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EDUCATIONAL FINANCE IN JORDAN: FINAL REPORT

by

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Executive Summary

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Enrollment Outlook

Enrollment in schools can be expected to grow - especially at the basic level. Over the ten year period, assuming projected population growth for this age group, enrollments will increase about 18 percent. Given increasing levels of participation, this increase could be substantially more.

Likely, the MOE will find that its share of the overall student enrollments will decline slowly over time although current trends are unstable enough to make these trend projections very tentative. Should current trends continue, private schools will serve nearly one third of all students by the end of the ten year period. MOE enrollment will decline slightly to just under two thirds.

Financial Outlook

Revenues have been declining since 1988. The rate of decline of the MOE Recurrent budget since 1988 has been 4.6 percent annually. Based on the decline rates from 1990 to 1992, the MOE can expect an overall decline in revenues of about 9.5 percent over the next ten years.

Given projected increases in student population for the MOE, budgetary needs will expand.[1] By 2002, the MOE will have increased operating expenses of approximately 30 percent over those of 1992.[2] The reform is the most expensive item adding nearly 14 percent to the cost of educating a student by the end of the reform.

There are several ways in which this picture can be improved. They fall into two main categories: spend less; generate more income. In the context of the overall finance study, two of the most obvious possibilities were explored: efficiency gains couched in the most general meaning of efficiency; and cost-recovery in the form of increased student contributions. Each of these has the potential for improving the MOE financial outlook.

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1 The following discussion is limited entirely to the "Current" budget (often generically referred to as "recurrent." See technical notes of "Current vs. Capital Budget" for an explanation of this treatment.

2 Inflation has been normalized for the balance of this discussion. See "Inflation" note in appendix for an explanation of this treatment.

Efficiency

A brief overview of elements of efficiency were undertaken as part of the overall financial study. Generally, the areas looked at involved areas which typically can be improved through efficiency: classroom size and, teacher workloads. An additional area was added due to its previous identification as a problem area: fragmentation of schools.[3]

Give modest assumptions and a medium-range estimate of possible savings, an estimated 15 million JD could be added to the budget by 2005. This represents a 15 percent increase in budgetary resources due soley to efficiency gains.

Cost Recovery

A study was made of the potential for increasing the contributions (referred to here as fees) made by students . Several types of fee structures were explored. All structures explored included a provision of no fees for very poor students. Briefly, the five structures were: (1) maintain current fee structures; (2) structures differentiated by family income levels; (3) structures differentiated by schools; (4) structures differentiated by levels; and (5) structures differentiated by location. A sixth fee structure is derived by averaging the four simulated structures.

Estimated revenues are highest for the fee structure based on location. Overall, by 2002, nearly five million dinars could be collected through this fee structure (expressed in 1992 JD). This represents a 44 percent increase over current revenues.

Shortfalls

Table I shows an estimated budget based on the above scenarios:

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3 See Ahlawat, Kapur (November, 1991) *Analysis of School Size and Grade Structure in the Public Schools of Jordan: Policy Implications*. Amman: National Center for Educatonal Research and Development.

TABLE I

MOE Budget Estimates Given Projected and Estimated Changes

(Adjusted for inflation - 1992 JD)

	Estimated Budget at Current Rate of Decline	Estimated Budget Without Fees	Average Possible Fee Revenues	Savings due to Efficiency	Estimated Budget with fees & efficiencies	Change over 1992 Budget
1992	105 969 473	103 090 000	2 879 473	0	105 969 473	2.79%
1993	104 727 150	101 874 845	2 852 305	0	104 727 150	1.59%
1994	103 572 107	100 746 714	4 484 747	0	105 231 461	2.08%
1995	102 485 895	99 687 159	4 442 433	1 422 585	105 552 177	2.39%
1996	101 454 310	98 681 981	4 400 518	4 070 439	107 152 938	3.94%
1997	100 466 419	97 720 247	4 358 999	6 879 975	108 959 221	5.69%
1998	99 513 798	96 793 536	4 317 871	8 266 926	109 378 334	6.10%
1999	98 589 956	95 895 360	4 277 132	9 622 261	109 794 754	6.50%
2000	97 689 889	95 020 717	4 236 777	10 193 368	109 450 862	6.17%
2001	96 809 734	94 165 745	4 196 803	10 764 474	109 127 022	5.86%
2002	95 946 506	93 327 464	4 157 206	12 903 027	110 387 696	7.08%

Economic Contexts and Policy Options

Combining estimated revenue changes with projected budget needs yields the picture presented in Table II. The table shows that an additional 28.6 million dinars will be needed by 2002 (in constant dinars). This represents a 26 percent increase from the 1992 budget. This also assumes that time frames for changes are reasonable.

TABLE II

MOE Shortfall Given Enrollment, Revenue and Cost Changes
(adjusted for inflation - 1992 JD)

	Estimated Budget with fees & efficiencies	Estimated Costs given demand & reform changes	Anticipated Shortfall	Percentage Increase Needed
1992	105 969 473	105 969 473	0	0.00%
1993	104 727 150	110 113 446	5 386 297	5.14%
1994	105 231 461	114 419 471	9 188 011	8.73%
1995	105 552 177	118 893 885	13 341 708	12.64%
1996	107 152 938	123 543 272	16 390 334	15.30%
1997	108 959 221	128 374 475	19 415 254	17.82%
1998	109 378 334	130 436 722	21 058 389	19.25%
1999	109 794 754	132 532 098	22 737 344	20.71%
2000	109 450 862	134 661 134	25 210 273	23.03%
2001	109 127 022	136 824 373	27 697 351	25.38%
2002	110 387 696	139 022 361	28 634 665	25.94%

The shortfall can translate directly into deterioration of student quality.

TABLE IV

MOE Per Student Expenditure Impact of Budget Shortfalls
(Adjusted for inflation - 1992 JD)

	Estimated Budget with fees & efficiencies	Estimated Needs given reform & existing quality	Projected prim & sec enrollments	Est p/stud expend. needed	Est p/stud expend. anticipated	Percent Quality Deterioration
1992	105 969 473	105 969 473	874 837	121	121	0.00%
1993	104 727 150	110 113 446	886 737	124	118	-4.89%
1994	105 231 461	114 419 471	895 529	128	118	-8.03%
1995	105 552 177	118 893 885	902 013	132	117	-11.22%
1996	107 152 938	123 543 272	906 934	136	118	-13.27%
1997	108 959 221	128 374 475	907 725	141	120	-15.12%
1998	109 378 334	130 436 722	906 093	144	121	-16.14%
1999	109 794 754	132 532 098	900 437	147	122	-17.16%
2000	109 450 862	134 661 134	890 834	151	123	-18.72%
2001	109 127 022	136 824 373	877 420	156	124	-20.24%
2002	110 387 696	139 022 361	862 598	161	128	-20.60%

The above scenario incorporates prospective cost recovery and efficiency gains and would be much bleaker were such changes either not instituted or did not have an intended impact. The table below shows the impact on student quality given anticipated budget deterioration and no gains from cost recovery or efficiency.

TABLE IV

MOE Per Student Expenditure Impact of Recurrent Budget Shortfalls (prices adjusted for inflation - 1992 JD)
(No efficiency or cost recovery gains)

	Estimated Budget	Estimated Needs given reform & existing quality	Projected prim & sec enrollments	Est p/stud expend. needed	Est p/stud expend. anticipated	Percent Quality Deterioration
1992	105 969 473	105 969 473	874 837	121	121	0.00%
1993	104 727 150	110 113 446	886 737	124	118	-4.89%
1994	103 572 107	114 419 471	895 529	128	116	-9.48%
1995	102 485 895	118 893 885	902 013	132	114	-13.80%
1996	101 454 310	123 543 272	906 934	136	112	-17.88%
1997	100 466 419	128 374 475	907 725	141	111	-21.74%
1998	99 513 798	130 436 722	906 093	144	110	-23.71%
1999	98 589 956	132 532 098	900 437	147	109	-25.61%
2000	97 689 889	134 661 134	890 834	151	110	-27.46%
2001	96 809 734	136 824 373	877 420	156	110	-29.25%
2002	95 946 506	139 022 361	862 598	161	111	-30.98%

A number of possibilities can be explored to help meet this gap in funding. Below I discuss some possibilities.

Additional Revenues

Government Contributions

One possibility to help meet the shortage, is to maintain or even increase HKJ support of education. If HKJ national budget support remains at current levels (in terms of constant Dinars), shortfalls will be about 16 percent by 2002. Alternatively, one might hope to recoup the support lost in recent years. Since 1989, the real dinar value of HKJ current support for the budget has deteriorated 10 percent. Were this to be recouped gradually over the ten year period, expected shortfalls would be reduced to seven percent after ten years. Gradually restoring the MOE budget to 12.6 percent of the National Budget (1989 levels), will mean a possible reduction of shortfall to 4.5 percent.

Cost Shifts

A large part of the annual education expenditures of the government go toward higher education. With such a large amount of expenditures going toward higher education, one

possible option would be to shift some resources toward basic education. Were shifts to be contemplated from tertiary to MOE basic and secondary, the shifts would likely be small in relative terms. If three percent of the tertiary expenditures were shifted to the MOE, overall shortages would be reduced to 20 percent in the ten year period. A shift of five percent would reduce overall shortages to just over 16 percent.

Additional Efficiency

Integrating Higher Education

Since higher education represents a substantial amount of government expenditures and expenditures occur under many authorities, taking a look at the critical .role higher education plays, its efficiency of delivery toward this goal and how component parts complement each other is probably worthwhile.

Administrative/Process Efficiency

As with all educational activities, administration should, ideally, be viewed as a process rather than a product. The primary question, then, is how does one make the process of administration more efficient. As a percent of the recurrent budget, administration has not changed much from 1982 levels - but it should have. The gradual shifts to private schooling along with forces which emphasize differentiated fees for schooling are indicative of a system that will become less homogeneous. Central administrative costs ought to show a gradual decline irrespective of changing enrollments. That they have not might be an indication of inefficiency.

Decentralizing

There is some evidence that locally controlled systems are less bureaucratic, more responsive to changes and require less administrative personnel. If either of these conditions prevail, decentralizing some or all of the administrative/policy functions of the MOE would increase efficiency. The same amount of money would go further.

Recommendations

1. The most obvious recommendation is that action must be taken before the impending fiscal crisis of the MOE gets any worse.

2. Serious thought ought to be given toward implementing the suggested cost recovery and efficiency changes recommended in this series of financial reports.

3. Attempts ought to start now to find funds for financing policy-change activities which will require a capital investment.

4. A study should be conducted targeting the efficiency of administrative operations in the MOE.

5. School mapping needs to take place with specific questions to be addressed - especially with regard to school fragmentation:

6. Serious thought ought to be given to an institutional "home" for cataloguing and charting such educational expenditures (and, possibly, other statistics).

7. A study ought to be conducted on the delivery of higher education.

Introduction

As the world economy moves toward a global market and world trade flourishes, countries find that their well-being and economic growth potential lies increasingly with their success at integrating themselves into a global market. Further, growth increasingly depends upon the value humans give to products and services. This "value added" and "service" oriented economic growth derives from the quality of human input - education, experience, creativity, and analytic skills. Both the globalization (or regionalization) and value added trends point to one resource in particular - human capital. Education is gradually becoming the primary source of economic growth and social well-being.

Whereas the global economy plays an increasing dominant role in setting the economic parameters whereby the family of nations must compete, the key to economic growth and stability for any given country or region is a careful analysis of local contexts, needs, strengths and possibilities. Jordan can play an increasingly key role within the Middle East region as a provider of "services." Services such as banking, engineering, software and information source development, management and applied research will all need to take place on a regional basis and Jordan can play a key role. Jordan's growing population of educated peoples and political stability make it a prime possibility for the center of such services.

Jordan's economy already is moving towards a service emphasis. Fully 26.2 percent of GNP now comes from exports - up from 17.9 percent in 1988. This "production" comes increasingly from services. Nearly 80 percent of Jordan GDP derives from "services" as opposed to more tradition production. In real terms, the growth of services production has outpaced the growth of total GDP by four percent in the last four years. But an economy where services play a key role is an economy where education is the raw material. Aggregate education levels, distribution of education, and availability of specialized professionals will be critical.

Twenty years ago, Jordan launched a program to create a resource - human capital. Since that time, education has expanded rapidly. Today's young population is nearly all in school. Illiteracy rates for twenty year olds is two percent. For their parents (aged 40-44) a quarter are illiterate and nearly half never went beyond grade six. Today, adults aged 20 -24 have nearly all completed grade six.

Table 1 shows completion rates for various groups. Clearly, school completion levels have grown dramatically over the last 40 years.

TABLE 1

Educational Completion Levels: 1991

Age Group	Illiterate	Percent Completing at Least			
		Grade 6	Grade 9	Grade 12	B.A.
15-19	2.09%	92.82%	67.77%	14.27%	0.00%
20-24	3.26%	91.79%	78.18%	50.03%	4.45%
25-29	5.42%	87.29%	73.88%	49.62%	11.57%
30-34	9.91%	78.70%	61.14%	41.78%	12.87%
35-39	17.05%	67.49%	49.05%	32.61%	10.80%
40-44	25.63%	56.40%	41.24%	28.02%	11.60%
45-49	34.39%	45.22%	31.25%	20.44%	8.39%
50-54	45.74%	32.97%	23.57%	15.00%	6.33%
55-59	52.98%	21.80%	12.23%	7.23%	2.57%
60+	65.71%	11.90%	6.48%	4.01%	1.42%
Total	**16.78%**	**72.03%**	**56.00%**	**30.68%**	**5.99%**

Source: 1991 Household Survey: Dept. of Statistics

With 95 percent of all six to eleven year olds in school today, Jordan must turn its attention away from Basic education expansion (although challenges still exist here) to maintaining a quality and availability of service. With population growth rates of nearly three percent, just keeping pace with educational demand will represent a challenge.

