

The Hashemite Kingdom of Jordan



**National Center for Human Resources Development
(NCHRD)**

**Education Reform for the Knowledge Economy (ERfKE 1)
Monitoring and Evaluation**

**ASSESSMENT OF PROGRESS FOR COMPONENT 3 IN THE PROJECT
Education Reform for Knowledge Economy (ERfKE I)**

A Site Supervision Study

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INTRODUCTION

This task has been carried out according to the terms of reference outlined for the consultant. The large number of tender documents, drawings, specifications, guidelines and other relevant documents have been digested to form a good background for this report. The site visits to several schools and extensions, meeting with contractors, supervising personnel and the school users laid out the basis to prepare this report.

The consultant relied on his personal experience in outlining snag lists for the visited schools and in casting some recommendations for future schools and suggestions for the Ministry of Education regarding the operation and maintenance of the relevant facilities. It should be noted that the report refers to the status and situation of the buildings under consideration in December 2006. The consultant would like to acknowledge the assistance and cooperation offered by:

1. H.E. Dr. Munther Masri, President of NCHRD
2. Dr. Khaled Qudah, NCHRD and staff.
3. Engineer Osamah Mugheidh and all his staff.
4. Engineer Firyal Aqel, DCU
5. The contacted contractors.
6. The contacted consultants.
7. The contacted Schools' Users.

The terms of reference for the consultant for this study stated the following:

NCHRD (under the M&E framework) contracted a consultant to:

- (i) assess compliance of the construction with the architectural design, applicable laws and by-laws, and architectural guidelines for schools;
- (ii) assess progress of construction and reasons for delays, if any;
- (iii) cover an environmental implementation assessment; and
- (iv) recommend on corrective measures.

PART ONE

BACKGROUND AND STATUS

In response to the wise vision of His Majesty King Abdullah II, the Ministry of Education (MoE) launched a strategic plan to reform the education system in a project entitled, "Education Reform for Knowledge Economy(ERfKE I)". The Government of Jordan managed to secure funds in the form of loans, grants and its own budget to help the MoE implement this project which has been developed to support the reform of the education system at all levels, including early childhood, basic and secondary education. The purpose is to improve and reinforce the quality of public education. ERfKE is comprised of the following four components:

Component 1

- Redefined vision and integrated strategy
- Governance, management and decision-making mechanisms
- Integrated education decision support systems
- Effective management and coordination of educational reform investments

Component 2

- Curriculum and learning assessment development
- Professional development and training
- Resources to support effective learning

Component 3

- Replacing structurally unsafe and seriously overcrowded schools
- Upgrading existing schools to support learning

Component 4

- Increasing institutional capacity
- Professional development of kindergarten teachers
- Expansion of kindergartens for the poor
- Public awareness and understanding

This report will focus only on Component 3 of the ERfKE Program with the purpose to provide an assessment of progress as related to:

- Construction of new schools
- Renovations of and extensions to existing schools

Background to Component 3

The following points should be kept in mind to form a background for this document.

Implementation: Directorate of Buildings and International Projects/ MoE

Coordination: Development Coordination Unit – DCU

Funding provided by:

1. International Bank for Reconstruction and Development (World Bank)
2. Arab Fund of Kuwait
3. Islamic Development Bank, Jeddah, Saudi Arabia
4. European Investment Bank, Luxembourg
5. KfW Development Bank, Frankfurt, Germany

Owner: Ministry of Education

Tendering by:

- Ministry of Education
- Ministry of Public Works & Housing

This report will mainly focus on the progress of construction of schools and extensions funded by the World Bank, but a small sample of schools and extensions funded by other lenders will also be addressed for reference and comparison.

Project Components

The following summarizes the status of the project components during the preparation of this report, ie. December 2006.

- ❑ 160 schools are divided as follows:
- ❑ 148 schools have been designed.
 - 97 schools are under construction
 - 74 schools have almost been completed
 - 23 schools will be completed by December 31, 2006
 - 51 schools are under construction and will be completed during 2007
- ❑ 12 schools funded by KfW.
 - 2 schools have been handed over
 - 8 schools will be handed over by December 31, 2006.
 - 2 schools will be handed over during 2007
- ❑ School Upgrading.

Project Funding:

The following table summarizes the project funding.

Funding Party	No. of schools	Completion 31/12/2006	Under Construction	Amount, million \$
World Bank	40	33	7	57
Arab Fund	38	35	3	33
EIB	45	3	42	45
Islamic Bank	25	16	9	23
KfW	12	10	2	11
Outside ERfKE				76
Government				76
Total	160	97	63	245

ERfKE I World Bank Project Breakdown

Project Type	Packages	Sites
New Schools	24	40
Extensions*	18	114
Total	42	154

* Classrooms, Computer labs, Science labs, Large KGs, Small KGs, and Rehabilitations

Specific Objectives

This report attempts to fulfill the following objectives:

- 1) Extent of compliance of construction with design drawings and specifications.
- 2) Assessment of construction progress
- 3) Assessment of environmental conditions as per the following World Bank Guidelines for Environmental Implementation Assessment
 - Environment and Social Safeguards
 - (A) Construction activities:
 - Safety
 - Dust pollution
 - Noise pollution
 - Waste materials
 - Traffic, etc.
 - (B) Sanitary services, Water supply and waste management
 - (C) Operation and maintenance of facilities.

