CHAPTER 3 IMPLEMENTATION PLAN

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CHAPTER 3 IMPLEMENTATION PLAN

3 - 1 Implementation Plan

3 - 1 - 1 Implementation Concept

The Project is to construct a total of ten low basic and high basic schools within a limited period using local construction methods and material as many as possible and provide educational equipment and furniture for those schools. The Project should, therefore, be implemented based on proper construction plans prepared by taking into consideration the implementing capabilities of the Palestinian Authority, the actual situation of local construction business and materials in the project area. Thus, the project construction plan should be prepared based on the following policies;

(1) General Principles for the Project Implementation

When the implementation of the Project is approved by the Government of Japan and the Exchange of Notes for the Project is concluded by and between the Government of Japan and the Palestinian Authority, the Project should be implemented based on the following policies;

- 1) The Project will be implemented under the Japanese Budgetary System making use of taxes paid by the Japanese people.
- 2) The Ministry of Education (MOE) representing the Palestinian Authority shall conclude an agreement with a Japanese consultant and entrust the detailed design, assisting services for the selection of a contractor, and construction supervision for the Project.
- 3) With the assistance of the Japanese consultants, MOE will select a Japanese contractor through pre-qualification and competitive bidding and will sign contract with the contractor for the facility construction and equipment procurement.

(2) Basic Policies for the Preparation of the Project Construction Plan

1) To efficiently conduct the Project construction within a limited time period,

local consultants and contractors who are familiar with the local construction and material procurement situations should be fully utilized.

- 2) Strict safety control, quality control, and schedule management should be practiced at construction sites, and a Japanese prime contractor's construction technologies should be transferred to local personnel through the work.
- 3) For the convenience of the maintenance after the Project is completed, construction materials and equipment and furniture units to be provided for the project schools should be either those that are manufactured in the Gaza Strip or imported items that are easily obtainable on local markets.

3 - 1 - 2 Implementation Conditions

As described in Section 2-3-2 "Design Concept", the international situation of the Gaza Strip is still delicate. If an incident with Israel occurs, the Gaza Strip's boundaries will be closed and, as a result, the project area will be isolated. In particular, as most construction materials have to be procured through Israel, a long period of boundary closure may greatly affect the project progress and the costs.

Thus, it is requested to the contractor to conduct construction works under a schedule with allowance. Further, it would be necessary to secure a sufficient amount of major construction material inventory in order to minimize the effects of boundary closure on material procurement activities.

3 - 1 - 3 Scope of Work

(1) Works to be Conducted by the Palestinian Authority

Based on the rules of the Japanese Grand Aid Programme, the following works necessary for the Project should be carried out by the Palestinian Authority:

1) Securing of land

2) Site levelling work

- 3) Securing or construction of an access road to each site
- 4) Providing electricity, water supply, telephone, drainage, sewage line connections and other incidental facilities into the Project site
- 5) Boundary walls and a gate construction
- 6) Outdoor work, such as landscaping including the planting of trees and flowers
- 7) Procurement of equipment and furniture that are not included in the Project.

(2) Land Levelling Work

As a matter of principles, all land levelling works including necessary retaining walls should be borne and undertaken by the recipient country. In case of the Project however, finish levelling works will be included in the Scope of work for Japanese side for the reason as described in Section 2-3-2 (1). Retaining walls necessary for prevailing the adjacent parcels from breaking down at Site No.7 El-Remal will also be included in the scope of work for Japanese side for the same reason.

The rough levelling at Site No.1 Mashrouh Ammer and Site No.5 Ma'an should be undertaken by the Palestinian Authority. The land of each site should be turned over to the Japanese side after being flattened and cleared.

Both sites are located in planned development areas, therefore, the elevation of each parcel land should be determined together with levels of surrounding roads by respective responsible land development agencies.

(3) Removal of Obstacles

Removal of obstacles required at Site No.10 Tambora should be borne and undertaken by the Palestinian Authority.

