve the balance between market

needs, student demand, and faculty input. Furthermore, individual institutions would have greater incentives to introduce efficiency as well as innovation. In exchange for greatly increased autonomy, the higher education institution would be subject to periodic external evaluation by a National Quality Assurance Council against objective performance criteria benchmarked according to international standards. In order to reverse the drastic decline in per-student expenditure, diversified funding sources should be sought to achieve the per-student expenditure level of the early 1990s. This would cost LE3.6 billion over the next five years.

VI.V SUMMARY OF PROPOSED POLICIES AND THEIR FINANCIAL IMPLICATIONS

196. As shown in table 16, the policies and programs discussed above would cost about LE6.7 billion, or 1.8% of GDP, over the next five years and LE24.1 billion over the next fifteen years. It is unlikely these improvements could be financed through additions to the public budget, given the current level of public (and private) education spending in Egypt. Even including financing in hand for the EEP, SEEP, and HEEP, there is a financing gap of LE2.3 billion, or US$511 million, over the next five years. However, these costs could be financed in part by increasing the student:teacher and teacher:administrator ratios, by increasing cost-recovery in higher education, and by reducing the number of students in more costly vocational schools. Table 16 shows the financial consequences of two alternative scenarios for realizing efficiency gains to finance the additional costs of raising quality, improving management, and increasing equity.

Table 16. Potential Efficiency Gains of Additional Spending (LE Million)

Additional Spending	*2002-2007*	*2002-2017*
Implementation of new policies and programs.	**6,724**	**24,132**
Potential Efficiency Gains		
Increase private sector share in higher education	852	3,338
Convert percent students in academic track	273	790
Increase cost-recovery in higher education	1,129	2,799
Scenario # 1: Increase student:teacher and teacher:administrator ratios.	6,769	25,268
Scenario # 2: Hiring freeze followed by reductions in staffing ratios beginning 2005.	809	18,018
Total savings, Scenario # 1	9023	32,195
Total savings, Scenario # 2	3063	24,945
Financing Gap, Scenario # 2	**3661**	**(813)**
Financing of EEP, SEEP, HEEP	**1350**	**1350**
Remaining Financing Gap, Scenario # 2	**2311**	**(2163)**

Note: Scenario # 1 assumes an immediate reduction in personnel to bring about reduced staffing ratios. Scenario # 2 assumes that no new personnel will be hired between 2002 and 2005 and further reductions in personnel would be made in 2005 to bring staffing ratios down to target levels.
Source: Annex 1, 2.

197. Table 16 generates three conclusions. First, it is feasible to completely finance required new policies and actions to raise quality, improve management, and increase equity through aggressive actions to realize efficiency gains in personnel redeployment by increasing cost-recovery as well as increasing the private sector market share in education. Second, if for political reasons the Government must follow a more measured set of efficiency-enhancing actions, there is a significant medium-term financing gap, although that gap disappears and is reversed in the longer-term. Third, a failure by the Government to undertake significant actions to realize efficiency gains, especially to align staffing ratios to international norms, makes it unlikely that the measures proposed here for raising quality, improving management, and increasing equity could be financed and implemented. Financing these measures out of current

government revenues would require increasing government education spending from 5.4 to 7.2 percent of GDP. To ease the burden of this increased spending, the Government will have to form partnerships with international donor agencies and organizations, the private sector, and civil society. Under any scenario the Government will need to set priorities both in terms of policies and actions to improve education quality and to increase efficiency gains.

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ANNEX 1: ESTIMATED NPV COSTS OF IMPLEMENTING POLICY RECOMMENDATIONS (LE MILLION)

POLICIES TO RAISE QUALITY

Basic-Secondary	*2002-2007*	*2002-2017*
○ Create learning innovation fund	865	3,600
○ Inservice teacher training	178	343
○ Expand use of computers in schools	83	638
○ Teacher training in technology	179	340
○ Convert vocational technical to general secondary	273	273
Higher		
○ Introduce competitive fund	85	138
○ Increase recurrent resources per pupil	1,116	4,396
○ Capital investment—rehabilitate facilities	2,445	9,631
○ Reorient curriculum to market needs	20	39

POLICIES TO IMPROVE MANAGEMENT

Basic-Secondary-Higher	*2002-2007*	*2002-2017*
○ Improve information system (EMIS)	4	na
○ Training for local decisionmaking	2	na
○ Improve higher education management capacity	30	49