□ Educational Standards

- The number of toilets and ratio with students number and gender.
- Existence and quality of laboratories chemical waste water neutralization or equivalent. Chemicals in particular should not be allowed to flow in the normal waste system before being treated.
- Potable water, water volume per user, and quality of testing such water. Environmental concerns cover the quality of water while the volume falls in the standards category, which varies from country to country.
- Waste water volume per user and evacuation. Same as above.
- Access to school security and accessibility conditions (road, traffic flow, drop in area for kids). If the ministry has its own standards with regard to distance from homes of the children, the consultant will assess alignment with such standards.

Methodology

The following methods were used for data collection:

- Document review.
- Interviews with senior personnel in the construction of schools (engineers, supervisors and officials of the departments of buildings in the Directorates of Education).
- Observation through the site visits of sampled schools.

The data collected were entered, cleaned and analysed quantitatively and qualitatively.

A stratified random sample was drawn from the population of schools, taking into consideration the following variables (categories):

- Source of funding: although the source of funding was mainly the World Bank, a few schools funded by the Arab Fund, KFWE and the German Fund were chosen.
- Geographical location as represented by the relevant Directorate of Education.
- Contracting and supervision agencies and companies.
- Status of building progress (under construction, handled, occupied).
- Type of school (new building, extension, change of contractor).

The sample consisted of twenty three schools as shown in the Appendix. Nevertheless twelve representative schools were selected out of the 23 schools as a focused sample for site visits. Part three of this report describes the findings for the twelve schools.

Sources of Information

This report has been developed, making use of the following sources of information:

1. Contract Documents and drawings
2. Contract Conditions

3. Consultants Reports
4. Design guidelines
5. Ministry Architectural guidelines
6. Contacts with: (a) Contactors (b) Owner
7. Feedback from Users
8. Site Inspection and Observations

Scope

The report coverage takes care of the following:

- Project Assessment
- Site Visits
- Reporting
- Recommendations

Inputs

The following formed the major inputs for the preparation of this report:

- Project Assessment
 - Overview of project documents
 - Appraisal documents, etc...
 - School guidelines
 - Ministry Architectural guidelines
- Site Visits
- Preliminary Remarks and Observations

Overall Progress

Overall, implementation of the ERfKE Project is progressing well. MOE is making good progress in constructing new schools and making additions to existing schools. By the end of 2006, the following has been achieved:

- Over half of the 160 schools to be constructed have been completed.
- Most of the new schools, regardless of funding source, have been contracted and are expected to be completed by end of 2008.
- Extensions for 77 schools have been completed and an additional 73 are in the delivery stage.

To allow for price increases in raw materials in the past two years, MOE requested an amendment to the Loan Agreement to reallocate funds to the "Civil Works" disbursement category. The Amendment also reallocated previously unallocated funds to the Civil Works category, for a total of US\$ 57 million for civil works from the loan.

This component envisages the replacement of 160 schools. Forty schools are financed by the Bank Loan, while 120 schools are funded by European Investment Bank (EIB), Arab Fund for Economic and Social Development (AFESD), Islamic Development Bank (IDB), and Kreditanstalt für Wiederaufbau (KFW).

Most of the new schools, regardless of funding source, have been contracted and are estimated to be completed by end of 2008. The extensions and rehabilitations are planned to be completed by December 2007. The Ministry of Education has a total of fifty (50) staff in the Directorate of Buildings and International Projects (DBIP) and five (5) vehicles dedicated to supervise the sites and ensure the quality and progress of projects implementation. This staff is assisted by approximately 150 engineers in the respective regional directorates and the engineers from the supervising firms.

World Bank schools. The Bank is financing 40 schools. These schools are grouped into 26 packages spread in 16 directorates. The last 2 packages (6 schools) were re-bid and one of them was contracted in July 2006. The total value for these contracts is US\$37 million. The periods for the construction range from 450 to 540 days. Despite the overall progress in implementation, six contracts were terminated. The 6 schools, which were subject to re-bidding, reached an average progress of 36% before termination of contracts. Their original implementation duration was 15 months. After being re-awarded, they are expected now to be completed by October 2007. The Ministry is monitoring closely the construction and monthly reports are produced indicating physical progress.

The status of the 120 schools that will be financed from other donors has been summarized in the progress report submitted by the Ministry as shown in the summary progress of the 120 schools tabulated hereinafter.

Upgrade Existing Schools

The scope of work originally included constructing extensions for 776 classrooms, 620 computer labs, 330 science labs, 140 kindergarten rooms in 762 schools. Out of these, 100 schools will additionally undergo rehabilitation. Following the re-allocation of funding (Loan Agreement amendment), the project could ensure an additional US\$9 million for a second extension/rehabilitation phase. The first phase of extension/rehabilitation have been grouped into 72 packages (386 schools). The estimated value of 62 packages is US\$31.1 million. Schools of the second phase are grouped into 21 packages at a Loan and Government total cost estimated at US\$9.1 million. A total of 12 packages of phase 1 (77 schools) were delivered and 14 others (73 schools) are in delivery stage. Furniture for the 30 first packages is in delivery stage. Equipment bids are launched. The following tables detail the status of the sub-component.