(4) Access Road Construction

Access road construction required at Site No.1 Mashrouh Ammer, No.2 El-Smeri, Deir El-Balah and No.5 Ma'an should be borne and undertaken by the Palestinian Authority.

(5) Utility Line Connection

1) Amount of Work

Electricity, water supply, telephone, drainage, sewage lines shall be connected into the Project sites by the Palestinian Authority. The following utility lines should be installed from existing sources into the project sites:

Site No.	Site Name	Electricity	Water Supply	Telephone Line	Sewage
1	Mashrouh Ammer	600	600	600	-
2	El-Smeni, Deir El-Balah	30	100	100	-
3	El-Sagera, Abasan	10	10	150	-
4	El-Fatoja, Jabalia	20	20	10	100
5	Ma'an	200	0	200	
6	El- Mozanar	50	20	10	20
7	EL-Remai	100	100	100	100
8	Near Khan Yunis Dist. Office	10	10	10	~
9	Wadi El-Salga, Deir El-Balah	80	80	80	-
10	Tambora, Beit Lahiya	20	20	10	•

Table 3-1 Amount of Necessary Utility Connection Work (unit in meter)

2) Distribution Connection

Utility line connection work to be borne by the Palestinian Authority should be to the following designated points in each site:

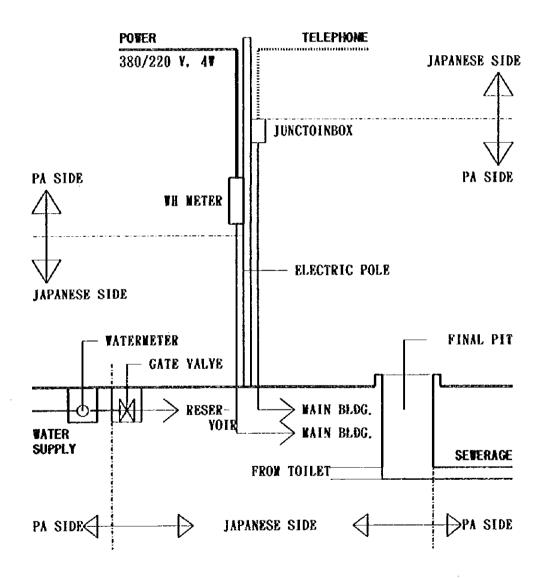
- a) Electricity and Telephone Lines
 - 1) The Palestinian side should intake low voltage lines, install a watt meter on the electric pole to be constructed by the Japanese side, and connect the cables to be drawn on the pole by the Japanese side to the watt meter at each site.
 - 2) As for telephone line, the Palestinian side should intake a line to the pole above and connect it to the terminal box to be installed by the Japanese side.

b) Water Supply

The Palestinian side should intake a 50mm dia. water supply pipe from city mains, install a water meter, and connect the pipe to the gate value to be installed by the Japanese side at each site.

c) Sewage

At Sites No.4, No.6, and No.7, the Palestinian side should construct sewage pipelines and connect them to the final pits to be constructed by the Japanese side. The said work above at No.4 El-Faloja will be to install a pipeline between the final pit inside the site and the existing one in the existing school site and junction pit in-between.



(6) External Work

- 1) Construction of boundary walls and gates is to be borne by the Palestinian Authority.
- 2) To effectively utilize land, some the project sites require retaining walls along the boundary. In such a case, the retaining wall construction should be borne by the Palestinian Authority.
- Landscape work, including the planting of trees and flower beds, shall be undertaken by the Palestinian Authority.
 Walkway, basketball court, and flag poll construction will be undertaken by the Japanese side.

(7) Other Related Work

Procurement of educational equipment other than science laboratory equipment, furniture units for guests, computers, copy machines, and other office equipment should be borne by the Palestinian Authority.