A web of education and training institutions exist to meet these needs. Table 2 summarizes these institutions:

A critical problem of the education sector in Jordan will be adapting to trends largely outside its control. Jordan has a high population growth rate and, necessarily, as population grows, so too must educational expenditures. Further, apparent increases in the educational budget can be neutralized by concomitant changes in inflation. An apparent increase can easily turn into a shortfall.

TABLE 2

Education and Training Institutions; 1992/93

Administering Authority	Institution***
Ministry of Education	- Kindergarten (1). - Basic and Secondary schools (2605). - Community Colleges (2).
Ministry of Higher Education	- Community Colleges (14). - Scholarships (domestic and abroad)
Ministry of Health	- Institute of Specialized Nursing Studies. - Nussayba Al-Maziniya Nursing and Midwifery College. - Rufayda Al- Aslamiya Nursing and Midwifery College. - Medical Professions Institute. - Continuous Medical Education.
Ministry of Awqaf & Islamic Affairs	- Islamic Science College. - Kulliyat Al-Dawah W Osool Al-Din (University). - Secondary Schools (4).
Ministry of Defense	- Military College of Islamic Sciences. - Military Technical College. - Basic & Secondary Schools (14). - Shareef Naser Ben Jamil College.
Ministry of Social Development	- Community College of Social Work. - Special Education (Deaf, Blind, Handicapped) Various Academic Programs from Grade 1 - 10. - Vocational Education (Handicapped). - Women Education (Local Community Training).
Ministry of Planning	- Statistical Training Center.
Ministry of Communications	- Telecommunication College.
Various Ministries	- Gov't Financed Scholarships (Students Studying Abroad).
University Administrations	- Public Tertiary Institutions (4*).
Vocational Training Corporation	- Vocational Training Centers (25).
Central Bank	- Banking studies Institute.
Geographic Center	- Geographic Center College.
Royal Scientific Society	- Princess Sumayya College for Informatics. - Princess Sumayya University College of Technology.**
Civil Aviation Authority	- Queen Noor Civil Aviation Technical College.
Noor Al-Hussein Foundation	- Various Adult & Training Programs.
The Queen Alia Jordan Social Welfare Fund	- Various Training & Adult Education Programs; Kindergarten.
UNRWA	- Basic Schools (201). - Wadi Al-Sier College. - Amman Training College.
UNESCO	- Training.
Private Sector	- Kindergartens (541). - Basic & Secondary Schools (329). - Community Colleges (21). - Universities (5)**

* Two additional gov't universities are under construction.

** Princess Sumayya Univ. College, while administered by the Royal Scientific Society, is often categorized as a "private" university. Funding is entirely through private sources (predominantely tuition)

Participation (General Education)

Fully 86 percent of all 6 to 16 year olds attend school in Jordan. School enrollment rates reach their highest levels at age eight where an estimated 97.4 percent of all eight year old children in the country are in attendance. Enrollment rates fall-off to 62.1 percent by age 16. Table 3 shows school enrollment rates by age for all kindergarten, basic and secondary schools in the country.

TABLE 3

Enrollment Ratios by Age: 1990

(Kindergarten, Basic & Secondary Only)

Age	Population Estimate**	Student Enrollment*	Enrollment Ratio
3	100 546	5 035	5.01%
4	99 715	20 396	20.5%
5	99 306	47 959	48.3%
6	99 220	92 401	93.1%
7	99 357	95 676	96.3%
8	99 617	96 989	97.4%
9	99 900	96 141	96.2%
10	100 236	94 459	94.2%
11	100 651	91 395	90.8%
12	100 407	87 705	87.4%
13	99 148	80 731	81.4%
14	97 158	73 763	75.9%
15	95 068	65 341	68.7%
16	92 742	57 562	62.1%
17	90 265	43 418	48.1%
18	87 740	17 564	20.0%
19	65 084	5 717	8.8%

* Source: MOE 1990/91 Statistical Yearbook

** Source: Derived From Dept. of Statistics Statistical Yearbook 1990; p. 25

The vast majority of students enrolled in basic and secondary schools are in schools. Fully three quarters (76 percent) of all students attend public basic and secondary schools. Of these, the majority are run and financed by the Ministry of Education. The picture is different for kindergartens where less than two percent of enrollees are in public schools. At the secondary level, 94 percent of all students are enrolled in government schools. Table 4 shows student enrollments for each of the four categories of administering authorities.

TABLE 4

Student Enrollments by Administering Authority; 1992/93

	Ministry of Education	Other Government	Private	UNRWA	Total
Kindergarten	60	259	54 436	0	**54 755**
Basic	765 443	5 421	99 709	172 034	**1 042 607**
Academic Secondary	80 132	704	6 644	0	**87 480**
Vocational Secondary	22 359	6 163	136[4]	563	**29 222**
Total	**867 994**	**13 740**	**160 925**	**152 521**	**1 214 064**

Source: MOE Unpublished 1992/93 preliminary statistics

Expenditures

Approximately 11.4 percent of GDP for the country is devoted to education of some sort (not including UNRWA and charity expenditures). Of the estimated total amount committed, approximately 74 percent derives from government funds, 26.4 percent from private individuals or families. Table 5 shows expenditures as a percentage of GDP and GNP for the most recent year.

TABLE 5

Public and Private Educational Expenditures as Percent of GNP (market prices) and GDP(producers prices); 1992

	Public	Private	Other	Total
% of GDP	7.9%	2.7%	.8%	11.4%
% of GNP	8.2%	2.8%	.8%	11.8%

Source: Derived from Central Bank Monthly Bulletin and various educational authorities

The percentage of public expenditures devoted to education is high in Jordan. In recent years, educational expenditures have amounted to 18 percent of the government budget. Table 6 shows these numbers.[5]

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4 No private vocational secondary schools were reported in this preliminary data. Possibly secondary schools are classified as "academic" even when a small number of students pursue vocational subjects.

5 See technical notes for an overview of how estimates were made.

TABLE 6

Public Educational Expenditures as Percent of Total Government Expenditures

	% of Total Gov't Expenditures
1982	13%
1988	16%
1989	18%
1990	18%
1991	19%
1992	18%

Source: Derived from budgets of various government authorities

In addition to government and private funds, approximately 25.7 million JD was spent on education from other sources - primarily UNRWA. Table 7 shows the sources of these funds and gives an estimate of total expenditures.[3]

TABLE 7

Educational Expenditures 1992 (current JD)

	Public	Private	Other Sources	Total
Charitable Foundations			369 436	369 436
Gov't Financed Scholarships	12 816 500			12 816 500
Ministry of Education	149 052 001	2 879 473		151 931 474
Ministry of Higher Education	2 493 000			2 493 000
MOHE Community Colleges	2 334 975	2 049 025		4 384 000
Private Basic & Sec Schools		46 456 686		46 456 686
Private Tertiary Institutions*		6 000 000		6 000 000
Private Kindergartens		6 942 720		6 942 720
Public Universities	80 729 800	23 450 000		104 179 800
Other Govt' Institutions	8 865 802	331 769		9 197 571
UNESCO			33 051	33 051
UNRWA		64 821	25 280 179	25 345 000
Vocational Training Corporation	3 314 350	168 020		3 482 370
Totals	**259 606 428**	**88 342 514**	**25 682 666**	**373 631 608**

* Estimated based on projected enrollents and fees. 1991/92 = 5 687 421 JD.

Source: Various authorities: See Technical Notes

The dinars recorded above are probably an underestimates. Figures were not available for Ministry of Defense expenditures (as well as enrollments) on tertiary education.[6] Nevertheless, approximately 69 percent of all educational expenditures derive from government sources while 24 percent derive from private sources including parental contributions for public schooling. Charitable organizations and UN organizations account for seven percent of total educational expenditures.

Public expenditures as a percent of public and private expenditures have declined in recent years. Table 8 shows that, in 1982 private expenditures accounted for less that a fifth of all expenditures while in 1992, eleven years later, private expenditures were slightly more than a quarter of the public/private combined expenditures.

TABLE 8
Distribution of Public and Private Educational Expenditures

	% Public	% Private	% Other
1982	75.0%	16.3%	8.7%
1988	71.7%	22.0%	6.3%
1989	70.0%	23.0%	7.0%
1990	70.1%	22.5%	7.4%
1991	69.5%	22.9%	7.6%
1992	69.4%	23.7%	6.9%

Source: Derived from various educational authorities

Aside from Ministry of Defense expenditures, an estimated 17.8 percent of all government expenditures are devoted to education. Basic education garners 49.5 percent of these expenditures. Table 9 shows expenditures by level.

6 Also, many institutions probably under-reported expenditures. Overhead and administrative costs may have been included in the larger department and ministry budgets and not fully attributed to the time, energy and resources required to run the educational institutions under their control.

TABLE 9

Government Expenditures by Education Levels; 1992[7]

	Expenditures	% of Total Education Expenditures
Basic	128 333 535 JD	49.5%
Secondary	26 278 207 JD	10.1%
Tertiary	102 045 294 JD	39.3%
Other	29 449 392 JD	1.1%
Total	**259 606 428 JD**	

* Division of basic and secondary is estimated

UNRWA educates 14.6 percent of all basic students and represents 12.8 percent of all expenditures for this level of education[8]. Secondary education is funded by the MOE, and the Vocational Training Corporation (VTC) primarily, although the Ministry of Defense, Ministry of Awqaf & Islamic Affairs, Ministry of Social Development and Queen Noor Foundation also provide some education at this level. A variety of institutions sponsor tertiary level education and professional training. Four public universities receive some of their support through direct government grants or through diversion of specific tax revenues. Several other types of institutes and centers also offer courses at this level. Combined, 39.3 percent of total government expenditures on education go to the tertiary level.

Per student expenditures vary widely across administering authorities. Table 10 shows that non-MOE and non-MOHE government authorities spend considerably more per student than does the MOE or MOHE. At the Basic and Secondary levels, the Ministry of Defense spends more than twice as much per student although included in their costs are costs of food and some boarding (not provided at MOE schools). Tertiary level institutes run by various government authorities tend to be well financed with expenditures running nearly as high as the public universities on a per student basis.

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7 None of the administering authorities reported separate basic and academic secondary expenses (except where only basic or secondary were administered). Thus, formulas were used to separate total costs into the various categories. For each administering authority, a different strategy was used in order to take advantage of the many details provided. Generally, various types of expenditures were apportioned using student and teacher distributions weighted by relative costs derived from other existing information. The detailed calculations are documented at NCERD and can be provided upon request.

8 It should be noted, however, that expenditures for UNRWA have been figured from figures provided by UNRWA and do not reflect administrative costs at the international headquarters. Administrative costs at his level would add another 3-5 percent.

TABLE 10

Per Student Expenditures; 1992

	MOE/MOHE	Other Govt[9]	UNRWA	Private
Kindergarten	n/a	n/a	n/a	128
Basic	168	475	162	396
Secondary	224	471	n/a	1024
Community College	337	976	585	317
University	n/a	1963	n/a	n/a

Source: Various administering authorities

9 The Ministry of Defense runs some basic and secondary schools. These are high expenditure schools because they provide food for the students and some of the schools are boarding schools. Since this is not true for the Ministry of Education or UNRWA schools, the per student expenditures are not directly comparable.

Enrollments

Enrollments continue to rise at MOE schools. With population growth rates of nearly three percent, Jordan can expect that enrollments for all levels of education will continue to increase. In the ten year period from 1982/83 to 1991/92, enrollments rose nearly 35 percent - an annual increase of approximately 2.8 percent. The Gulf Crisis of 1990/91 caused a substantial rise in enrollments occurring in the 1990/91 and 1991/92 schools years.[10] Enrollments for 1990/91 and 1991/92 rose 5.5 percent and 7.7 percent respectively.

In the school year 1992/93, enrollments have grown much more modestly - about 1.3 percent. Given continuing relatively high birth rates, this increase is small and may indicate either some movement of families out of the country and reflects some drift into private schools.[11]

TABLE 11
MOE Enrollments

	1982/83	1988/89	1989/90	1990/91	1991/92	1992/93
Kindergarten	48	n/a	n/a	33	52	60
Academic 1-12	570 901	707 559	735 329	776 879	835 869	845 575
Hotel College	313	211	256	314	340	419
Agricultural	308	400	442	602	721	893
Other Voc.	16 415	20 288	18 694	18 466	19 943	21 047
Adult	9 047	10 475	8 866	9 667	11 288	11 501
Total	**597 032**	**738 933**	**763 587**	**805 961**	**868 213**	**879 495**

Source: MOE Statistical Yearbooks and Circulars

10 Enrollments are taken at the beginning of the school year in September. It is likely that not all returnees had registered in school at the time the 1990/91 statistics were taken.

11 Private school enrollments for 1992/93 were not available at the time of this publication. Total 1992/93 MOE enrollments include an *estimate* of adult education enrollments as no actual numbers were available for 1992/93. Estimates are based on growth rates from previous years.

Expenditures[12]

The government expenditures devoted to the Ministry of Education have grown about three percent over the ten year period from 7.2 percent to 10.2 percent. As a percentage of government expenditures exclusive of government debt, increases have been slightly higher. Table 12 shows these percents for 1982 and 1988-1992.