Summary Progress of the 120 schools

Funding	Loan US\$ million % of financing	Contracts total amount US\$ million	Quantity of schools/ Average Progress	Expected final Completion date for awarded packages
IBRD (40 schools)	19.7 65%	57	27 schools/completed 100% 7 schools/Average Progress (AP)>70% 6 schools/AP=29%-55% (re-awarded)	October 2007
EIB (45 schools)	45 100%	37.6	Design for 44 schools completed 1 school/completed 100% 7 schools/ AP>70% 15 schools/ AP>40% 16 schools/ AP>10% 5 schools/ AP=2%-10% Remaining 1 school	February 2008
IDB (25 schools) (works and equipment)	23 (out of them 2M for equipment) 70%-100%	9.9	8 schools/AP=100% 3 schools/AP>65% 2 schools/AP>46% Remaining 12 schools	
AFSED (38 schools)	33 80%	25.6	35 schools/AP=100% 2 schools/AP=92% 1 school/ AP=62%	February 2007
KFW (12 schools)	EUR 11 [US\$ 13.4 equivalent] 67%	10.4	1 school/AP=100% 5 schools/AP>75% 4 schools/AP>45% 2 schools/AP= 10%-45%	August 2007
160 schools	134.1	120.5		

Extensions and Rehabilitations Outputs

Extensions and Rehabilitations details	Total Expected original Output	Expected Contracts <i>Phase 1</i>	Expected Contracts <i>Phase 2</i>	Total Expected revised Output <i>by closing date</i>
Classrooms	776	345	93	438
Computer Labs	620	334	97	431
Scientific Labs	330	172	34	206
Large KGs	60	34	6	40
Small KGs	80	29	12	41
Rehabilitation	100	50	17	67

Main findings and Conclusions

Part Two of this report summarises the main findings and conclusions, categorized as follows:

- I. Construction Compliance
- II. Construction Execution
- III. Design Aspects
- IV. Sanitary Services
- V. Comparison between Designs
- VI. School Capacity and Occupancy
- VII. Environmental Issues
- VIII. Construction Cost
- IX. General Recommendations

PART TWO

MAIN FINDINGS AND CONCLUSIONS

The appendix (Part three) shows the detailed results of the individual site visits. The following are the main findings and conclusions that were drawn from the relevant investigations:

I. Construction Compliance

1. The overall assessment of construction works of the school buildings and extensions, whether those completed or in progress, is in compliance with the tender drawings and specifications.

- The current construction progress of the schools and extensions is in conformity with the architectural guidelines for government schools.
- Construction of some schools was delayed due to:
 - Weather conditions
 - Remote sites
 - Lack of labor and other work forces
 - Sudden scarcity of building construction materials such as cement
 - Increase of prices for main construction materials such as cement and reinforcing steel.
 - Delays in material approvals in some cases.
 - Some delays in payments against contractor's invoices.
 - Retendering due to high prices in the first bid.
 - Variation orders.

Other causes of delay in individual cases which were not solely within the responsibility of the contractor include delays in site handover and procurement delays.

2. Nearly all delays were justified and contractors have been granted time extensions.
3. Other delays in construction were due to Variation Orders. Such alterations, whether additions or omissions, were associated with approved time extensions.
4. Variation Orders caused an increase in cost beyond the nominal tender values. In one school for example, the increase in cost was about 12%.
5. The implementation period for some projects was underestimated.
6. Announcement and awarding procedures consumed longer time than envisaged originally.

II. Construction Execution

1. The ground level in some schools was below the neighbouring street level. Such condition could have been avoided to prevent runoff water to the school yard during the rainy season.
2. Some school sites were not thoroughly studied to give feed back to the designers with such data to be considered. This resulted in enforcing Variation Orders to remedy such cases.
3. Coordination and follow up with other authorities such as the Electricity Company and the Department of Lands, etc. was subjected to routine bureaucracy. This has delayed the construction works and gave the contractors the reason to file claims.
4. The maintenance period was in some cases not fully utilised to test the systems of services such as central heating, water networks, etc.

III. Design Aspects

1. The library in some schools is not located in a quiet place.
2. Space facilities for out-of-class multipurpose activities are either small in size or not considered at all.
3. The kitchens[kitchenettes] were very small.
4. The accessories for doors such as locks, illumination units and power sockets were of low quality and not enough in quantity.
5. Drainage systems in large halls and corridors were not planned for.
6. The quality of paints for walls and wooden works could be improved.

IV. Sanitary Services

1. Outdoor Restrooms [water Cabinets and toilets] for students maybe acceptable. However, having all these in the ground floor only may not be justified.
2. Using a closed system for water supply requires special attention to operation and maintenance.

V. Comparison between Designs

The design of schools can be categorized into the following:

1. Schools designed by consultant firms according to the requirements of the engineering staff at the Ministry of Education.
2. Schools designed to suit a certain method of construction according to the requirements of the donors.

It should be observed that each category has certain merits and other characteristics that could be common for all categories; namely, the conformity with educational and engineering guidelines. It can be stated that the schools designed according to the requirements of the MoE engineering staff were in compliance with the adopted architectural guidelines. This is justified due to cumulative engineering experience in the ministry, including standards relevant to the area per student, the room size, the offices, halls, etc.

After the issuance of Architectural guidelines, some developments have been introduced that may be considered as added value to the schools such as:

- Introducing the central heating systems.
- Installation of air conditioning in the laboratories.
- The provision of special facilities for students of special needs.
- The introduction of fire alarm and sound systems, where applicable.
- Introducing the color system for walls, doors, etc.
- Modern design of laboratories.

Based on that and from the site observations, the schools designed as per the German recommendations had some extra advantages. The schools designed by the ministry of education did not deviate noticeably from those designed by private consultants and were generally in compliance with adopted Architectural School Guidelines.