3 - 1 - 4 Construction Supervision

The Project is to build a total of ten basic schools under the Japanese Budgetary System. The total floor space of school buildings is approximately $30,000 \text{ n}^2$. As the construction schedule is considerably tight, it is required for the consultant to supervise the construction work with close coordination between the project implementing agency and contractor, and provide the contractor with adequate and timely instructions and advice. Thus, the works of contractor will be supervised by the consultant as follows:

(1) General Supervision

1) Main Work

General supervision by the consultant includes overall schedule control, overall engineering guidance to the resident engineer, periodical reporting to JICA Headquarters, and other services related to the Project to be provided by the consultant's head office.

2) Management Organization

Consultant engineers in charge of the detailed design will provide the services under the supervision of the project manager who has been involved in the Project from the beginning of the Basic Design Study.

(2) Supervision by Resident Engineer

1) Work of Resident Engineer

Resident engineer's supervision includes daily construction supervision, shop drawing check, technical advice, approval of the project use materials and equipment, general technical guidance, periodical reporting to the Project Implementing Agency as well as the Japanese Embassy, interim and final inspection of the project work, and preparation of the supervision report.

2) Management Organization

A senior engineer involved in the detailed design will reside in the project area and will conduct the project construction supervision with the assistance of local consultants.

3 - 1 - 5 Procurement Plan

As mentioned in the previous section of 3-1-1 " Implementation Concept", all building materials and equipment, science laboratory equipment, and furniture to be provided under the Project should be procured in the Gaza Strip as shown below:

Item Name	Origin Manufactured Area	Area to be Procured	Remarks
Aggregate; Sand Gravel	Gaza West Bank	Gaza Strip Gaza Strip	Good quality and plenty supply Good quality and plenty supply
Cement	Gaza	Gaza Strip	Israel manufactured cement, but, Turkey cement is also available on the local markets.
Ready-mixed concrete	Israel	Gaza Strip	There are several ready-mixed cement factories. Use of a concrete pump is common in the area.
Concrete block		Gaza Strip	Concrete blocks are manufactured by using
Steel bars	Israel	Gaza Strip	Israel made steel bars are available in the the Project area.
Lumber	Gaza	Gaza Strip	Pine lumber is imported, but available on the local markets.
Aluminum building material	Gaza	Gaza Strip	Israel manufactured aluminum building material is available on the local markets.
Steel building material	Israel	Gaza Strip	Locally manufactured by using imported material.
Wooden building material	Gaza	Gaza Strip	Locally manufactured by using imported material.
Paint	Israel	Gaza Strip	Israel manufactured paint and also imported paint are available on the local markets.
Waterproofing material	Israel	Gaza Strip	
Sanitary equipment	lsrael	Gaza Strip	Israel manufactured products and imported products are available on the local markets.
Pipes	Israel	Gaza Strip	
Distribution panel	Gaza	Gaza Strip	Locally manufactured by using imported materials.
Electrical wires	Israel	Gaza Strip	Israel manufactured wires and also imported wires are available on the local markets.
Lighting fixtures	Isracl	Gaza Strip	Israel manufactured units and imported units are available on the local markets.
Furniture	Gaza	Gaza Strip	There are five furniture manufacturers using imported materials. They have been providing the products to MOE.
Science laboratory equipment	U.S.A. and other countries	Gaza Strip	Most equipment is manufactured in U.S.A., European countries, Israel, India, china, etc. There are four sales agents in the Project area who periodically supply those items and who maintain certain amounts of inventory. Thus, those items are considered as locally available items.

Table 3-2 Major Material and Equipmen for the Project

3 - 1 - 6 Implementation Schedule

A total of ten low basic and high basic schools will be constructed in two Phases; seven schools during Phase I and three schools during Phase II. It will take ten months net to build one school. As the Project is conducted under the Japanese fiscal year system, one phase shall be completed within a fiscal year. Thus, it is necessary to start the work simultaneously at all sites in one construction phase period. The project work in each Phase should be carried out in accordance with the following schedule:

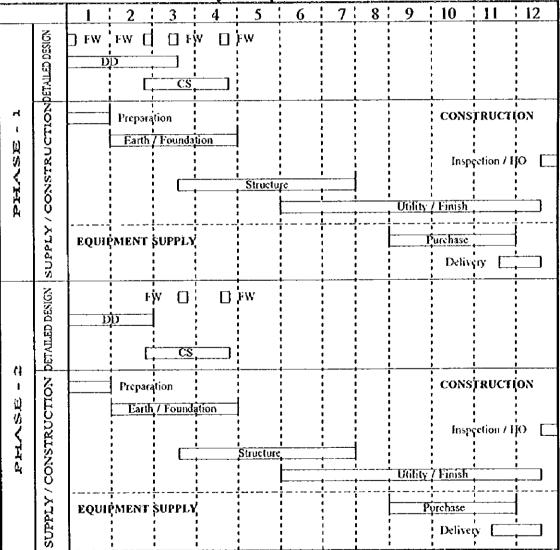


Table 3-3 Project Implementation Schedule

FW: Filed works in the Palestinian Authority DD. Detailed design and tender document preparation CS: Client support for Prequalification, tender, and contract

3 - 1 - 7 Obligation of the Palestinian Authority

The purpose of the Grant Aid Programme of the Government of Japan is to provide financial assistance for development projects to countries attempting to implement projects with self-help efforts. Based on this basic policy, the Government of Japan requests recipient countries to share a reasonable burden. The policy is equally applied to any recipient country in the world.

Once the Government of Japan decides to provide Grant Aid for the implementation of the Project, the Palestinian Authority shall undertaking the following:

- (1) To provide the Japanese side with information and data pertinent to the Project:
- (2) To prepare land necessary for the Project and obtain rights for MOE to construct the project facilities : During the field survey period, it was confirmed that rights to construct the project facilities had already been obtained. MOE shall secure the rights for all land to proceed the construction without problems.
- (3) To secure, remove existing objects, clear or reclaim land prior to the commencement of construction. The applicable sites are No.1 Mashrouh Ammer, No.5 Ma'an, and No.10 Tambora as described in Section 3-1-3.
- (4) To prepare access roads to project sites: The applicable sites are No.1 Mashrouh Ammer, No.2 El-Smeri, and No.5 Ma'an as described in Section 3-1-3.
- (5) To undertake landscaping, construction of boundary walls, outdoor lighting, and other incidental outdoor work, if necessary.
- (6) To connect infrastructure lines, such as power supplies, water, telephones, sewerage, including incidental work, to each project site.
- (7) To secure teachers and administrative staff members as well as a sufficient amount of funds necessary for operating and maintaining completed project facilities including equipment that are to be procured by grant aid.

- (8) To bear commission to Japanese foreign exchange bank for banking services based on the banking arrangement: After the Exchange of Notes for the Project, the Palestinian Authority must immediately open an account in a Japanese foreign exchange bank. In addition, once a Japanese firm or individuals make a contract agreement with the Palestinian Authority for the Project, the Palestinian Authority must immediately issue the "Authorization to Pay" and pay advising commission and payment commission to the bank.
- (9) To ensure expeditious unloading of project use materials and equipment purchased by grant aid, exemption of taxes, customs clearance fees at the port of disembarkation, and prompt inland transportation.
- (10) To exempt Japanese juridical and physical nationals engaged in the Project from customs duties, domestic taxes, and other levies that may be imposed in the West Bank and the Gaza Strip to the supply of products and services under the verified contracts.
- (11) To provide every convenience to Japanese nationals engaged in the Project under the verified contract when they enter into or stay in the Palestinian Authority Territories to perform their work.
- (12) To give permission, approval, and other authorization that may be necessary for the project implementation.
- (13) To adequately and effectively use and maintain the project facilities and equipment under the responsibility of MOE.
- (14) To bear all costs necessary for the implementation of the Project excluding those that are to be borne by the Japanese side but including costs for such as land preparation, access road construction, infrastructure line connection, and other incidental work.
- (15) To obtain building permits from related municipalities to build school facilities at each project site under the cooperation of consultant prior to the commencement of construction. In addition, to obtain permits for use of completed facilities from relevant authorities, if necessary.