TABLE 12
Percent of Government Expenditures to MOE

Year	Percent of Total Government Budget	Percent of Government Budget Minus Debt Service
1982	7.22	7.36
1988	8.27	9.14
1989	9.55	10.59
1990	10.00	10.81
1991	10.31	11.56
1992	10.15	11.50

Source: Government Budgets, 1982; 1988-1992

As a percent of current government expenditures, MOE current expenditures have remained fairly constant - about 11 percent. The percentage of total government capital expenditures devoted to education, though, have seen a fairly steady rise from about 2.5 percent to 13.6 percent of total capital expenditures. Table 13 shows these trends.

TABLE 13
Share of Government Current and Capital Expenditures to MOE
(prices adjusted for inflation)

	% of Current	% of Capital
1982	11.2%	2.5%
1988	12.5%	3.2%
1989	11.9%	6.9%
1990	10.9%	10.3%
1991	11.2%	12.9%
1992	10.8%	13.6%

Source: MOE Budget Dept. and National Budget Laws

12 Unless otherwise stated, the following refers to the HKJ National Budget allocation to MOE. Expenditures derived from the education tax are discussed separately.

MOE expenditures have risen slowly over the years both in current and real terms. Average annual growth rates of total expenditures has been three percent in real terms. Current expenditures have risen only marginally - about one percent per year while capital expenditures have risen at an annual rate of about 11 percent. Table 15 shows current and capital expenditures for the six years surveyed.

TABLE 15
MOE Capital and Current Expenditures

	Current	Capital	Total
Current JD			
1982	47 039 000	8 168 000	55 207 000
1988	77 902 000	11 000 000	88 902 000
1989	82 000 000	16 884 000	98 884 000
1990	92 942 000	25 316 000	118 258 000
1991	98 000 000	30 248 000	128 248 000
1992	101 600 000	44 707 000	146 307 000

Source: MOE Budget Dept.

Education Tax

In addition to the HKJ national budget allotment the MOE receives revenue from an education property tax. In 1992, this amounted to 1.4 percent of all MOE expenditures. Table 16 shows education tax expenditures for the past five years.

TABLE 16
Education Tax Expenditures

	Current	Capital	Total
1989	3 587 000	3 000 000	6 587 000
1990	2 247 000	2 150 000	4 397 000
1991	1 252 000	1 515 000	2 767 000
1992	1 490 000	1 255 000	2 745 000
1993	1 431 000	1 006 000	2 787 000*

* Includes 350 000 Loan installment payment

Recurrent expenditures have grown, overall, about one percent per year in the last ten years (in real terms). Not all categories have grown steadily. Adult education is about a third the size (in terms of expenditures) as ten years ago. Most vocational education categories have shrunk. In-service training shrank substantially during most years, but recovered in 1991/92 for an average yearly gain of five percent. Current expenditures of

curriculum and texts have also grown. Table 17 shows gains and losses in major expenditures categories:

TABLE 17
MOE Average Annual Changes in Major Spending Categories (prices adjusted for inflation)

	Average Annual Change
Administration	+0.74%
General Education	+1.22%
Hotel College	-8.26%
Vocational Education	-0.75%
Agricultural Education	-7.22%
Adult Education	-11.47%
Social and Sports Activities	-6.51%
In-Service Training	+5.17%
General Exam	-0.75%
Curriculum and Text Books	+4.36%
Overall Average	+0.96%

Source: MOE Expenditure Report

Capital expenditures have grown about 11 percent per year with the largest increase occurring from 1991 to 1992 budgets - an increase of 42 percent.

Percent of MOE expenditures going to various levels of education have stayed fairly stable over the years. In 1989, basic education was redefined to include 10th grade resulting in a shift of expenditures from secondary into basic. Other than this shift, expenditure spreads have remained fairly constant with some movement from vocational secondary into academic secondary.

TABLE 18
MOE Expenditures to Levels Across Years (in percents) (Inclusive of Education Tax) (prices adjusted for inflation)

	Basic	Academic Secondary	Vocational Secondary	Other
1982	73.5	18.5	6.9	1.1
1988	75.6	19.8	3.9	.6
1989	84.2	11.6	3.7	.5
1990	84.6	11.9	3.1	.4
1991	84.5	12.3	2.7	.5
1992	84.5	12.4	2.7	.4

Source: Derived from MOE Expenditures Tables

Per student expenditures have declined steadily in recent years from JD 128 per basic education student in 1982/83 (expressed in 190 JD) to JD 101 in 1992/93. Expenditures have declined most rapidly in the Secondary Vocational fields although General Education (covering Basic and academic Secondary) have also declined. Table 19 shows per student expenditures for 1982/83 and 1988/89-1992/93 in real terms (1990 JD) for various types of educational programs.

TABLE 19
Per Student Expenditures (Inclusive of Education Tax)[13] (prices adjusted for inflation - 1990 JD)

	1982/83	1988/89	1989/90	1990/91	1991/92	1992/93
Recurrent Expend.						
Basic Education	128	145	126	114	102	101
Acad. Sec. Education	186	211	185	167	150	148
Vocational Education	181	169	137	136	106	104
Avg. Recurrent	140	156	132	120	107	106
Avg. Capital	24	22	31	35	34	47

Source: Derived from MOE expediters data

Overall, recurrent per student expenditures have declined 24 percent over the ten year period while capital expenditures have increased by 96 percent.

13 Administrative costs have been distributed over the various programs in proportion to the weight of total expenditures each program represents. All other costs have been explicitly delineated in the MOE budget and were taken as given.

The Outlook

Enrollments

Enrollment in schools can be expected to grow - especially at the basic level. Over the ten year period, assuming projected population growth for this age group, enrollments will increase about 18 percent. Given increasing levels of participation, this increase could be substantially more as Table 20 shows.

Overall enrollment increases at the secondary level due to population changes will be nearly nil. However, it is likely that participation rates will increase somewhat over the next ten years and will thereby increase total enrollments.

TABLE 20

Estimated Enrollments Based on Population Growth Estimates

(All Authorities)

Basic Education

Year	Increases Due to Population Growth	Increase over 1992	If 12-16 attends at 80%	Increase over 1992	If 12-16 attends at 90%	Increase over 1992
1992	1 022 709	0%	1 022 709		1 022 709	
1993	1 039 379	2%	1 041 363	2%	1 057 940	3%
1994	1 056 321	3%	1 060 357	4%	1 094 385	7%
1995	1 073 539	5%	1 079 697	6%	1 132 085	11%
1996	1 091 038	7%	1 099 390	7%	1 171 085	15%
1997	1 108 822	8%	1 119 443	9%	1 211 427	18%
1998	1 126 895	10%	1 139 861	11%	1 253 159	23%
1999	1 145 264	12%	1 160 651	13%	1 296 329	27%
2000	1 163 932	14%	1 181 821	16%	1 340 987	31%
2001	1 182 904	16%	1 203 377	18%	1 387 182	36%
2002	1 202 185	18%	1 225 326	20%	1 434 969	40%

Secondary Education

Year	Increases Due to Population Growth	Increase over 1992	If 17 & 18 attend at 40%	Increase over 1992	If 17 & 18 attend at 50%	Increase over 1992
1992	117 716	0.00%	117 716	0%	117 716	0%
1993	117 669	-0.04%	118 991	1%	120 591	2%
1994	117 622	-0.08%	120 279	2%	123 536	5%
1995	117 575	-0.12%	121 582	3%	126 553	8%
1996	117 528	-0.16%	122 899	4%	129 644	10%
1997	117 481	-0.20%	124 230	6%	132 810	13%
1998	117 434	-0.24%	125 575	7%	136 054	16%
1999	117 387	-0.28%	126 935	8%	139 377	18%
2000	117 340	-0.32%	128 310	9%	142 781	21%
2001	117 293	-0.36%	129 699	10%	146 268	24%
2002	117 246	-0.40%	131 104	11%	149 840	27%

Basic Education

Enrollment rates for children aged six to eleven are already high - 94.7 percent. Thus, most of the growth in enrollments for that age group will come from growth in population. For the five to 14 year old age group, growth in population is expected to

be about 1.6 percent.[14] For secondary school aged children, little change is expected over the next ten years.

The growth in potential basic school students, however, will not be evenly spread over authorities. While MOE enrollment rates increased slightly over the period affected by the Gulf Crisis, from 1989/90 until 1992/93, share of the student enrollments declined for basic school students. Likely, the MOE will find that its share of overall student enrollments will decline slowly over time although current trends are unstable enough to make these trend projections very tentative.

Private school enrollments , however, have steadily increased from 1988 through 1992 and will likely to continue. While projections reflected in Table 21 are linear, it is just as likely that the movement to private schools will slow a bit - leveling-off over time. UNRWA and schools under other government authority will likely see a decline as seen in recent years. UNRWA students are gradually being absorbed in either MOE or private schools. Of course, the unknown factor in these projections is the effect political events may have on enrollments - particularly UNRWA. At this writing, such changes are not clear and, even should major changes be proposed, it is likely that movements will be slow. Thus, current trends are projected along steady growth/decline assumptions. Should current trends continue, private schools will serve nearly one third of all students by the end of the ten year period. MOE enrollment will decline slightly to just under two thirds.

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14 Derived from Ministry of Planning figures.

TABLE 21

Projected Basic Enrollments by Authority (in percents)

	Percentage of total basic enrollments			
	MOE	Other govt	Private	UNRWA
1988	73.56	0.54	5.51	20.40
1989	75.08	0.52	7.50	16.90
1990	76.59	0.51	7.70	15.20
1991	76.82	0.48	8.90	13.80
1992	74.91	0.49	9.75	14.89
1993	74.63	0.48	11.21	13.72
1994	74.05	0.47	12.84	12.59
1995	73.25	0.46	14.66	11.52
1996	72.32	0.44	16.71	10.52
1997	71.03	0.43	18.94	9.56
1998	69.56	0.41	21.41	8.66
1999	67.77	0.39	24.08	7.81
2000	65.69	0.37	26.93	7.00
2001	63.34	0.35	29.98	6.24
2002	60.95	0.33	33.30	5.56

As Table 22 shows, even with declining share of students, MOE enrollments will decline only slightly. This is due, of course, to increased overall student populations and some movement of students from UNRWA to MOE schools. Overall, MOE basic schools will see approximately a 0.3 percent decline in enrollments annually. Private schools, if current trends continue, will experience a 15 percent increase in enrollments per year. UNRWA basic school enrollments will decline at the rate of approximately eight percent per annum while basic schools sponsored by other government authorities will decline two percent per year.

TABLE 22

Projected Basic Enrollments by Authority

	Estimate	MOE	Other Gov't	Private	UNRWA
1992	1,022,709	766,082	5,040	99,714	152,281
1993	1,041,363	777,127	5,018	116,752	142,892
1994	1,060,357	785,167	4,975	136,153	133,544
1995	1,079,697	790,895	4,918	158,298	124,430
1996	1,099,390	795,054	4,851	183,673	115,704
1997	1,119,443	795,191	4,762	212,038	107,045
1998	1,139,861	792,901	4,659	244,035	98,732
1999	1,160,651	786,583	4,536	279,428	90,600
2000	1,181,821	776,314	4,393	318,313	82,712
2001	1,203,377	762,230	4,233	360,741	75,121
2002	1,225,326	746,851	4,071	407,976	68,085

Secondary Enrollments

The trends in secondary schools will pattern those of primary schools although the intensity of changes is less dramatic The secondary education enrollments estimates were applied to estimated total enrollments The enrollment estimates used assumed a modest, gradual increase in participation rates (from 75.4 % to 80% for 12 to 16 year olds).[15] MOE secondary schools have lost some students to private schools over the period and this trend is likely to continue Overall, the MOE may loose about four percent of the secondary school enrollments over the projected period while private schools are likely to gain an approximately equal amount Once again, these projections are based on steady growth/decline rates. Table 23 details these projections.

15 Total estimated here vary slightly from those in Table 20 due to rounding errors of several imbedded formulas.

TABLE 23

Projected Secondary Enrollments by Authority (in percents)

Percentage of total basic enrollments			
	MOE	Other govt	Private
1988	93.48	1.61	4.91
1989	91.50	2.92	5.58
1990	91.59	2.85	5.56
1991	92.49	1.26	6.24
1992	92.39	1.50	6.11
1993	92.12	1.47	6.46
1994	91.75	1.45	6.81
1995	91.39	1.42	7.19
1996	91.03	1.40	7.58
1997	90.59	1.37	7.99
1998	90.14	1.34	8.43
1999	89.69	1.32	8.88
2000	89.25	1.29	9.36
2001	88.81	1.27	9.87
2002	88.29	1.24	10.39

Overall secondary school attendees will increase 11.3 percent over the period [16] Population-driven growth is nil - actually slightly negative. The increase comes from an assumed growth in participation rates. Sixty-three percent of students aged 12 to 18 now attend school. The projection assumes that this increases modest and gradually over the ten year period to seventy percent.

Projections show a small increase of students for the MOE - less than one percent growth per year. Private school enrollment continues its growth going from 7 194 students to 13 627 students over the projected time frame - a growth of about 6.5 percent annually. Other government secondary enrollments degree slightly less than one percent per year show a modest decline over the period.