VI. School Capacity and Occupancy

Table 1 shows a list of nineteen schools, chosen randomly to investigate the issue of school capacity and occupancy. The table shows, for every school, the number of classrooms, area per classroom, planned capacity, existing number of students, and the starting academic year.

Table 1:
List of Schools Selected for Actual and Expected Occupancy

No.	Name of School	Directorate of Ed.	Classrooms		Students		School Status
			No.	Area	Expected	Actual	
1.	Idrissi	Amman	25	48	1000	765	New(2006/2007)
2.	Basic Tunis Garden	Irbed I	27	48	1080	950	New(2006/2007)
2.	Secondary Rihab	Mafraq	14	30	350	239	New(2007)
3.	Samek(Khawla Bint Al-Azwar)	Aman II	25	48	1000	384	New (2007)
4.	Thaghret Jubba/ Males	North Badia	11	48	720	252	Extension(2003/2004)
5.	Sec. Manshiyya/ Males	Jordan Vlally	31	48	1240	670	Extension(1978)
6.	Basic Deir Alla/ Males	Deir Alla	14	48	560		Hand-over
7.	Basic Umm Quutain	North Badia	20	30	500		Under construction
8.	Basic Mohammad Iqbal	Amman I	25	48	1000		Under construction
9.	Basic Hayy Umm Uthainah	Amman I	26	48	1040		Under construction
10.	Basic Hayy Al-Isskan	Jarash	18	48	720		Hand-over
11.	Middle Marj Al-Hamam	Amman IV	13	30	325		Under construction
12.	Quptic Maria	Zarqa	30	48	1200		Hand-over
13.	Co-ed Soal	South Mazar	4	30	120	82	Extension(1991/1992)
14.	First Maszar/ Males	Irbed II	19	30	570	359	Extension(1982)
15.	Rabba	Qasr	13	30	390	338	New(2006)

For the sake of analysis, the following relevant criteria were adopted with reference to some MOE practices:

- i. New schools usually respond to one or more of the following needs:
 - a. replacing rented facilities.
 - b. Replacing double shifting arrangements.
 - c. Reorganizing the distribution of students in local schools.
 - d. Responding to student population growth.
- ii. Classroom area: 1.2m²/student.
- iii. Normal annual student population growth: 3%.
- iv. Admission (intake) of students for the first year of operation should preferably cater for about 70% of full capacity, so that schools would respond to normal student population growth for 5-7 years, before the need arises for an extension or new facilities in the catchment area.

Taking into consideration the above mentioned data and criteria, the following are the main conclusions related to school capacity and occupancy:

- As most of the schools under consideration, including the sample schools, were in the various stages of construction, with a small number of occupied ones, it wasn't possible to check on the extent of relevance of the criteria referred to in (i) and (iv) above. Nevertheless, in one case, one school was almost fully occupied from the first year of operation, and another school started with less than half its capacity. In general, capacity underutilization manifests itself either as extra empty classrooms, or as classrooms with numbers of students less than the full capacity, or both.
- Most of the criteria for the size of new schools can be reflected fairly accurately at the - planning stage. This applies to criteria (a), (b) and (c) of (i) above. As for criterion (d), past experiences show that unexpected local and regional factors could change occupancy considerably. Such factors included so far unexpected size of students shifting from private - to public schools, either due to economic considerations or availability of good new facilities. They included also unplanned admission of students from neighbouring Arab countries due to prevailing conditions.
- The planned capacity of new schools shown by the sample ranged between a minimum of 325 students and a maximum of 1200 students. Many factors influence usually such minimums and maximums, including economic, educational and social factors.
- Occupancy rates in the nine schools that are shown in the list to have been already occupied ranged from 35% to 88%.

The following are the main recommendations related to school capacity and occupancy:

- (a) Revise and update flexible criteria to be utilized by the MOE regarding planned size and capacity of schools, especially regarding minimum and maximum school size and capacity, as well as classroom area per student.
- (b) Assess economic and social feasibility of central schools that serve several dispersed - communities in remote areas, utilizing bussing systems, whereby commuting of students is undertaken by busses operated by private companies and paid for by MOE.
- (c) Involve local communities at the planning stage for new schools. Such involvement will especially be useful in such issues as catchment areas, accessibility, etc.

VII. Environmental Issues

The environmental issues in schools include sanitary and health considerations- toilets, drinking water, waste, lighting, heating, ventilation, noise and other pollution aspects. To be adequately taken care of, such issues have to be spelled out in the specifications and contractually detailed in tender drawings With reference to such drawings as well as the site observations, the following facilities were touched upon:

- Sanitary units.
- Lighting.
- Sound system.
- Fire alarm system.
- Heating system.
- Water pumping system.
- Drainage system.

The following are the relevant main findings and conclusions:

1. All schools facilities that have been subjected to the site visits, whether completed or still under construction, were constructed to comply with the tender drawings and specifications. Some defects and other snags were mentioned in the appendix for each school.
2. The closed pressure system for water supply, as mentioned earlier, requires special attention to operation and maintenance.
3. Some floor drains were not considered in many halls, corridors and school yards.
4. External rest rooms (toilets) for students should be reconsidered to be housed internally, and preferably in every floor.

VIII. Construction Cost

Contactors submit their unit prices considering the material cost, labor, profit and overheads. The larger size of the project is usually associated with lesser prices. The

location of the school and the availability of construction materials play significant role. It was therefore no wonder to note that variations in the unit cost were found significant. It ranged from JD282 for large extensions up to JD491 for small extensions.