(16) To provide expeditious assistance, decision, and judgement whenever requested by consultant for smooth project implementation.

3 - 2 Operation and Maintenance Plan

3 - 2 - 1 Operation and Maintenance System

The Project facilities will be operated and maintained by each school under the supervision of Gaza Sub-Directorate and Khan Yunis Sub-Directorate for Education.

(1) Management Staff

 Each school is managed by teachers and supporting staff under the supervision of a headmaster. In a low basic school, teaching in a class unit is basically conducted by an assigned class teacher, however some specific subjects will be taught by specialized teachers. In a high basic school, each subject is basically taught by a specialized teacher.

The necessary number of teachers for each type of the project schools is estimated based on the number of classes and teaching hours a week. The following shows the numbers of teaching staff members by school types.

School Type	Class Teachers	Specialized Teachers	Assistant Teachers	Total
18 Classroom Low Basic School	18	2	2	22
24 Classroom Low Basic School	24	2	2	28
18 Classroom Low and High Basic School	6	19	3	28
24 Classroom Low and High Basic School	12	19	4	35
24 Classroom High Basic School	0	30	4	34

Table 3-4 Estimated Number of Teachers

- 2) It is planned that the project school head masters and teachers will be transferred from existing schools. It will not necessarily be required to recruit new teaching staff. However, it is necessary to recruit secretaries, security guards and other supporting staff members for the project schools.
- 3) The necessary number of staff, other than headmasters and teachers, hired by MOE for each school may vary depending upon the size of school. However, it can be assumed that each school will require one headmaster's secretary, one supply managing staff, one janitor, and one security guard.
- 4) Each school's canteen will be managed by either a contracted person or school hired personnel.

(2) Maintenance System

- 1) Maintenance of the project facilities should be undertaken by each school as a general principle. Daily cleaning and minor repair work, such as replacing light bulbs, should be conducted by the school staff and the costs should be allotted from the ordinary management budgetary funds of the school.
- 2) When a relatively large repair is necessary, the technical staff of the maintenance department of MOE's local office will check the damage and evaluate the costs. Such repair work will be conducted with the budgetary funds of MOE's local office. When repair costs are too high for the budgetary funds of MOE's local office, the repair will be undertaken with the budgetary funds of MOE's Gaza Office.
- 3) Simple repairs to educational equipment are made by MOE's technicians. Complicated repair work is farmed out to the sales agent who initially supplied the equipment. Computers and copy machines are periodically inspected and cleaned by MOE's technicians.

3 - 2 - 2 Operation and Maintenance Costs

(1) School Operation Costs

Annual costs required to adequately operate, manage and maintain a total of ten the Project schools are estimated as shown in the following table:

Cost Item	Detail Description	Cost (US\$)	Basis of Estimation
Personnel Expenses		1,410,000	Number of staff Average Salary
Utility and Communication	Electricity and water	2 2,000	Average of existing schools 10 schools
Costs	Telephone	14,000	Average of existing schools 10 schools
Consuming Office Supplies	Stationary	10,000	Average of existing schools 10 schools
Educational Materials	Textbooks, etc.	190,000	Average of existing schools 10 schools
Facility Repair	Light balls	1,000	10% of bulb costs
	Paint repair	61,000	10% of painting work costs
	Roof waterproofing	15,000	10% of waterproofing work costs
	Building damage repair	7,000	10% of wood work and incidental work costs
	Sanitary equipment repair	10,000	10% of sanitary installation costs
Educational Equipment	Equipment and furniture	17,000	1% of furniture cost
Repair	Science laboratory equipment	6,000	1% of equipment cost
Total		1,763,000	