16 Once again, figures vary slightly from those in Table 20 due to rounding errors in multiple imbedded calculations.

TABLE 24

Projected Secondary Enrollments by Authority

	Estimated	MOE	Other Gov't	Private
1992	117 716	108,755	1,767	7,194
1993	119 046	109,610	1,755	7,681
1994	120 296	110,361	1,742	8,193
1995	121 585	111,118	1,728	8,738
1996	122 915	111,880	1,715	9,320
1997	124 165	112,534	1,700	9,931
1998	125 459	113,192	1,685	10,582
1999	126 800	113,854	1,671	11,275
2000	128 190	114,520	1,656	12,014
2001	129 633	115,190	1,642	12,802
2002	131 000	115,747	1,626	13,627

MOE Recurrent Costs

Given projected increases in student population for the MOE, budgetary needs will expand.[17] By 2002, the MOE will have increased operating expenses of approximately 30 percent over those of 1992.[18] Table 25 shows how this figure was derived. Several assumptions underlie these projections - many of which are discussed in previous sections of this report.

The table is cumulative from left to right. Thus, effects are additive and the final labeled "plus cost of reform" column shows total effects. Population growth for the entire student population currently served is approximately 1.47 annually. Participation rates are assumed to increase gradually over the ten year period for an annual growth rate of .3 percent. Children aged six to 11 are assumed to maintain their relatively high level of participation of 95 percent. Children aged 12 to 16 are assumed to increase participation from 75 percent to 80 percent. Children aged 17 to 18 are assumed to increase participation from 34 percent to 40 percent.

The MOE will likely see a net loss of enrollments over the period - most leaving for private schools. The loss is estimated using current decline rates

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17 The following discussion is limited entirely to the "Current" budget (often generically referred to as "recurrent." See technical notes of "Current vs. Capital Budget" for an explanation of this treatment.

18 Inflation has been normalized for the balance of this discussion. See "Inflation" note in "Technical Notes" for an explanation of this treatment.

and equals about 1.4 percent per annum for combined primary and secondary enrollments.

The reform is the most expensive item adding nearly 14 percent to the cost of educating a student by the end of the reform.

Percentage increases of total recurrent costs are relatively sharp. Most of the first several years will require a four percent annual increase. After full implementation of the reform, increase rates slow to approximately two percent per year. It is important to note that these increases are in addition to increases due to inflation (see "Inflation" note in appendix).

TABLE 25

Projected Costs of MOE Given Demand and Reform Changes

(prices adjusted for inflation - 1992 JD)

	Steady State Budget	Plus Normal Population Growth	Plus Increased Participation Rates	Minus Loss of Enrollments	Plus Cost of Reform	Increase over 1992
1992	105,969,473	105,969,473	105,969,473	105,969,473	105,969,473	0.00%
1993	105,969,473	107,525,822	107,823,603	107,671,799	110,113,446	3.91%
1994	105,969,473	109,105,028	109,710,175	109,401,472	114,419,471	7.97%
1995	105,969,473	110,707,428	111,629,755	111,158,931	118,893,885	12.20%
1996	105,969,473	112,333,362	113,582,922	112,944,623	123,543,272	16.58%
1997	105,969,473	113,983,175	115,570,263	114,759,000	128,374,475	21.14%
1998	105,969,473	115,657,219	117,592,377	116,602,524	130,436,722	23.09%
1999	105,969,473	117,355,850	119,649,871	118,475,663	132,532,098	25.07%
2000	105,969,473	119,079,427	121,743,365	120,378,893	134,661,134	27.08%
2001	105,969,473	120,828,319	123,873,488	122,312,697	136,824,373	29.12%
2002	105,969,473	122,602,896	126,040,881	124,277,565	139,022,361	31.19%

MOE Revenues

Budget

At present, the MOE schools receive recurrent revenue from three primary sources: the HKJ budget, the education tax, and student contributions. In 1992, 96.1 percent of all revenues derived from the HKJ budget, 2.7 percent from contributions and 1.2 percent were generated from the education tax.

As Table 26 shows, revenues have been declining since 1988. The table shows revenues in constant 1992 dinars for easy comparison. The MOE Recurrent budget reached its height (in constant terms) in 1988 with a 1992 JD vaue of 127.7 million JD. The rate of decline of the MOE Recurrent budget since 1988 has been 4.6 percent annually. Both the education tax revenues and the student contributions have faced similar levels of declines.

Due largely to increases in 1992, declines in the last three years have not been as sharp - about 1.3 percent for the MOE recurrent budget. Revenues from the education tax have fallen, about 23 percent annually. Student contribution have declined more slowly - about one percent per annum. These figures are rather dismal and one is tempted to assume a steady-state situation where the real value of revenues stays stable (if not increases). Given pressures on the HKJ budget to reduce government expenditures along with tandem pressures from a growing global economy to keep tax rates low in order to stay competitive in global and regional markets, it is likely that revenues will continue to decline.

TABLE 26

MOE Revenue Projections: MOE 1993-2002

(prices adjusted for inflation - 1992 JD)

Based on rate of decline of 1990-1992

	In 1992 Dinars			
	Student Contributions	Education Tax	MOE Rec Budget	Total
1988	4 027 009		127 688 992	
1989	3 215 626	4 675 432	112 822 853	120 713 911
1990	2 934 588	2 520 108	103 364 357	108 819 052
1991	2 932 666	1 298 922	101 335 634	105 567 222
1992	2 879 473	1 490 000	101 600 000	105 969 473
1993	2 852 305	1 145 697	100 729 148	104 727 150
1994	2 825 393	880 954	99 865 760	103 572 107
1995	2 798 735	677 387	99 009 772	102 485 895
1996	2 772 329	520 859	98 161 122	101 454 310
1997	2 746 172	400 501	97 319 745	100 466 419
1998	2 720 262	307 955	96 485 581	99 513 798
1999	2 694 596	236 794	95 658 566	98 589 956
2000	2 669 172	182 077	94 838 640	97 689 889
2001	2 643 988	140 003	94 025 742	96 809 734
2002	2 619 042	107 652	93 219 812	95 946 506

Based on rate of decline of 1988-1992

	In 1992 Dinars			
	Student Contributions	Education Tax	MOE Rec Budget	Total
	4 027 009		127 688 992	
	3 215 626	4 675 432	112 822 853	120 713 911
	2 934 588	2 520 108	103 364 357	108 819 052
	2 932 666	1 298 922	101 335 634	105 567 222
	2 879 473	1 490 000	101 600 000	105 969 473
	2 647 864	1 021 637	95 957 466	99 626 966
	2 434 884	700 498	90 628 300	93 763 681
	2 239 035	480 305	85 595 098	88 314 438
	2 058 939	329 327	80 841 424	83 229 690
	1 893 329	225 807	76 351 754	78 470 890
	1 741 039	154 827	72 111 425	74 007 292
	1 601 000	106 159	68 106 591	69 813 750
	1 472 224	72 789	64 324 172	65 869 185
	1 353 806	49 909	60 751 816	62 155 531
	1 244 913	34 221	57 377 857	58 656 991

Based on the more modest decline rates from 1990 to 1992, the MOE can expect an overall decline in revenues of about 9.5 percent over the next ten years.

There are several ways in which this picture can be improved. They fall into to main categories: spend less; generate more income. In the context of the overall finance study, two of the most obvious possibilities were explored: efficiency gains couched in the most general meaning of efficiency; and cost-recovery in the form of increased student contributions. Each of these has the potential for improving the MOE financial outlook.

Efficiency

A brief overview of elements of efficiency were undertaken as part of the overall financial study. Generally, the areas looked at involved areas which typically can be improved through efficiency: classroom size and, teacher workloads. An additional area was added due to its previous identification as a problem area: fragmentation of schools.[19] A brief overview of the findings of this study can be found in the attached appendix while the full report is available from the National Center for Education and Development.[20] Low, medium and high scenarios were estimated for possible cost savings in the above areas. The medium scenario estimated an overall savings of about 15 percent were all four categories improved. Not all savings would accrue immediately as some of the changes required will take some time to implement. Also, it should be noted, all scenarios would require an initial investment in capital in order to implement the changes. The following table shows how these savings might be distributed over time.

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19 See Ahlawat, Kapur (November. 1991) *Analysis of School Size and Grade Structure in the Public Schools of Jordan: Policy Implications.* Amman: National Center for Educatonal Research and Development.

20 "Efficiency Issues and Estimates: MOE Schools" (1993) by Lynn Ilon with Ramzi Abu Ghazaleh and Hisham Al-Daje'h. Amman: National Center for Education and Development.

TABLE 27

MOE Estimated Efficiency Cost Savings

1992-2005 (prices adjusted for inflation - 1992 JD)

	Savings in 1992 Dinars				
	Admin	Class Size	Fragmen-tation	Teacher Workloads	Total
1992	0	0	0	0	0
1993	0	0	0	0	0
1994	0	0	0	0	0
1995	0	72 937	0	1 349 648	1 422 585
1996	15 808	145 873	534 638	3 374 120	4 070 439
1997	47 424	364 683	1 069 276	5 398 592	6 879 975
1998	79 040	510 556	1 603 914	6 073 416	8 266 926
1999	79 040	656 429	2 138 553	6 748 240	9 622 261
2000	79 040	692 897	2 673 191	6 748 240	10 193 368
2001	79 040	729 365	3 207 829	6 748 240	10 764 474
2002	79 040	729 365	5 346 382	6 748 240	12 903 027
2003	79 040	729 365	6 110 150	6 748 240	13 666 795
2004	79 040	729 365	6 873 919	6 748 240	14 430 564
2005	79 040	729 365	7 637 688	6 748 240	15 194 333

The above are derived given the following estimated implementation times:

TABLE 28

Estimated Implementation Time frame

	Admin	Class Size	Fragmen-tation	Teacher Workloads
Year 1	Study	Study & Plan	Study	Study & Plan
Year 2	Plan	10% complete	Plan	20% complete
Year 3	20% complete	20% complete	10% complete	50% complete
Year 4	60% complete	50% complete	20% complete	80% complete
Year 5	100% complete	70% complete	30% complete	90% complete
Year 6	100% complete	90% complete	40% complete	100% complete
Year 7	100% complete	95% complete	50% complete	100% complete
Year 8	100% complete	100% complete	60% complete	100% complete
Year 9	100% complete	100% complete	70% complete	100% complete
Year 10	100% complete	100% complete	80% complete	100% complete
Year 11	100% complete	100% complete	90% complete	100% complete
Year 12	100% complete	100% complete	100% complete	100% complete

Cost Recovery

A study was made of the potential for increasing the contributions (referred to here as fees) made by students . Several types of fee structures were explored and are summarized in the appendix and detailed in the monograph "Cost Recovery in MOE Schools: Prospect and Trends."[21] All structures explored included a provision of no fees for very poor students. Briefly, the five structures were:

- **Maintain current fee structures**: Estimated in order to give a base line.
- **Structures differentiated by family income levels:** Based upon from one to four categories of fees based on income groupings.
- **Structures differentiated by schools:** Based upon a rating given to the school of low, medium or high fees.
- **Structures differentiated by levels:** Different fees were proposed for different grade levels (these different from existing fees)
- **Structures differentiated by location:** Fees differ between urban and rural schools.

Incorporating the estimated additional revenues into the new projected student enrollments, each structure provides an estimated revenue. A sixth fee structure has also been generated. This fee structure is derived by averaging the four simulated structures. This is given as a "best guess" scenario in lieu of a policy decision on a given new fee structure.

The estimated fee structures generate new estimates for the total MOE budget. These are given in Table 29. Estimated revenues are highest for the fee structure based on location.[22] Overall, by 2002, nearly five million dinars could be collected through this fee structure (expressed in 1992 JD). This represents a 44 percent increase over current revenues.

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21 Ilon, Lynn (1993) "Cost Recovery in MOE Schools: Prospects and Trends" (with Hisham Al-Daje'h and Ramzi Abu Ghazaleh). Amman: National Center for Educational Research and Development.

22 The tables incorporate anticipated changes in enrollments - unlike the steady-state case implicit in the research paper on cost recovery.