1. As expected, unit costs vary according to kind of school facility. Unit cost for a computer lab, for example, is higher than for a classroom.
2. Unit cost of extensions is high compared to large schools.
3. The schools location; for example in remote areas, may increase the unit price due to extra costs associated with construction material, labour, etc.
4. Unit costs of all schools were similar for the same school size. Funding agency is not a significant factor in this respect.
5. Contingencies were in general underestimated by about 20%.

The following are some relevant recommendations:

1. As much as possible, the handover of school building projects should be in time before the start of the academic year.
2. The maintenance period of newly handed-over school buildings should, as much as possible, be while the building is occupied.
3. All systems (electrical, central heating, water, etc.) should be comprehensively checked in due time.

IX. GENERAL RECOMMENDATIONS

The following recommendations can be considered for future schools:

1: Design Considerations

- a. The use of traditional stones for exterior walls should be considered for future schools due to its durability and less cost for maintenance. It will increase the overall cost slightly; but the added value as a result of its use will avoid unneeded operational costs.
- b. Better quality of materials for furniture, accessories for wooden and steel doors, water tabs, illumination units, sanitary connections, paints should be targeted.
- c. More green areas and small gardens should be considered.
- d. Indoor sports facilities can be utilised more frequently, especially in major large schools, with the provision of availing the services to other, especially small, schools in the area.

2. School Operation and Maintenance

- a. Creating awareness about the importance of the school to students and teachers and create in them the sense of belonging to safeguard this facility and to keep it in good condition.
- b. Holding seminars and workshops for school principals and staff and student committees on the proper operation and maintenance of facilities and services.
- c. Introducing an annual award for “ The Well-kept School” to create the incentive among the school occupants in general and the School Principals in particular.

PART THREE
Appendix
Sample Schools and Site Visits

**Distribution of Sample Schools According to
Directorate of Education, Supervisor, Contractor, Fonder and Implementation Status**

Tender No.	School	Directorate of Education	Supervision Agency	Contractor	Expected Date of Completion	Completion Percentage	Source of Funding
71/2005	Rabba/Girls	Al Qasr	MoE Directorate	Rami Ziadin	Handled	100.00%	World Bank
84/2005	Soal/Co-ed	South Mazar	MoE Directorate	Shula Contracting	To be handled	100.00%	World Bank
91/2005	First Maszar/Boys	Irbed II	MoE Directorate	Musa Talab El-Jayyosi	Handled	100.00%	World Bank
68/2005	Dogara/Boys	Zarqa	MoE Directorate	Mohammad Saleh	30/10/2006	90.00%	World Bank
134/2005	Baqee/Co-ed	Karak	Madi Eetilaf	Al-Nida Contracting	30/08/2006	45.00%	World Bank
186/2005	Souf/Girls	Jarash	MoE Directorate	Ibrahim Zu'bi	30/07/2006	80.00%	World Bank
153/2005	Safina/Boys	Ajloun	Bee'i Design	Sameer Khashan		45.00%	World Bank
275/2005	Girnata/Girls	Madaba	Arab Dar	Labib Contracting	31/12/2006	33.00%	World Bank
149/2005	Hayyan-Al-Moshref/ Boys	Mafraq	Royal Scientific Society	Abu Rshaid	30/11/2006	60.00%	World Bank
274/2005	Dair/Co-ed	Theeban	Arab Dar	Al Aa'ed	31/10/2006	47.00%	World Bank
160/2003	Samek(Khawla Bint Al-Azwar)/Girls	Amman 2nd	Royal Scientific Society	Al-Amedah Contracting Est.	To be Handled	100.00%	World Bank
164/2003	Idrissi/Boys	Amman 4th	Waheeb Mdanat	Abu Arja	To be handled	100.00%	World Bank
153/2003	Thaghret Jubb/Boys	North West Badia	Ali Abu Anza	Hassan Adwan	Occupied	100.00%	World Bank
166/2003	Rihab	Mafraq	Bitar Office	Sameer Haswah	30/9/2006	96.00%	World Bank
134/2003	Basic Deir Alla/Co-ed.	Deir Alla	Jordan Rukn	Salwani Est.	31/10/2006	86.20%	World Bank

Tender No.	School	Directorate of Education	Supervision Agency	Contractor	Expected Date of Completion	Completion Percentage	Source of Funding
80/2003	Dhahiyet Mecca/ Co-ed	Zarqa	Sakhra Musharrafa Eng.	Abr Al-Bilad Est.	Contractor Replaced	30.40%	World Bank
82/2003	Mohammad Iqbal/Boys	Amman 1st	Waheeb Mdanat	Abr Al-Bilad Est.	Contractor Replaced	38.00%	World Bank
82/2003	Al Hashemieh/Boys	Zarqa	Waheeb Mdanat	Abr Al-Bilad Est.	Contractor Replaced	28.50%	World Bank
33/2004	Hayy Al-Isskan/Girls	Jarash	Petra Consultants	Na'el Haddad	30/10/2006	98.50%	World Bank
134/2003	Manshiyya/Boys	North Aghwar	Jordan Rukn	Salwani Est.	28/2/2007	56.60%	World Bank
125/2004	Marj El-Hamam/ Co-ed.	Amman 4th	Bitar Consulting Office	Al-Mumtaz Contracting Est.	31/10/2006	49.70%	German Bank
126/2005	Quptic Maria/Co-ed.	Zarqa	Bitar Consulting Office	Dirar Sarayrah	31/12/2006	22.00%	European Bank
189/2003	Tunis Garden/Co-ed.	Irbid I	Alfa for Engineering Consultancies	Atef Al-Mashreqi Contracting	Handled	100.00%	Arab Fund

Tunis Garden Basic School

Tender No.: 189/2003

Contractor: Atef Al-Mashreqi Contracting Establishment

Supervision: Alfa for Engineering Consultancies

Location: Irbid

Directorate: Irbid First

Completion Percentage: 100%

Status: Occupied on August 23rd, 2006

The visit in brief:

Meeting with the School Principal Mrs. Kamilia Haddad and her Assistant Ms. Hind Safarini and the school staff (teachers and other employees).