Table 3-5 Operation and Maintenance Cost

(2) MOE's Additional Expenditures for the Project Schools

 Additional expenditure required for the project school operation total US\$ 259,000; US\$120,000 for personnel expenses of new staff, US\$22,000 for electricity and telephones, and US\$117,000 for facility and equipment repair costs. MOE must secure new budgetary funds for this additional expense. However, other expenditures for the project schools are basically those that are already arising at existing schools before implementing the Project hence, those expenditures are not considered as additional expenditures for the Project. 2) The amount of US\$117,000 for repair costs is an average of the first ten year period. Thus, it would cost much less than at the initial stage. In addition, repair costs depend upon how much care is taken when using the facility and equipment, how often maintenance activities, such as cleaning are done, and how early repairs are implemented. Since it will be possible to reduce the amount by the effort of it's users, proper maintenance and care by all users is requested.

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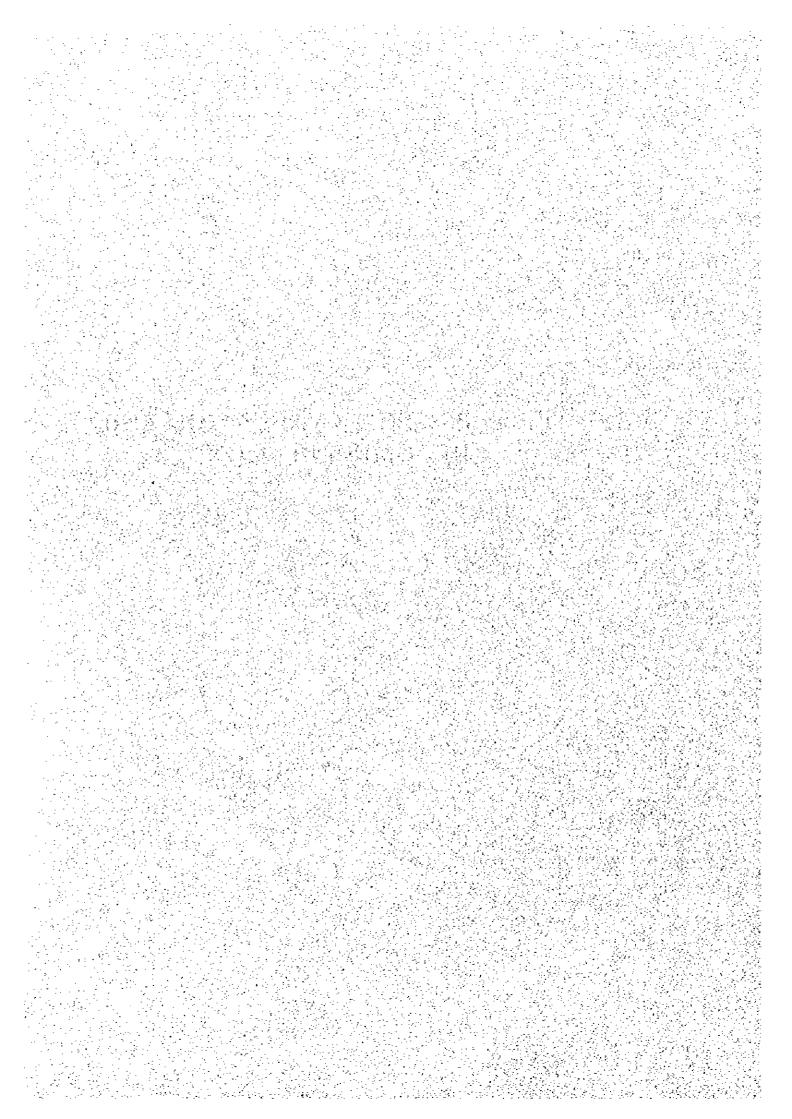
CHAPTER 4 PROJECT EVALUATION AND RECOMMENDATION