TABLE 29

MOE Revenues of Various Fee Structures

(Based on estimated enrollment changes) (prices adjusted for inflation - 1992 JD)

	If fee rate remain at current levels	If fee rate based on income	If fee rate based on schools	If fee rate based on levels	If fee rate based on Location	If average fee structure Increase
1992	2 879 473	4 232 825	4 692 389	3 519 349	5 484 705	4 570 5
1993	2 852 305	4 192 888	4 648 116	3 486 144	5 432 956	4 527 4
1994	2 825 393	4 153 328	4 604 261	3 453 252	5 381 696	4 484 7
1995	2 798 735	4 114 141	4 560 819	3 420 670	5 330 919	4 442 4
1996	2 772 329	4 075 324	4 517 788	3 388 396	5 280 622	4 400 5
1997	2 746 172	4 036 873	4 475 162	3 356 426	5 230 799	4 358 9
1998	2 720 262	3 998 785	4 432 939	3 324 758	5 181 446	4 317 8
1999	2 694 596	3 961 056	4 391 113	3 293 389	5 132 558	4 277 1
2000	2 669 172	3 923 683	4 349 683	3 262 316	5 084 132	4 236 7
2001	2 643 988	3 886 663	4 308 643	3 231 535	5 036 163	4 196 8
2002	2 619 042	3 849 992	4 267 991	3 201 046	4 988 647	4 157 2

TABLE 30

MOE Budget Totals Given Various Fee Structures

(Based on estimated enrollment changes)
(prices adjusted for inflation - 1992 JD)

	Budget with Current Fee Structure	Budget with Income Based Fee Structure	Budget with School Based Fee Structure	Budget with Level Based Fee Structure	Budget with Location Based Fee Structure	Budget with Mod. Fee in crease
1992	105 969 473	107 322 825	107 782 389	106 609 349	108 574 705	107 660 5
1993	104 727 150	106 067 733	106 522 961	105 360 989	107 307 801	106 402 3
1994	103 572 107	104 900 042	105 350 975	104 199 966	106 128 410	105 231 4
1995	102 485 895	103 801 301	104 247 979	103 107 830	105 018 079	104 129 5
1996	101 454 310	102 757 305	103 199 769	102 070 377	103 962 603	103 082 4
1997	100 466 419	101 757 120	102 195 409	101 076 673	102 951 046	102 079 2
1998	99 513 798	100 792 321	101 226 475	100 118 294	101 974 982	101 111 4
1999	98 589 956	99 856 416	100 286 474	99 188 749	101 027 919	100 172 4
2000	97 689 889	98 944 400	99 370 400	98 283 033	100 104 849	99 257 4
2001	96 809 734	98 052 408	98 474 389	97 397 281	99 201 909	98 362 5
2002	95 946 506	97 177 455	97 595 455	96 528 509	98 316 110	97 484 6

Table 30 shows the impact of these fee revenues on the overall current budget. Given no other changes, the budget would, of course still decline as indicated in Table 26. Budget totals, however would improve.[23]

Shortfalls

The information, scenarios and estimates provided above generate a number of possible scenarios. Nearly all data presented above are based on estimates of expected behavior. As much as possible, these estimates have been based upon projecting forward existing trends, or upon relatively conservative assumptions based upon what was known about the structure and trends in Jordan's economy and educational systems. The primary changes expected are modest changes in student enrollments, continuing declines in MOE revenues and possible gains to be made in efficiency. In combination, they form a composite picture of expected revenues and changes in per student expenditures. Table 31 shows an estimated budget based on the above scenarios:

TABLE 31
MOE Budget Estimates Given Projected and Estimated Changes
(Adjusted for inflation - 1992 JD)

	Estimated Budget at Current Rate of Decline	Estimated Budget Without Fees	Average Possible Fee Revenues	Savings due to Efficiency	Estimated Budget with fees & efficiencies	Change over 1992 Budget
1992	105 969 473	103 090 000	2 879 473	0	105 969 473	2.79%
1993	104 727 150	101 874 845	2 852 305	0	104 727 150	1.59%
1994	103 572 107	100 746 714	4 484 747	0	105 231 461	2.08%
1995	102 485 895	99 687 159	4 442 433	1 422 585	105 552 177	2.39%
1996	101 454 310	98 681 981	4 400 518	4 070 439	107 152 938	3.94%
1997	100 466 419	97 720 247	4 358 999	6 879 975	108 959 221	5.69%
1998	99 513 798	96 793 536	4 317 871	8 266 926	109 378 334	6.10%
1999	98 589 956	95 895 360	4 277 132	9 622 261	109 794 754	6.50%
2000	97 689 889	95 020 717	4 236 777	10 193 368	109 450 862	6.17%
2001	96 809 734	94 165 745	4 196 803	10 764 474	109 127 022	5.86%
2002	95 946 506	93 327 464	4 157 206	12 903 027	110 387 696	7.08%

Although the budget without efficiency and fee changes declines over time (as discussed above), the revenue generated by the efficiency changes estimated provide for an overall picture of increase. If the changes estimated were made, the overall budget would increase about seven percent over the ten year period, in real terms.

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23 The monograph detailing these options shows how these increases might be targeted toward increasing learning materials specifically.

Many government services have a large "fixed" budget and their expenditure needs do not rise as fast as population. Education, however, is highly sensitive to population increases. Not only do education expenditures rise with population - i.e. every new body needs an education - but they rise quickly.

Combining estimated revenue changes with projected budget needs yields the picture presented in Table 32. The table shows that an additional 28.6 million dinars will be needed by 2002 (in constant dinars). This represents a 26 percent increase from the 1992 budget. This also assumes that time frames for changes are reasonable.

TABLE 32
MOE Shortfall Given Enrollment, Revenue and Cost Changes
(Adjusted for inflation - 1992 JD)

	Estimated Budget with fees & efficiencies	Estimated Costs given demand & reform changes	Anticipated Shortfall	Percentage Increase Needed
1992	105 969 473	105 969 473	0	0.00%
1993	104 727 150	110 113 446	5 386 297	5.14%
1994	105 231 461	114 419 471	9 188 011	8.73%
1995	105 552 177	118 893 885	13 341 708	12.64%
1996	107 152 938	123 543 272	16 390 334	15.30%
1997	108 959 221	128 374 475	19 415 254	17.82%
1998	109 378 334	130 436 722	21 058 389	19.25%
1999	109 794 754	132 532 098	22 737 344	20.71%
2000	109 450 862	134 661 134	25 210 273	23.03%
2001	109 127 022	136 824 373	27 697 351	25.38%
2002	110 387 696	139 022 361	28 634 665	25.94%

The shortfall can translate directly into deterioration of student quality. Although some prospect exists for reaping additional efficiencies (discussed in later section), the MOE system is relatively efficient in the delivery of education and, aside from efficiencies mentioned above, other efficiency gains are likely to be small. Table 33 demonstrates the impact on per student expenditures given the above shortfall.

TABLE 33

MOE Per Student Expenditure Impact of Budget Shortfalls

(Adjusted for inflation - 1992 JD)

	Estimated Budget with fees & efficiencies	Estimated Needs given reform & existing quality	Projected prim & sec enrollments	Est p/stud expend. needed	Est p/stud expend. anticipated	Percent Quality Deterioration
1992	105 969 473	105 969 473	874 837	121	121	0.00%
1993	104 727 150	110 113 446	886 737	124	118	-4.89%
1994	105 231 461	114 419 471	895 529	128	118	-8.03%
1995	105 552 177	118 893 885	902 013	132	117	-11.22%
1996	107 152 938	123 543 272	906 934	136	118	-13.27%
1997	108 959 221	128 374 475	907 725	141	120	-15.12%
1998	109 378 334	130 436 722	906 093	144	121	-16.14%
1999	109 794 754	132 532 098	900 437	147	122	-17.16%
2000	109 450 862	134 661 134	890 834	151	123	-18.72%
2001	109 127 022	136 824 373	877 420	156	124	-20.24%
2002	110 387 696	139 022 361	862 598	161	128	-20.60%

Given possible efficiency and cost recovery gains, per student expenditures could rise during the ten year period - a net gain of seven percent. But, given the anticipated changes of the reform, gains would have to be in the magnitude of 31 percent in order to sustain the changes and anticipated quality. Table 34 shows these figures.

The above scenario incorporates prospective cost recovery and efficiency gains and would be much bleaker were such changes either not instituted or did not have the intended impact. The table below shows the impact on student quality given anticipated budget deterioration and no gains from cost recovery or efficiency.

TABLE 34

MOE Per Student Expenditure Impact of Recurrent Budget Shortfalls (prices adjusted for inflation - 1992 JD)
(No efficiency or cost recovery gains)

	Estimated Budget	Estimated Needs given reform & existing quality	Projected prim & sec enrollments	Est p/stud expend. needed	Est p/stud expend. anticipated	Percent Quality Deterioration
1992	105 969 473	105 969 473	874 837	121	121	0.00%
1993	104 727 150	110 113 446	886 737	124	118	-4.89%
1994	103 572 107	114 419 471	895 529	128	116	-9.48%
1995	102 485 895	118 893 885	902 013	132	114	-13.80%
1996	101 454 310	123 543 272	906 934	136	112	-17.88%
1997	100 466 419	128 374 475	907 725	141	111	-21.74%
1998	99 513 798	130 436 722	906 093	144	110	-23.71%
1999	98 589 956	132 532 098	900 437	147	109	-25.61%
2000	97 689 889	134 661 134	890 834	151	110	-27.46%
2001	96 809 734	136 824 373	877 420	156	110	-29.25%
2002	95 946 506	139 022 361	862 598	161	111	-30.98%

This is the picture were no efficiency nor cost recovery gains to be forthcoming. By the end of the ten year period, per student expenditures would have deceased by nearly 31 percent. Even existing expenditures, assuming the reform had no financial impact, would have deteriorated by nine percent Educational quality would deteriorate substantially.

A number of possibilities can be explored to help meet this gap in funding. Below I discuss some possibilities. This is, by no means, an exhaustive list but rather is intended to spur ideas and possibilities.

Additional Revenues

Government Contributions

The above scenarios assume a continuation of recent declines in real Dinar support of the Ministry of Education. One possibility to help meet the shortage, is to maintain or even increase HKJ support of education. The following table shows some of these scenarios.

TABLE 35

MOE Shortfalls Given Various Levels of HKJ Support (prices adjusted for inflation - 1992 JD)

	Scenario One			Scenario Two		
	Estimated Budget with no change of HKJ support	Costs given demand Anticipated Shortfall	Percentage Increase Needed in Rec. Budget	Estimated Budget returning to 1989 levels	Costs given demand Anticipated Shortfall	Percentage Increase Needed in Rec. Budget
1992	105 969 473	0	0.00%	105 969 473	0	0.00%
1993	105 942 305	4 171 141	3.94%	106 876 555	3 236 891	3.03%
1994	107 574 747	6 844 725	6.36%	109 451 713	4 967 758	4.54%
1995	108 955 017	9 938 868	9.12%	111 783 244	7 110 641	6.36%
1996	111 560 957	11 982 315	10.74%	115 349 065	8 194 207	7.10%
1997	114 328 974	14 045 501	12.29%	119 085 661	9 288 814	7.80%
1998	115 674 797	14 761 925	12.76%	121 408 842	9 027 880	7.44%
1999	116 989 393	15 542 705	13.29%	123 709 652	8 822 446	7.13%
2000	117 520 145	17 140 990	14.59%	125 235 556	9 425 579	7.53%
2001	118 051 277	18 773 096	15.90%	126 770 859	10 053 514	7.93%
2002	120 150 232	18 872 129	15.71%	129 883 085	9 139 276	7.04%

If HKJ national budget support remains at current levels (in terms of constant Dinars), shortfalls will be about 16 percent by 2002. Alternatively, one might hope to recoup the support lost in recent years. Since 1989, the real dinar value of HKJ current support for the budget has deteriorated 10 percent. Were this to be recouped gradually over the ten year period, expected shortfalls would be reduced to seven percent after ten years.

As a percent of the national current expenditures, the MOE has fared rather well over the years as shown in Table 36. The MOE's share of the budget has remained around 11 percent of the national budget. Still, there has been some deterioration and restoring this loss to 1989 levels would affect the MOE budget substantially.

TABLE 36

Percentage of HKJ National Budget Assigned to MOE

(prices adjusted for inflation)

	National Current Budget	MOE Current Budget from HKJ Budget	% Assigned to MOE Budget
1982	419,558,000	47,039,000	11.21%
1988	623,835,000	77,902,000	12.49%
1989	688,907,000	86,557,900	12.56%
1990	848,998,000	92,162,600	10.86%
1991	874,910,000	97,675,000	11.16%
1992	940,313,000	101,600,000	10.80%

TABLE 37

Impact of Increase Percentage of National Budget

(prices adjusted for inflation - 1992 JD)

	Estimated Current Budget at 1989 levels of Nat'l Budget	Costs given demand Anticipated Shortfall	Percentage Increase Needed
1992	105 969 473	0	0.00%
1993	107 163 709	2 949 737	2.75%
1994	110 032 026	4 387 445	3.99%
1995	112 662 815	6 231 070	5.53%
1996	116 534 089	7 009 183	6.01%
1997	120 582 431	7 792 044	6.46%
1998	123 223 749	7 212 973	5.85%
1999	125 849 189	6 682 909	5.31%
2000	127 706 315	6 954 820	5.45%
2001	129 579 536	7 244 836	5.59%
2002	133 036 482	5 985 879	4.50%

Gradually restoring the MOE budget to 12.56 of the National Budget (assuming the National Current Budget remains stable in real Dinar value), will mean a possible reduction of shortfall to 4.5 percent This assumes, again, that proposed efficiency and cost recovery strategies are implemented and reap anticipated revenue gains.

Cost Shifts

A large part of the annual education expenditures of the government go toward higher education. But, with such a large amount of expenditures going toward higher education, one possible option would be to shift some resources toward basic education.

Table 38 shows how resources are currently distributed within the system. Essentially, over a ten year period, distributions between basic/secondary and tertiary education have not changed although some shifting from secondary to basic has occurred.[24]

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24 Although it should be kept in mind that some of the shift occurred when grade 10 moved from "secondary" to "basic" education.

TABLE 38

Percent of MOE Budget to Levels (prices adjusted for inflation)

	Basic	Secondary	Tertiary
1982	42.73%	17.09%	40.18%
1988	40.90%	14.33%	44.77%
1989	49.58%	10.63%	39.79%
1990	49.74%	9.88%	40.39%
1991	49.36%	10.25%	40.38%
1992	50.00%	10.24%	39.76%

Were shifts to be contemplated from tertiary and MOE basic and secondary, the shifts would likely be small in relative terms. Table 39 shows the impact of two relatively modest shifts. The first scenario shows what would occur if three percent of the tertiary expenditures were shifted to the MOE. This shift would not solve the MOE budgetary problems, but it would reduce overall shortages to 20 percent in the ten year period. Scenario Two - a shift of five percent - would reduce overall shortages to just over 16 percent.