The school is located in the east part of Irbid city. It is a mixed basic school.

Total No. of Students = 975 [160 males and 815 females]

Observations:

1. The water supply is not flowing in a good manner to the network and to the water tanks. This is a typical problem in newly constructed buildings.
2. The location of library between classes is not convenient. The users can not have a quiet environment due to the noise generated by students in the neighbouring class rooms and corridors.
3. The school kitchenette is very small
4. The room of out-of-class activities is very small.
5. There is no room for Janitors.
6. There is no Meeting Room.
7. Floor Terrazzo tiles need more cleaning and polishing.
8. Water taps are of poor quality.
9. Access to the schools by students and vehicles through the gates needs amendment for better streamlining.
10. There is no green area in the school at all.
11. The ground floor level is below the street level; This will form an easy access of flood water from nearby streets.
12. Some pipe fixtures need to be maintained.
13. Some cracks in the asphalt pavement can be observed.

14. The school has four classes for students with special needs and located in upper floors. A better location could be the ground floor.



Figure 1. School North View



Figure 2. North East View



Figure 3. Pipe Fixture



Figure 4. No Proper Drainage in this corner.



Figure 5. Asphalt Crack



Figure 6. Ground Level is lower than the Street

Concluding Remarks:

Architectural design considerations should be taken into account for future projects regarding the following points:

1. The location of library
2. The green area
3. The size of out-of-class activities' rooms
4. The size of kitchenette.
5. The need for a meeting hall
6. Proper access to school through gates.
7. The ground floor level to be above street level.

Overall Evaluation:

1. The construction of the school building is in compliance with the design drawings and specifications.
2. Extensions in construction time were justified.
3. All major aspects of implementation were generally in order.

Al-Mazaar School for boys

Tender No.:	91/2005
Contractor:	Musa Talab El-Jayyosi Contracting Company
Supervision:	MoE Directorate
Location:	Irbid Governorate
Directorate:	Irbid Second
Completion Percentage:	100%
Status:	Final hand over
Type :	Extension

The visit in brief:

Meeting with the School Principal Mr. Waleed Khaled Al-Jarrah.

Description:

The extension consisted of a computer laboratory hall with an area of about about 70 m²

Observations:

1. The building is complete pending hand over.
2. Construction is in compliance with design drawings and specifications.
3. The contractor did not finish the works in time.
4. The Laboratory is not yet equipped.

Khadeeja Bint Khowaylid Basic Mixed School

Tender No.:	128/2004
Contractor:	Khaleefah International Contracting Company
Supervision:	Bitar Consulting Office
Location:	Madaba Governorate
Directorate:	Madaba
Completion Percentage:	100%
Status:	Final hand over
Type :	Complete School

The visit in brief:

Meeting with the Contractor's representative Engineer Ahmad Mahmoud Lillo and Engineer Muaz Kamel Abu Safi. The school was completed in November 2, 2006.

Observations:

1. The power supply to the school needs installation of a transformer.
2. The water supply connection was not yet connected.
3. The sewage outlet pipe is not also connected.
4. The contractor complained against the consultant for the following:
 - Approval of materials took time more than it should take.
 - The consultant staff were not regularly available on site; especially during the works of snags.
5. Circular stairs may not be convenient.

Overall Evaluation

1. The construction of the school building is in compliance with the design drawings and specifications.
2. Delays in construction time were justified.
3. All major aspects of implementation were in order.

Al Mamouniah Western Secondary School for boys

Tender No.:	237/2003
Contractor:	Burhan Noor Contracting Company
Supervision:	Bitar Consultant Office
Location:	Madaba Governorate
Directorate:	Madaba
Completion Percentage:	100%
Status:	Final hand over
Type :	Complete School

The visit in brief:

Meeting was with the school Principal Mr. Awwad El-Qaissy. This school is part of a tender that consists of four schools:

1. East Madaba Basic School for boys
2. Al Mamouniah Western Secondary School for boys
3. Al-Rabba Basic Mixed School, Kerah
4. Serfah Secondary School for boys

The total tender value is 3,104,400 JD.

The value of works for this school [Al Mamouniah Western Secondary School for boys] is about 670,000 JD. As the whole tender including all schools was subjected to additions and deletions in the B.O.Q. items, variation orders were in the range of about 95,000 JD for additions and about 15,000 JD for deletions.

Duration of works was 18 months. Delays took place due to:

- Variation Orders
- Lack of Labor force
- Weather conditions

Observations

1. Marble steps for stairs were polished well
2. Door locks are not of good quality.
3. Some leakage in the heating system can be observed.
4. Hoses of coolers were not properly mounted.
5. Fume Hoods do not function properly
6. Upper cupboards in the laboratory rooms need adjustment
7. Aluminum windows need calibration

8. Terrazzo tiles need white cement treatment: "Tarweeb"
9. School yards level is lower than the street level
10. Pumps are not functioning well.
11. The loud speakers are of low quality
12. The computer lab is very small.[for 10 computers]

This school was completed in November 2, 2006.