POLICIES TO IMPROVE EQUITY

Kindergarten	*2002-2007*	*2002-2017*
○ Expand access to ECE	1,302	4,685

POLICIES TO IMPROVE MANAGEMENT

Basic-Secondary	*2002-2007*	*2002-2017*
○ Educate illiterate parents	1	na
○ Scholarships for poor children	141	na
TOTAL	**6,724**	**24,132**

ANNEX 2: FINANCING THE REFORM

Scenario #1: Increase in Student: Teacher and Teacher:Administrator Ratios

1. Access & Equity		**Current Value**		**Target Value**		**5 Years**	**10 Years**	**15 Years**
Higher	1.4 Increase private sector enrollment while reducing full subsidy students to 20%	Full subsidy students: 22% of cohorts		20% in five years		852.17	2,203.69	3,337.97
2. Quality								
Basic & Secondary	2.4 Increase student:teacher ratios by 2010	Primary	21.59	Primary	27	(67.15)	(977.17)	(1,534.52)
		Preparatory	20.31	Preparatory	26	1,292.90	2,839.48	3,497.22
		Secondary	12.56	Secondary	16	(524.06)	1,094.60	1,309.27
	2.12 Convert vocational students to general secondary schools	Share of General	38.11%		50%	273.48	540.39	790.40
3. Efficiency								
Basic & Secondary	3.3 Increase number of teachers per administrator	Primary	1.23	Primary	2	1,524.63	4,083.18	6,550.36
		Preparatory	1.08	Preparatory	2	1,071.25	2,623.00	4,311.51
		Secondary	1.64	Secondary	2	514.30	1,148.59	1,962.32
Higher	3.9 Establish/implement fee structures at the HE level		LE 40	LE 150: 5% increase/year, 3% decrease over time		0.00	1,346.14	00.00
	3.12 Increase teacher:administrator ratio		0.52	2 by 2010		2,957.41	6,235.30	9,171.53
Basic & Secondary						3,811.86		16,096.16
Higher						3,809.59		12,509.50
Total Savings						**7,894.93**		**29,396.07**
Percent of GDP						**2.33%**		**8.67%**
Gap	Basic & Secondary					**3,812.00**		**16,096.00**
	Higher					**3,810.00**		**12,510.00**
	TOTAL					**7,621.00**		**28,606.00**

ANNEX 3: FINANCING THE REFORM

Scenario #2: Stop Hiring Immediately, Start Deployment in 2005, Achieving Target in 2015

1. Access & Equity		**Current Value**		**Target Value**	**5 Years**	**10 Years**	**15 Years**
Higher	1.4 Increase private sector enrollment while reducing full subsidy students to 20%	Full subsidy students. 22% of cohorts		20% by 2010	852.17	2,203.69	3,337.97
2. Quality							
Basic & Secondary	2.4 Increase student:teacher ratios by 2010	Primary	21.59	Stop hiring immediately Start deployment in 2005	(278.94)	(1,576.47)	(2,325.81)
		Preparatory	20.31		436.96	2,195.49	3,506.66
		Secondary	12.56		62.44	2,290.41	2,484.92
	2.12 Convert vocational students to general secondary schools	Share of General	38.11%	50%	273.48	540.39	790.40
3. Efficiency							
Basic & Secondary	3.3 Increase number of teachers per administrator	Primary	1.23	Stop hiring immediately Start deployment in 2005	(43 81)	574.87	2,027.88
		Preparatory	1.08		276.95	1,569.38	3,191.30
		Secondary	1.64		34.54	950.14	1,403.55
Higher	3.9 Establish/implement fee structures at the HE level		LE 40	LE 150%: 5% increase/year, 3% decrease over time	1,129.19	2,030.66	2,799.04
	3.12 Increase teacher:administrator ratio		0.52	Stop hiring immediately Start deployment in 2005	321.25	3,737.35	7,729.13
Basic & Secondary					761.62		11,078.89
Higher					2,302.62		13,866.14
Total Savings					3,064.23		**24,945.04**
% of GDP					**0.90%**		**7.36%**
Gap	Basic & Secondary				**762**		**11,079**
	Higher				**2,303**		**13,866**
	TOTAL				**3,064**		**24,945**