TABLE 39

Shortfalls Given Various Shifts of Funds from Tertiary to MOE

(prices adjusted for inflation - 1992 JD)

	Scenario One			Scenario Two		
	Estimated Budget with 3 % shift to MOE	Costs given demand Anticipated Shortfall	Percentage Increase Needed	Estimated Budget with 5% shift to MOE	Costs given demand Anticipated Shortfall	Percentage Increase Needed
1992	105 969 473	0	0.00%	105 969 473	0	0.00%
1993	104 727 150	5 386 297	5.14%	104 727 150	5 386 297	5.14%
1994	110 472 071	3 947 400	3.57%	113 965 812	453 660	0.40%
1995	110 808 759	8 085 126	7.30%	114 313 148	4 580 737	4.01%
1996	112 489 240	11 054 032	9.83%	116 046 775	7 496 497	6.46%
1997	114 385 477	13 988 998	12.23%	118 002 981	10 371 494	8.79%
1998	114 825 462	15 611 260	13.60%	118 456 880	11 979 842	10.11%
1999	115 262 620	17 269 478	14.98%	118 907 864	13 624 234	11.46%
2000	114 901 602	19 759 533	17.20%	118 535 428	16 125 706	13.60%
2001	114 561 635	22 262 738	19.43%	118 184 710	18 639 663	15.77%
2002	115 885 091	23 137 270	19.97%	119 550 021	19 472 340	16.29%

Shifts in spending from tertiary to MOE levels translate directly into additional funds at the basic and secondary levels. There is a small multiplier effect such that a five percent shift translates into nearly a seven percent increase for the MOE, for example.

Of course, such shifting should not be taken lightly. Shifts are only justified when total benefits are increased by shifting funds from one level to another. Obviously, shifting without careful planning and forethought can lead to a net social loss. Shifts should occur when efficiencies can be identified, moneys saved, and a decision is made that these moneys are best used in another level or sector. Equally, if benefits accruing through basic and secondary education are greater than those at tertiary levels, funds ought to be shifted. Clearly more students are served per dinar at basic and secondary levels than at tertiary but this is not necessarily tied to net benefits. Nevertheless, cost shifting is a powerful policy instrument that ought to be considered in the total context of shrinking government funds and increasing educational demand.

Additional Efficiency

Integrating Higher Education

Since higher education represent a substantial amount of government expenditures and expenditures occur under many authorities, taking a look at the critical role higher education plays, its efficiency of delivery toward this goal and how component parts complement each other is probably worthwhile.

Also, just during the four year period reflected in the following table, some movement toward restructuring is occurring. Movement toward restructuring that is not plan-driven indicates that external forces are at work - most likely a restructuring of demand. If these forces are not understood at the beginning, they can accelerate and rapidly deteriorate the options left for policy adaptation. The breakdown of categories of Higher Education expenditures are as follows:

TABLE 40
Breakdown of Government Tertiary Expenditures (prices adjusted for inflation)

	1988 % of expenditures	1992 % of expenditures
Gov't Financed Scholarships	9.5	12.6
MOHE & Comm. Colleges	9.9	4.7
Public Universities	77.3	79.1
Other Gov't Training & Institutes	3.3	3.6

Another movement in restructuring is movement of funds toward the private sector. Since 1982, the percent of total expenditures represented by private expenditures has increased from 19 percent to nearly 25 percent.

Since higher education plays such a critical role in social and economic development, since the government financial commitment to higher education is so high, and since some implicit restructuring is occurring within the sector, it may be wise to undertake a study of the system. Very likely, efficiency savings can be identified.

Administrative/Process Efficiency

As with all educational activities, administration should, ideally, be viewed as a process rather than a product. The primary question, then, is how does one make the process of administration more efficient. Ideally, efficiency in administration would come from a careful study of the processes involved. Such a process study is beyond the scope of this work, but some clues as to possible administrative inefficiency are possible.

As a percent of the recurrent budget, administration has not changed much from 1982 levels - but it should have. Administrative costs should have shrunk relative to other educational expenditures. The cost of administration relative to other types of costs, should decrease as a system grows larger. What the size of the decrease should be is system specific and depends upon the complexity of the system (how many schools, how easily accessed, ease of communication, etc.). The fact that the MOE administration budget has remained relatively unchanged as a percent of the total current budget is a likely indicator of inefficiencies.

Also, there is at least some evidence that another force should be considered in terms of administrative structure. The gradual shifts to private schooling along with forces which emphasize differentiated fees for schooling are indicative of a system that will become less homogeneous. An understanding of these forces might well indicate that a movement toward more localized control is underway. (See "decentralization" below.) In such a scenario, the central administrative costs ought to show a gradual decline irrespective of changing enrollments. That they have not might be an indication of inefficiency.

Decentralizing

Some educational economists argue that decentralization is an efficiency move. The notion is that local communities can better define and implement educational policy according to their needs. When local needs are better met (assuming no cost changes), net benefits accrue. Equally, there is some evidence that locally controlled systems are less bureaucratic, more responsive to changes and require less administrative personnel. If either of these conditions prevail, decentralizing some or all of the administrative/policy functions of the MOE would increase efficiency. The same amount of money would go further.

One caveat needs to be mentioned. Not all social goals can be met equally by centrally and locally defined administrations. It is difficult, for example, to design an equitable system when most funding and control is localized - although this is not an absolute constraint. Educational systems operate implicitly on a number of levels of goals - personal, local, regional, national and global. The amount of funding and control given to each level also needs to reach a balance.

This said, it would be worth exploring whether some operations can be decentralized from the MOE to regional or sub-regional authorities. A study of this nature might reveal some efficiency savings. It is unlikely that such savings would be more than five percent of the current budget, but any efficiency savings is generally worth pursuing.

The Long-Term Picture

The scenarios presented above are intended to paint a picture of likely trends. They are based, primarily, on projecting past trends into the future. Yet, in today's increasingly dynamic and global world, projecting a future scenario on the basis of past experience is not as useful a technique as it was in a slower, more nationally-defined economy. Understanding dynamic processes and systemic relationships affecting educational demand and supply will become an increasingly critical step in maximizing human resources and the potential education has for shaping a future.

Education in Jordan is emerging from a period of high successful expansion of both quantity and quality. The emphasis placed on the development of human resources have played a major role in the growth and development of the country. Yet Jordan's economy is quickly being melded into a regional and global context - much more so than it has been. As hard choices are made between fostering growth that ties the economy increasingly to external and multinational interests, and fostering equity which means allowing opportunities which are balanced between efficiencies and equity, the educational structures will respond.

An increasingly globally defined economy means that people begin to see their future as tied more to economic interests and less to national interests. Movement toward private schools as a means of accessing globally-defined jobs and incomes is a likely result. So to, might support for large, national-funded social programs including education. Viewed in this light, education is part of a large system of activities. Policy cannot function independently of the system but, rather, must be formed in response to it. A strategy based on policy "adaptation" rather than policy driven "restructuring" is required.

Clearly, inaction means a steadily deteriorating system of education. Likely, flight away from public schools into private schools would accelerate. Deteriorating quality along with decreased participation in public schooling would mean a loss of support by the general public, for having public moneys spent on public education. This would also imply

an increasingly differentiated quality of schooling - one for the poor who must access public schooling no matter what the quality, and one for those who can afford the cost of higher quality private schooling or mixed-funded school or mixed-funded schools.

Another area to be grappled with is the definition of "quality." When employment and living options were largely nationally defined, and bounded by nationally-defined norms and incomes, "quality" could be treated as if it were a monolithic entity. Given much broader contexts, opportunities and needs within the population, one policy adaptation might be to define quality in terms of different groups and including different processes. Growth and progress can be shared goals, but their definitions might vary given specific contexts. Quality should probably not be defined either by money spent or by test scores obtained. Perhaps a dynamic or process measure such as progress toward locally-defined goals might be useful.

While this report attempts to present a short-term view of trends, the underlying phenomenon is very much a process. While short-term responses to the trends presented are encouraged and valuable, some time and energy ought to be spent in exploring the underlying processes and dynamics that determine these trends. What systemic determinants are there which have meant a reversal of educational trends - from growth to recession? Why are private enrollments growing? And, how will the poor fare in an educational system marked by such trends?

Recommendations

1. The most obvious recommendation is that action must be taken before the impending fiscal crisis of the MOE gets any worse. Several categories of options exist: shifting government funds; cost recovery and restructuring toward more locally controlled and financed systems; investigation of further efficiency areas. Although the forces which are driving the changes are likely external to the education system, policy options should be explored and adopted. Doing nothing not only means an accelerating deterioration, but the resulting structure of education may be less than optimal even given the forces of change.

2. This report is the last of a series of five reports. Two of the reports involved preliminary exploration of some possibilities for alleviating some of the fiscal crisis. Serious thought ought to be given toward implementing the suggested recommendations. For some, more study or planning will be required before they can be adopted (i.e. systematic reduction in fragmentation) but some actions can occur immediately. Whether the ideas are put into action or not, they should be carefully considered for their potential benefits.

3. Some of the suggestions contained in this report involve careful study, planning and costing. Financing such activities will require a capital investment. Attempts ought to start now to find funds for such work.

4. A study should be conducted targeting the efficiency of administrative operations in the MOE. This study should look at organizational efficiency, operational efficiency, communication efficiency and effectiveness of people, processes and functions. The study would likely involve a coordinated effort between an educational systems analyst (specializing in educational administration) and an educational economist. Specific operational suggestions and estimates of cost saving should be explicit outputs of the study.

5. School mapping needs to take place with specific questions to be addressed - especially with regard to school fragmentation:

   - What is the structure that exists now?
   - What structure would be optimal?
   - How do we get from the existing structure to a new one?
   - In terms of capital outlays and resources, when is it a good idea to completely restructure a location system and when is it best to simply modify what exists?

6. Many public educational expenditures are not reflected in the HKJ budget - a large number were very difficult to derive because accounting procedures intermingled them with parent institutional expenditures. Yet, knowing what kinds of expenditures exist and what the trends and shifts are is important for controlling

costs and planning educational goals. Serious thought ought to be given to an institutional "home" for cataloguing and charting such educational expenditures (and, possibly, other statistics). Tracking costs and revenues on a year-to-year basis should form the foundation of educational planning.

7. A study ought to be conducted on the delivery of higher education. Given the large commitment of funds involved in the system, the implicit restructuring of expenditures and the critical role higher education plays in human resource development, it is important to understand the dynamics of the system. Such a study ought to focus on the forces underlying changes, the efficiency of delivery and the integration of various units. Likely both efficiencies and a blueprint for mapping policy to trends can be discerned.

Appendix

Technical Notes

Private school fees

Private schools expenditures represented a particular problem for this survey since private schools do not report their expenditures and are unlikely to be willing to do so given the scrutiny they are currently under. Rather than leave expenditures out of the survey and, thereby, eliminate the total educational expenditure picture analysis for the country, some rather liberal assumptions were made.

Using the general economic assumption that expenditures are roughly equivalent to income, fees were calculated as a proxy for expenditures. This would be true in a competitive and mature industry but is probably not true of private schools in Jordan. Some of the more competitive private schools probably make high profit margins that will be modified as competition increases. On the other hand, some religious private schools probably receive donations that supplement their fee receipts. It is hoped that the two errors roughly cancel themselves out.

School fee information could not be obtained directly from the schools, but two estimates existed. A small family survey (1000 families) had been surveyed as to school costs including fees. Many of these families had children in private schools. Also, on a questionnaire given to 200 school principals in Jordan (some of whom were principals of private schools), fees-per-student and total fees collected were asked. These two pieces of information were used to calculated average fees. Two different scenarios were run using the two types of data. The results were only five percent apart and, thus, were judged to be reliable enough for estimates.

The information used, however, was for only the most current year. Since data was needed for each of the six years estimated, a deflator was used to estimated previous years' tuition. The deflator chosen was that of the Education CPI published by the Central Bank. This CPI is slightly higher than average inflation for the relevant period. This coincides with anecdotal information that some private schools have recently raised schools fees substantially. Since these schools are likely in the minority, the CPI increases should be only marginally above inflation, and they proved to be.

Private school expenditures are, therefore, quite a rough estimate of actual expenditures. It is likely that they are within a reasonable range of actual expenditures. The estimates are probably reasonable given the purpose for which they serve - general estimates of the proportion of overall expenditures in education which can be attributed to private schools. They are also probably reasonable measures of the relative costs of private and public schooling. Their accuracy for other purposes, however, needs to be judged according to

the use and with the above estimation parameters in mind.

MOE Basic and Secondary Schools Expenditure Distributions

The MOE does not disaggregate expenditures by level. No doubt this is because many schools serve both basic and secondary students and even teachers may cross over to teach more than one level. Nevertheless, it is useful to have estimates of relative expenditure changes by level both to track trends in per student expenditures and to compare gross expenditures across years by level. Thus, an attempt was made to disaggregate MOE expenditures by basic and secondary levels.

Actual and estimated expenditures were obtained from the MOE at very high levels of detail. The larger categories were individually disaggregated across various levels (basic, academic secondary, vocational secondary, adult, hotel college) using information on the structure of costs and mathematically modeling them. Some expenditures (i.e. salaries and benefits) were disaggregated by using relative numbers of teachers for each level. Other expenditures were similarly disaggregated using student enrollments or using other types of expenditures as weights.