Overall Evaluation:

1. The construction of the school building is in compliance with the design drawings and specifications.
2. It is assumed that this school represents the other three schools because they were tendered as one package, and constructed by one contractor under the supervision of one consultant.
3. Delays in construction time were justified.
4. All major aspects of implementation were generally in order.

Madaba First Secondary School for boys

Tender No.:	275/2005
Contractor:	Labib Contracting Company
Supervision:	Engineering Dar Al-Arab
Location:	Madaba Governorate
Directorate:	Madaba
Completion Percentage:	45%
Status:	In progress
Type :	Extension



The visit in brief:

Meeting was with the Contactor's and Consultant representative Engineer Nazeeh Daoud.

This school is part of a tender that consists of seven schools:

1. Al-Fayha' Secondary School for Girls, Madaba
2. Gharnata Basic School for Girls, Madaba
3. Al-Areesh Basic School for boys, Madaba
4. Madaba First Secondary School for Boys, Madaba
5. Prince Hamza Secondary School for Boys, Madaba
6. Al-Yousrah Basic School, Madaba
7. Mansheyet Masoom Basic School , Madaba

The total tender value is about 1,023,000 JD.

Observations

1. The construction sites were far from each other within the same tender.
2. Duration of works ranged from 120-180 working days.

3. Construction time is not enough.
4. The use of Ready-mixed concrete was not possible due to small quantities of concrete on the one hand and site locations on the other hand.
5. For Madaba First Secondary School, the duration of works is 210 working days.
6. Variation Orders were made in this school due to:
 - The fence walls were altered to suit the construction site requirement.
 - Deletion of the septic tank
 - Connection of the sewer pipe to the main sewers.

Overall Evaluation

1. The construction work is so far in compliance with the design drawings and specifications.
2. It is assumed that this site represents the other six sites, because they were tendered as one package, and constructed by one contractor under the supervision of one consultant.
3. All major aspects of implementation were generally so far in order.

Princess Taghreed School for Girls

Tender No.:	163/2003
Contractor:	Modern Company for Civil Works
Supervision:	Royal Scientific Society
Location:	Amman/Qweismeh
Directorate:	Amman Fourth
Completion Percentage:	100%
Status:	Occupied in November 9, 2005
Type:	Complete School



The visit outcome in brief:

Meeting with the School Principal Mrs. Intisar Al-Qhaiwi

Observations

1. The starters of florescent lamps are noisy.
2. Blockage and some damage in sewage pipes; but repaired.
3. Settlement in the school yard; but repaired.
4. Wooden doors are not durable.
5. Paints were not of good quality; paint works were repeated.
6. Theatre Hall is small.
7. Kitchenette room is small.
8. Green area is small.

Design Considerations

1. The school restrooms [Toilets] are external. It is worth reconsidering their locations in the school building.
2. Restrooms for the staff are located in the ground floor. It would be more practical to have those in each floor.



Students during break.



Small Green Area

Overall Evaluation

1. The construction of works is in compliance with the design drawings and specifications.
2. Location of restrooms can better be housed in the school building in every floor for both students and staff.
3. The size of the theatre and kitchenette, is small.
4. All major aspects of implementation were generally in order.

Nuzha Basic School for Girls

Tender No.:	164/2003
Contractor:	Abu Arjah Construction Est.
Supervision:	Wahib Medanat Engineering
Location:	Amman/Nuzha
Directorate:	Amman Fourth
Completion Percentage:	100%
Status:	Occupied in February 4, 2006
Type:	Complete School



The visit in brief:

Meeting with the School Principal Mrs. Hana Abdel-Raheem Yaqoub

Observations

1. The Sand Box is misused by the neighbourhood children.
2. The heating system was not yet tested during the visit.
3. Restrooms for males were not available.
4. Settlement in the school yard was observed.
5. Paints were not of good quality.
6. Kitchenette room is small.
7. No Green area is planned for.
8. Cracks in the fence wall were observed.
9. Leakage of water or drainage pipes caused humidity in the walls.

10. Drainage of rain water was not properly planned for. The rain water from the streets is flooding the school yard.

Overall Evaluation

1. The construction of works is in compliance with the design drawings and specifications.
2. Restrooms can better be housed in the school building in every floor for both students and staff.
3. The size of the theatre and kitchenette is small.
4. Male Restrooms were asked for to be considered.
5. All major aspects of implementation were generally in order.

Al-Samek Secondary School for Girls

Tender No.:	160/2003
Contractor:	Al-Amedah Contracting Est.
Supervision:	Royal Scientific Society.
Location:	Na'oor
Directorate:	Amman Second
Completion Percentage:	100%
Status:	Pending Final Handover
Type:	Complete School

The visit in brief:

Meeting with site supervisor Mr. "Mohammad Munir" "Mohammad Said". The project manager is Engineer Majdi El-Masri. The Tender value is about 732,000 JD and reached a total sum of about 780,000 JD upon its completion.

Justified delays accounted for 280 days due to weather conditions and Variation Orders.

Duration of work: 15 months [14/2/2004 – 24/7/2006]

The contractor, claimed that the main causes of delay were due to:

- Payment for the certificates were delayed.
- The MoE supervision was not comprehensive enough.
- Difficulties were encountered in recruiting the workforce needed.
- The process of handling the Variation Orders lacks flexibility.

Due to the absence of any supporting documents, such claims could not be taken seriously.

Overall Evaluation

1. The construction of works is in compliance with the design drawings and specifications.
2. Restrooms can better be housed in the school building in every floor for both students and staff.
3. All major aspects of implementation were generally in order.

Marj El-Hamam Secondary Mixed School

Tender No.:	125/2004
Contractor:	Al-Amedah Contracting Est.
Supervision:	Bitar Office
Location:	Amman/Marj El-Hamam
Directorate:	Amman Fourth
Completion Percentage:	55%
Status:	under construction
Type:	Complete School

The visit in brief:

Meeting with the project manager Engineer Riyadh Ibrahim Hbeibat and Engineer Mohammad Oreiqat from Bitar's Office.

Duration of works: 390 calendar days. It was extended due to the following justified reasons:

- 45 days for weather conditions
- 20 days due to labor unavailability circumstances
- 21 days for the cement crisis

The contractor claimed that some issues regarding the construction of the water tank and the fence walls will further delay the final completion if the property lines and borders were not resolved. Should these matters be resolved, the project may be completed by February 1st, 2007.

Overall Evaluation:

1. The construction work is so far in compliance with the design drawings and specifications.
2. All major aspects of implementation were so far generally in order.

Al-Kamshah Intermediate School for Girls

Tender No.:	265/2005
Contractor:	Sabti Contracting Company, "Mohammad Abu El-Said."
Supervision:	Al-Daar El-Arabiah Office
Location:	Al-Kamshah/Zerqa
Directorate:	Zerqa
Completion Percentage:	100%
Status:	Occupied
Type:	Extension

The visit in brief:

The existing school houses 295 students, has 8 classroom, 1 teacher room, 1 computer laboratory, 1 kitchen, 1 administration office and 5 WC units. The extension consists of six classrooms, three labs and other service facilities.

Meeting was held with the School Principal Ms. Ghada Hamid Habayeb. She reported that the school was occupied on 26/11/2006.

Observations

- One power socket in each room is not enough.
- The school is short of restrooms.
- The school principal and the staff were pleased to have colored walls.

Overall Evaluation

1. The construction work is in compliance with the design drawings and specifications.
2. All major aspects of implementation were generally in order.

Al Hashemieh New Secondary School for Boys

Tender No.:	172/2003
Contractor:	Al-Rabia Construction Establishment
Supervision:	Bitar Office
Location:	Al Hashemieh/Zerqa
Directorate:	Zerqa
Completion Percentage:	100%
Status:	Occupied in September 1, 2006
Type:	Complete school

The visit outcome in brief:

Meeting with the school Principal Mr. Hasan Eid Al-Zyood

Duration of works: 540 calendar days. It was extended 216 days for weather conditions and other approved delays.

Observations

1. The following items should be of better quality:
 - Door locks
 - Door stops
 - Power sockets
 - Connections to water basins
 - W. C. water hose sprinkler "*Shattafeh*"
2. Water lock in the water tank on the roof does not properly function
3. Floor tiles were not polished
4. The paint could be of better quality
5. No water drain in the theatre or in the corridors
6. Some air fans are not functioning
7. Stores lack illumination
8. Plaster finishes have surface waves
9. School yards are small and not enough
10. Iron doors are heavy but the door hinges are of small size
11. School furniture is not heavy duty
12. Heating system is not fully tested.
13. No green areas are planned to be in the school.
14. Roof surface water is not properly drained; it causes humidity of the walls
15. Transportation means to the school should be arranged

16. The school labs are not equipped yet

The following positive remarks should be acknowledged:

1. The colors of paints are highly received and have positive influence
2. The school attracted many students, especially those of special needs.
3. Having central heating is highly received and appreciated.
4. School labs were acknowledged though they were not yet equipped.

Overall Evaluation

1. The construction of works is in compliance with the design drawings and specifications.
2. Extensions in construction time were justified.
3. All major aspects of implementation were generally in order.

Mecca School [Dhahiyet Mecca Basic Mixed School]

Tender No.:	171/2003
Contact:	Dejlah Construction and Contracting Establishment
Supervision:	Bitar Office
Location:	Zawahreh
Directorate:	Zerqa
Completion Percentage:	100%
Status:	Occupied in August 23, 2006
Type:	Complete school

The visit in brief:

Meeting with the School Principal Ms. Sahar Hamarneh and Engineer Ali Subeih from the contractor's side.

Observations

1. Due to the lack of transformer of electricity, the water pumps are not properly working. The KVA is not enough.
2. Fire alarm system is not working
3. Door stops are harmful to the children
4. Water taps are of bad quality
5. Some cracks in the walls were observed
6. The central heating system was not properly tested.
7. Radiators mounted near the doors need repair.
8. Settlement in the back yard was observed
9. Although the colors were highly received; but the paints were of low quality
10. The school does not have any green areas.

Design Considerations

1. The Construction cost has increased by about 90,000 JD due to Variation Orders to alter the classical fence walls to retaining walls. On the other hand, the soil bearing capacity was not in conformity with the design value. These VOs could have been avoided if the construction site was well studied in advance.
2. The closed water network system may not be ideal due to the lack of continuous water supply. The gravity flow of water could be a better choice.

Overall Evaluation

1. The construction of works is in compliance with the design drawings and specifications.
2. Extensions in construction time were justified.
3. All major aspects of implementation were in order.



The School



Retaining Walls



Use of Stones