Some expenditures, of course, were clearly attributable to a given level. Vocational education (as a category of expenditure) was clearly vocational secondary. Other types of expenditures could only occur for some levels. Capital expenditures frequently had a specific description from which a reasonable disaggregation could be constructed. Thus, it is likely that estimated disaggregations approach actual dissaggregations. Certainly total expenditures equal reported actual expenditures. Nevertheless, dissaggregations incorporate certain assumptions regarding the distribution of resources which may not be accurate and mask underlying inequities or inefficiencies. Thus, as an analytic tool for assessing particular expenditure patterns, their use is limited.

Inflation

Inflation has been normalized in all discussions on costs and revenues. In this context, inflation is treated as "0." Generally, inflation affects all costs and revenues equally - that is, if the costs of schooling increase, the costs of government increase approximately equally as do inflationary revenues of industry and taxes. Of course, in fact, inflation does not hit all factors entirely equally (thus, CPIs are calculated for various bundles of goods, for example). But sensitivity to inflation varies much less than do inflation rates from year to year. Given that inflation rates are difficult to project and have little or no effect on trends and relationships, inflation is often "normalized" out of projections, as has been done here.

Current vs. Capital Expenditures

The analysis contained in this report is largely restricted to the Current budget (often referred to by economists as the "recurrent budget"). Current budget items are generally long-term in nature and are supposed to form the backbone of on-going activities. Capital budgets for education are dominated by loans and grants and are designed to be investments - one-time capital designed for a specific purpose. Thus, it is the current budget that becomes critical when considering long-term trends and funding.

Long-Term Recurrent Costs of the Reform

In 1989, Jordan instituted implementation of an educational reform. The implementation of the reform was to cover a ten year period beginning in 1989 and ending in 1998. It is estimated that the gulf crises set back full implementation about two years. The reform was to cover seven major areas:

- Basic and Secondary School Curriculum Development
- Textbook Development
- Teacher and Supervisory Staff Training
- Educational Technology Additions to Schools
- Educational Facility Improvement
- Vocational Training Expansion
- Educational Research and Development Capacity Building

Essentially, the cost of the reform will accrue to four parties: The Ministry of Education, the public universities, the Vocational Technical Corporation (VTC) and The Royal Scientific Society (for establishment of the National Center for Educational Research and Development). Private expenditures will also be incurred as tuition is paid for additional participation in MOE schools, VTC centers, and at the universities (for teacher training). The following summary details costs to the MOE.

Teacher and Supervisory Staff Training

Certification of Basic Education Teachers

In 1988, only 32 percent of Basic teachers had qualifications of at least a B.Sc. degree. By the end of the reform, an expected 66 percent will have such a qualification. Since teachers who are more qualified command a higher salary, annual costs of maintaining the teaching staff will increase even if total staff size were to remain the same. One average, a per teacher cost of JD 153 is expected as a result of new certification levels. Total annual MOE costs of maintaining this staff would be just over five million JD.

Upgrading Secondary Teachers and Supervisors

The average annual increase in wages due to this upgrading is 498 JD. Teachers will see a 475 JD increase while supervisors will see an average increase of 531 JD. Total costs are estimated at 3 040 884 JD annually - 56 percent of which is due to the teacher upgrading and 44 percent due to supervisor upgrading.

Curriculum Changes

Three long-term structural changes will occur as a result of curriculum changes. New textbooks are being distributed. A new warehouse for textbooks is anticipated. Finally, the Curriculum Department has added 50 additional staff. Warehouse maintenance costs will be new - an estimated 10 846 JD annually. New curriculum staff currently cost the MOE about 120 000 JD per annum.

Educational Technology

Two types of facility improvements were to be made under the reform. The primary change was to add a substantial number of student places by building new schools or adding facilities to existing schools. This is discussed below in the "Educational Facility Improvement" section. The second change was to add specific facilities and equipment termed "educational technology." Specifically, this involved adding science labs, storage rooms or multi-media equipment and libraries and workshops. Long-term recurrent costs involve the maintenance and replacement of these facilities and equipment. An estimated 331 250 JD will be needed annual to maintain these facilities. Maintenance of new furniture - spread over ten years - is about nine million JD annually.

Educational Facility Improvement

A total of 152 schools were to be upgraded in Phase I of the reform (based on data at the time of this writing). The average annual maintenance cost was calculated to be 11 280 JD per school. Furniture and equipment maintenance costs varied by whether the school was getting new or replacement equipment and furniture. Replacements imply that some maintenance costs are already built into the budget and need to be increased. The average is about 2 200 per school. New equipment and furniture was calculated at an average annual maintenance cost of 11 000 JD.

Extending Basic Education to Include Grade 10

The most fundamental change caused by the reform is the inclusion of Grade 10 into the Basic cycle. Ten grades are now required for school completion. This represents a long-term recurrent cost to the system. Between 1988 and 1989, student enrollments for Grade 10 were 22 percent higher than expected growth would have accounted for. The marginal cost to the system of the additional grade 10 students was calculated to be a 1.47 percent increase. This translates into an annual additional cost of 1 493 520 JD.

Table 41

Estimates of Long-Term Annual Recurrent Costs to MOE of the Reform (prices adjusted for inflation - 1992 JD)

	Cumulative Annual Phase I + Phase II	Phase I Total Costs	% Com-plete	Costs Already Absorbed	Costs to to be absorbed Phase I	Additional Estimated Phase II Costs	Long-term costs not absorbed
Staff Upgrading							
Basic Teachers	5 119 692	2 559 846	31%	793 552	1 766 294	2 559 846	4 326 140
Secondary Teacher & Supervisors	3 040 884	1 520 442	55%	836 243	684 199	1 520 442	2 204 641
Subtotal	***8 160 576***	***4 080 288***		***1 629 795***	***2 450 493***	***4 080 288***	***6 530 781***
Curriculum Changes							
Additional Staff	120 000	120 000	100%	120 000	0	0	0
New Textbooks	242 943	242 943	48%	116 613	126 330	0	126 330
Warehouse maintenance	10 846	10 846	0%	0	10 846	0	10 846
Subtotal	***373 789***	***373 789***		***236 613***	***137 176***	***0***	***137 176***
Educational Facilities Main. & Repairs							
New construction	3 429 116	1 714 558	65%	1 114 463	600 095	1 714 558	2 314 653
New furniture and equipment	2 147 200	1 073 600	65%	697 840	375 760	1 073 600	1 449 360
Subtotal	***5 576 316***	***2 788 158***		***1 812 303***	***975 855***	***2 788 158***	***3 764 013***
Educational Technology Main. & Repairs							
New construction	662 500	331 250	34%	112 625	218 625	331 250	549 875
New furniture and equipment	1 765 800	882 900	34%	300 186	582 714	882 900	1 465 614
Subtotal	***2 428 300***	***1 214 150***		***412 811***	***801 339***	***1 214 150***	***2 015 489***
Additional Grade 10 students	***1 493 520***	***1 493 520***	***100%***	***1 493 520***	***0***	***0***	***0***
Total MOE Annual Costs	**17 285 741**	**9 203 145**		**4 838 282**	**4 364 863**	**8 082 596**	**12 447 459**

Table 41 shows the impact of the reform on the MOE. Once the reform is fully completed, an additional 12.5 million JD will need to be found to sustain changes at acceptable levels. This represents a 12 percent increase over the current budget.

Sustaining the reform at current levels of quality will present a challenge to the country. The Ministry of Education will need to absorb about a ten percent increase in expediters beyond those already absorbed. This will add to the burden of a rapidly growing student population. Essentially, Jordan is attempting to increase the quality and the quantity of education simultaneously - a tremendous challenge. Some ideas of how these increases might be financed is discussed in the last series of these financial reports.

Summary of Efficiency Study

An efficient system is one that uses resources optimally. Increasing efficiency usually means either finding ways to obtain existing outcomes using fewer resources, or to use existing resources to obtain increased outcomes. For Jordan, squeezing the most education out of existing resources is an important goal. With a high population growth rate, internal and external pressures to decrease government expenditures, and an increasing demand for education by the public, budgetary pressures on the Ministry of Education are enormous.

Classroom Efficiency

If the classroom unit could function more efficiently, the learning processes would cost less. Since a major cost of running a school is the cost of staff salaries, any increase in class sizes would mean more students were being served by the same number of teachers. According to the statistical results classroom size, per se, does not seem to affect achievement, so increasing classroom size seems a logical place to increase efficiency.

Schools with relatively small classroom sizes, however, are generally small and isolated. It is likely that classroom size is a function of necessity rather than inefficiency. That is, assuming that access to school is an unequivocal goal of the government, small classroom size is likely a necessary condition for at least some schools. Unless grades were mixed together, it is unlikely that these schools can increase their classroom size. A more likely group to be able to increase classroom size is those schools with classrooms averaging 21 to 35 students.

For many mid-sized schools, it is likely that maximum classroom size has already been reached - perhaps classes for some grades are small, or just large enough to require splitting into two classrooms. Nevertheless, at least some of these schools could, perhaps, increase their classroom sizes. An estimate made shows the

average efficiency gained if some of these schools could increase average classroom size to 35 students per classroom:

School Efficiency

One of the biggest inefficiencies in the MOE system is the fragmentation of schools. [25] The system as a whole has a larger percentage of schools which offer only some of the grades for basic education. Many schools offer only a few grades - often somewhere in the middle of the basic cycle. Further, males and females face different schooling opportunities depending upon where they live.

The primary problem here is wastage of resources. When grade offering are disjointed, there will be grades which are not offered or offered at a great distance as well as grades that are duplications. A student may have a school nearby which offers grade 1 - 3. She may have to travel some kilometers for grades 4 and 5 and then travel a different direction for grades 6 through 10. Further, she may have a choice of nearly schools for some of these grades - perhaps two or three schools to choose from for some grades.

One measure available through the MOE EMIS data system is a listing by schools of grades offered to males and females. Using land-survey zones[26] as a way of identifying schools that are in close proximity, a measure of fragmentation was obtained. The numbers were averaged for each directorate. The fragmentation index (referred to in Table 42) expresses the average number of schools offering a grade, for each sex, for the zones within the directorate. In a small zone, one would hope to have a "1" - one school per grade per gender. The table estimates what gains could be realized should fragmentation be reduced.

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25 See Ahlawat, Kapur (November, 1991) *Analysis of School Size and Grade Structure in the Public Schools of Jordan: Policy Implications.* Amman: National Center for Educatonal Research and Development.

26 A small area within a directorate.

TABLE 42
Simulation of Fragmentation Improvements

	Fragment-ation Index	Students per grade per school	Avg. school size	Schools needed in a typical zone	% reduction in schools needed
Current Situation	2.66	54.4	519.3	7.73	0%
Scenario 1: If directorates with above average fragmentation reduced fragmentation by 20%	2.35	62.33	591	6.91	10.6%
Scenario 2: If all directorates improved fragmentation by 10%	2.40	60.49	577	6.96	11.1%
Scenario 3: If students per grade per school averaged at least 46 in all directorates	2.29	63.19	602	6.66	13.8%

Fragmentation, once realized, documented and integrated into plans, can be reduced in reasonably easy ways. For example, for any given location, simply reducing overlaps in grades of nearby schools could increase aggregate class sizes and reduce teacher costs per student. As school populations grow, expansion can occur by adding grades to existing schools (as is now being done). The scenarios presented above represent fairly conservative estimates of reductions in fragmentation. With good planning, by integrating in existing expansion trends, and by targeting school expansions, fragmentations could be reduced and efficiencies realized without major restructuring taking place at one given period.

Teacher Efficiency

Salaries and allowances for schools consume about 85 percent of total government expenditures for MOE schools. A large portion of these expenditures are for teachers. Three general strategies exist for reducing the numbers of teacher required in MOE schools: (1) increase classroom sizes, (2) increase school sizes, and (3) increase teacher workloads. Strategies 1 and 2 have been discussed above and represent a increase in the students per teacher. The third strategy is to increase the number of class periods that teachers teach.

Teachers were divided into five groups according to the workloads they currently carry. While several relationships were explored (remoteness of school, students achievement, teacher qualifications and experience), only one factor was found to be related to workloads - the size of the school. Table 43 shows that the relationship is not straightforward as small schools assign both light and heavy workloads.

TABLE 43
MOE Workload Groups by School Size

Workload Group	Avg. school size (no. of students)
1	267
2	354
3	391
4	366
5	148

Clearly, smaller schools either assign relatively heavy workloads or relatively light workloads. The average workload across the system is just under 21 periods per week. The largest schools assign average workloads of about 22 class periods per week. Schools with small workload averages should be examined and teachers assigned more class periods. Table 44 shows two scenarios for raising workloads. The first assumes workloads across schools could be raised an average of ten percent bringing the means load to 23 class periods per week. The second scenario assumes that the system-wide average would be raised to 25 class periods per week.

TABLE 44
MOE Workload Increase Simulations

	Average class periods taught per week	Number of teachers needed	Percentage change in no. of teachers needed
Current Case	21.06	36 151	0%
Scenario 1: Total system raise workloads 10 % (to avg = 23)	23.17	32 859	-9.1%
Scenario 2: Raise all workloads to average of 25	25.00	30 454	-15.8%

Clearly much can be saved by raising teacher workloads across MOE schools. Obviously, not all schools will be able to reach an optimal level of workloads as numbers of teachers do not always divide evenly into needed class periods. Nor are teachers infinitely interchangeable. Nevertheless, by looking at workloads on a school-by-school case, it is likely that some modest system-wide changes such as those proposed above could be realized with substantial savings.

Efficiency Cost Savings

The four primary areas of inefficiencies discussed above involve, primarily, fine-tuning a system. The largest types of decisions are already in place and operational. Smoothing

out disparities and identifying particular cases and areas of problems will result in cost savings.

Table 45 summarizes these cost savings.

TABLE 45
Summary of MOE Cost Savings Due to Efficiency Gains (prices adjusted for inflation - 1992 JD)

	Low Scenarios		Medium Scenario		High Scenarios	
	Amount Saved	% of total MOE Budget	Amount Saved	% of total MOE Budget	Amount Saved	% of total MOE Budget
Administration	59 280	.05%	79 040	.08%	98 800	.10%
Classroom Size	364 682	.35%	729 365	.71%	1 830 293	1.78%
Fragmentation	7 293 648	7.09%	7 637 688	7.4%	9 495 504	9.23%
Teacher Workloads	3 374 120	3.28%	6 748 240	6.56%	10 122 360	9.84%
Totals	11 091 730	10.78%	15 194 333	14.77%	21 546 957	20.85%

Many of the changes cited above need to go through several steps before savings are realized. First, they must enter a policy dialogue between involved parties and a set of policy decisions must be made. Second, a closer look needs to be taken at each one. The estimates given here are useful to describing the magnitude and direction of the problem, but a program implementation requires detailed plans for specific cases - schools, teachers, etc. Third, a schedule needs to be proposed and money allocated (for any changes requiring an initial input of money). Finally, the changes can be made. These changes will impact over a period of time.

The scenarios represent rather conservative possibilities for change. Several reasons exist for proposing conservative scenarios:

- Structural factors (i.e. location, size of schools, students number not easily divided into 35 student classrooms) means that some changes cannot be implemented on the full range of cases.

- Political issues exist. When structures change, various interest groups may lobby against such changes and a compromise of minor points or of delays might ensure that the full program would be successful in the long-run.

- It is best to plan for a modest change and watch what happens. Modest change goals can either lead to large-scale system changes if the modest changes proved successful, or they can lead to fundamental re-thinking of the problem - perhaps identification of a larger problem.

In today's rapidly changing world, and within Jordan's very dynamic economic and demographic system, modest changes are the best targets. They allow for the flexibility to change as circumstances change. Targeting long-term, large-scale goal, but implementing change on an incremental basis with periodic evaluations and assessment of the success and wisdom of the changes allows for a dynamic change system in line with the dynamics of the country.

Summary of Cost Recovery Study

This study attempted to estimate the sensitivity of various groups to increases in school fees. Several fee structures were assessed. All included a provision for inclusion of students who could not pay fees. Most were designed around the notion that fees ought to set using a measure of "ability to pay."

Instituting a policy of fee collections based on individual benefits or on ability to pay would represent a fundamental change in educational policy for the country. While the logic - especially given a rapidly changing global economic growth logic - seems solid, very careful consideration must be given to the larger societal implications. The imperfections of labor and education markets imply that the normal logic of individual investment for individual benefits cannot be adopted carte blanche.

By far, the easiest means of having individuals pay for the benefits they accrue from government sponsored education is to raise the base level of fees (or "contributions") requested of each student. Table 1 shows the base contribution currently collected by the MOE and the total dinars generated in 1992:

TABLE 46
Student Contributions to MOE Schools

	Individual Contribution	Total Collected 1991/92
Grades 1-6	3.15 JD	1 352 157 JD
Grades 7-10	4.15 JD	994 667 JD
Grades 11-12	6.15 JD	544 227 JD

Source: Ilon and Al-Daje'h (1993) *Education and Training in Jordan*, NCERD.

The MOE does not strictly require that all students pay the fee. Officially, about 85 percent of all students do pay - hence it is termed a contribution. Collection is the responsibility of the principal of each school. Her job also includes assessment of individual cases where parents appeal for a waiver of the contribution.

In order to assess the ability to pay fees, a small study was conducted. The object was to predict school participation based on school fees controlling for several family factors known to affect school participation. As such, a questionnaire was devised that asked for information on entire families relative to the amount spent on schooling and the educational participation of each child. The completed questionnaires included 1046 families and information on 7265 of their children. The data were analyzed using the child as the level of analysis. [27]

Families were divided into five income groups. From the questionnaire, two types of school cost measures were derived and determined for each child: (1) fees and contributions, and (2) other expenses. Table 47 shows various values for the combined school costs.

TABLE 47
Comparison of Other School Costs

Grade	Mean for Poorest Group	Mean for Wealthiest Group	Mean for Sample	Typical Base Cost (Median)
6	44 JD	79 JD	60 JD	32 JD
7	49 JD	105 JD	98 JD	44 JD
8	46 JD	122 JD	74 JD	43 JD
9	57 JD	139 JD	93 JD	50 JD
10	71 JD	292 JD	143 JD	65 JD
11	69 JD	332 JD	202 JD	115 JD
12	67 JD	248 JD	193 JD	115 JD

Source: Cost Recovery Questionnaire

Flat Fee Increases

Using a probit analysis, results showed how sensitive children from various groups would be to changes in fee and contribution rates. In order to assess how school fee increases would affect school participation of groups based on family wealth (usevalue), sensitivity analysis was undertaken. Various fee levels were assessed for each income group. Table 48 shows these results.

27 See the "Technical Notes" section of the full report's appendix for a details on the study.

TABLE 48

Estimated Participation Rates Under Various Fee Rates for Various Income Groups

	Income Group				
	1	2	3	4	5
Current Rate of Partici-pation	67.39	64.30	75.64	70.65	95.15
Increase in % of Current Fee	Projected Percent Participating in School				
0 %	76.09%	72.60%	81.54%	73.75%	95.75%
20 %	75.89%	75.20%	81.54%	73.75%	95.75%
40 %	75.49%	72.00%	81.24%	73.65%	95.75%
80 %	71.69%	68.50%	78.74%	72.45%	95.55%
105 %	65.79%	62.80%	76.74%	70.05%	94.95%
130 %	53.39%	50.70%	64.64%	63.45%	92.75%
200 %	5.19%	2.70%	18.34%	22.35%	67.85%

The most striking result is that poorer groups are much more sensitive to price changes in school (demand is more elastic in economic terms). Clearly, most families are very sensitive to fee cost increases. Current educational participation rates for children aged 12 -16 are approximately 75 percent (1990 estimates[28]). If fees were the only predictor of participation, even small fee changes would affect participation.

For the most marginal cases - the poorest and the older child, fees may well be the factor that ultimately decides whether a child continues in school. Results of this study indicate that across-the-board flat fee increases will result in loss of participation. A very modest increase may be possible, but only with the retention of a waiver allowance.

Given the relative sensitivities to fee changes for various income groups and various ages of children, a flat fee increase would mean that fewer children would attend school. Also, the population of schools would be increasingly weighted toward children of wealthier families. To be sure, this is already the case. Not all children attend school, and of those that do, a disproportionate number come from wealthier families. Fee changes do not create nor negate the problem, but only change the magnitude of these realities.

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28 See Ilon & Al-Daje'h (1993) *Education and Training in Jordan*. NCERD.

Variability by Income Group

Varying fees according to ability to pay (i.e. by income) is more strictly equitable although it would, no doubt, involve more administrative time and energy. This section explores the possibility of varying fees by income group.

Table 49 presents four scenarios for fee variability. For each scenario a different combination of fee levels are proposed. Using simulations, a percentage of students has been identified that can pay this fee level using the criteria that current attendance levels will be maintained (neither enhanced nor reduced).

TABLE 49
Scenarios for Variable Fees

Scenario	% of Current Fees	% in Group
1	0	15
	100	85
2	0	15
	100	15
	140	50
	200	20
3	0	20
	120	10
	140	70
4	0	20
	120	10
	140	23
	160	47

These scenarios will generate additional revenues as reflected in Table 50. Generally, there would be only a nominal cost to such variable fees. Assuming that principals, the teacher council or the school committee could fairly decide who would pay which costs (such decisions are school-based now), variable fee rates would have a social cost (cost of people's time and energy) but would have no budgetary costs insofar as the MOE is concerned.

TABLE 50
MOE Revenues Generated By Various Fee Change Scenarios (1992 JD)

	Revenues Generated	Percent of MOE budget
Scenario 1	2 819 447	1.89%
Scenario 2	4 146 245	2.78%
Scenario 3	3 648 696	2.44%
Scenario 4	3 960 493	2.65%

The gain in revenues is slight - only .9 percent in the best case. Likely, not all these revenues would be collected as this assumes that whomever is collecting the fees is optimally efficient in evaluating and assessing the correct fee category for each student.

Variability by School

Frequently, the children who attend a given school share similar home environment - poor, moderate and secure income levels, for example. One alternative to creating variable fee rates applied on a student-by-student basis is to assign schools a given category and to encourage principals to collect fees according to a given scale.

In order to explore this possibility, schools were grouped according to the mean income levels of families in the school. A natural group of school occurred at three levels of income. Group 1 is the poorest group of schools and represent 22 percent of the students in the sample. Group 2 is the middle group of schools and includes 71 percent of schools. Group 5 represents the top seven percent of schools with the wealthiest families. Table 51 shows the distribution of each of these groups.

TABLE 51
Characteristics of School Groups

	% of students	% of schools	No. of schools in sample
Group 1	22.0 %	22.7 %	10
Group 2	71.2 %	65.9 %	29
Group 3	6.8 %	11.4 %	5

Each of these school groups could be given different fee scales. In order to gauge where these fees ought to be established, sensitivity analysis was applies. Table 52 suggests a fee schedule of three fee levels. Just as schools are now encouraged to collect contributions at different levels (exceptions are given to the poorest schools, while schools in wealthier areas are expected to collect fees nearly universally). This plan would suggest that the three fees levels be applied differentially depending upon whether a school was through to be in group 1, 2 or 3.

TABLE 52
MOE Fee Collections by School Groupings

	Percent of Students falling in each fee level		
% of current fee	Group 1	Group 2	Group 3
0	50	10	5
140%	50	40	15
200%	0	50	80

Even this scale may need to be a bit flexible. Simulations indicate, for example. that approximately 2.3 percent of schools may have populations of students where fee scales, even in Group 1 are too much. Such schools would have to be evaluated on a case-by-case basis as they are now.

This fee scale would result in an estimated collection of 4 603 327 JD, or about 3.2 percent of the MOE budget (up from 1.8 percent). This is slightly more than any of the per-student variable scenarios and represents, perhaps, an administratively easier system to implement and maintain.

Variability by Level

Another option is to vary fees by level of schooling. Essentially, Jordan has identified the first 10 years of schooling as critical and has instituted policies designed to see that attendance in these grades is as close to universal as possible. Fees for secondary education could possibly be raised much higher than they are today. Table 53 shows the revenues that would be generated by raising secondary schools fees for various levels.

TABLE 53
Scenarios for MOE Secondary School Fee Increases

Proposed Fee	Additional Revenue
6.150	0 JD
8.600	251 103 JD
10.500	445 836 JD
12.300	630 320 JD

As Table 53 reveals, however, the primary issue is that even fairly large increases would not generate much additional revenue - only an addition .4 percent of MOE expenses.

Variability by Urban/Rural

Sensitivity analysis revealed different sensitivities to school fee changes between urban and rural dwellers. Using these results, a scenario was constructed that would maintain, overall, the same level of school participation while approaching equality of urban and rural dwellers. But charging differential fee rates, equity is enhanced while revenues are generated. Table 18 shows these results:

TABLE 54
Variable MOE Fees for Urban and Rural Dwellers

	Urban	Rural	Weighted Total
	% of students paying		
No fee	10%	20%	17.3%
Present Fee	0%	80%	58.4%
160% increase in fee	90%	0%	24.3%
Current Enrollment Rate	82%	72%	75%
Projected Enrollment Rate	74%	78%	77%
Total Revenue Generated	3 486 826 JD	1 937 125 JD	5 423 951 JD

This scenario generates about 3.6 percent of MOE expenditures - about double what is now generated.

Conclusions

Essentially, no reasonable amount of fee changes would get all children to school nor would it preclude participation of all children. Even were schooling to be free, four percent of this age group would not attend. Equally, the sensitivity to fee changes is such

that only a small minority of families can afford to pay appreciably higher amounts for their children. Thus, the scope of policy changes for school fees is relatively limited for Jordan.

From a purely economic perspective, a more logical option would be to introduce variable fee scales. A system of variable fees could be designed so as to generate some additional revenues (albeit modest) and to make the opportunity for schools slightly more equitable. By raising fees for those who can generally pay, lowering expected fees for those who have less ability to pay, children of poorer families will have slightly increased chances of staying in school longer while the government passes on some of the costs to those most able to bear them.

Table 20 summarizes the options explored here for variable fee rates.

TABLE 20
Summary of MOE Variable Fee Options Revenue Generation (prices adjusted for inflation)

Variability Applied to...	Additional Revenue Generated (JD)	Additional % of MOE Budget Funded	Total Revenue Generated (JD)	Total % of MOE Budget Funded
Current Fees	0	0%	2 819 446	1.89%
Income	1 329 920	.89%	4 149 367	2.78%
Schools	1 783 881	1.19%	4 603 327	3.08%
Level	630 320	.42%	3 449 767	2.31%
Location	2 604 504	1.71%	5 423 951	3.60%

The two options which generate much in the way of revenues are the two options which assess differential fees levels by school. In the case of the "school" option, schools are divided into three groups (one where fees collections are substantially reduced from present levels). The "location" options has two fee scales - urban and rural. The proposed fee scales for this option would approximately double the amount of funds that are generated by fees.