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CHAPTER 4 PROJECT EVALUATION AND RECOMMENDATION

4 - 1 Project Effect

Due to the long occupation by Israel, both the low and high basic education in the West Bank and the Gaza Strip have various problems. Firstly, the contents of education have remained in pre-occupation conditions with less reform. As a result, they do not meet present social needs. Although the population in the areas doubled during the occupational period, new school construction was barely implemented. Thus classroom shortage has become extremely serious due to a limited number of facilities. In particular, the population is very dense in the Gaza Strip and increases very rapidly. 90% of low and high basic schools must conduct double shift operations with overcrowded classrooms. Lack of school facilities has resulted in various problems, such as long school travelling distances and unequal educational opportunities for boys and girls. MOE has been attempting to solve the problems by placing weight on the following four subjects: development of new Patestinian curricula and reform of textbooks, increase and improvement of school facilities and proper allocation of schools, improvement of scientific and technical education, and improvement of teaching quality and teachers' capability.

The Project is to construct ten low and high basic schools in the Gaza Strip and provide educational equipment, and aims to alleviate the classroom shortage problem, improving the educational environment, and thereby contributing to human resources development in the area. The basic design was prepared so that the Project will bring in the following effects:

(1) Direct beneficiaries of the Project are children living near the project areas who will be able to go to the project schools, after the completion of the facilities. According to MOE's Gaza Office, the number of first to tenth grade pupil in the Gaza Strip was 101,716 in January 1997. At that time there were 2,370 classes and 1,210 classrooms. It is said that the number of school-age children increases 8% annually. This percentage indicates an annual increase of 8,000 children. By assuming 40 children to a class, 200 new classrooms are needed each year. To realize the abolishment of double shift operations, the main target of MOE, approximately 2,000 classrooms will be needed by the year 2000.

The Project is to construct 222 new classrooms for ten schools. When the single shift operation is conducted in project schools, the 222 classrooms can

accommodate 8,880 pupils. If the double shift operation is conducted, 17,760 pupils will benefit from the Project. The former number is equivalent to the increased number of children in one year in the Gaza Strip. The latter number is equivalent to the increased number of children in two years. The number of classrooms to be built by the Project is equivalent to 11% of the classrooms required for abolishing double shift operations.

- (2) As there are no schools within the range of 1.5km from five Project areas (No. 1, No. 2, No. 3, No. 5, and No. 9), children in the areas must walk long distances to go to existing schools. After implementing the Project, children's long distance schooling will be alleviated.
- (3) Low and high basic schools have been constructed in the Gaza Area by financial aid from various international agencies and foreign countries. On the other hand, unequal schooling opportunities for boys and girls have been caused in relevant areas as a result of such school construction projects. The Project aims to solve the unequal schooling opportunities problem, created by previous school construction projects, by constructing high basic schools for boys at Sites No. 5, No. 7, and No. 10.
- (4) In order to execute the new Palestinian curricula being prepared by MOE, the abolishment of double shift operations is indispensable and, accordingly, many classrooms are needed. Classroom construction through the Project will contribute to preparing a base for implementing the curricula. Furthermore, it can be expected that educational quality will generally be improved at the project schools, which will be furnished with science laboratories and other special rooms.

After the completion of the Project, whole or part of existing school organization will move to each project school. Recruiting of a large number of teachers will not be necessary. Only recruitment of a small number of supporting staff members will be necessary but it will not be difficult in the Gaza Strip, in light of the present situation of the labor market. Thus, it can be considered that there will be no personnel problems, in securing operating structures for the project school operations.

The operation and maintenance costs required for the ten project schools are estimated to be US \$259,000 a year. The figure is equivalent to 0.15% of the present MOE's annual recurrent expenditures. Since MOE's recurrent budget

increased 3% for 1997 fiscal and the above estimated costs is only one twentieth of the increased amount, it is considered that such an amount will be secured without foreseen problems.

The costs to be borne by the Palestinian side for implementing the Project are estimated to be US \$485,100, of which source will be categorized as the development budget of the Palestinian Authority. MOE basically does not have a development budget. However, in 1997 MOE has secured approximately US \$590,000 for the expansion of the MOE Gaza Office and the building construction of EI- Demrdash School. Thus, it is judged that it would be possible to secure the necessary amount of money from the national treasury. The estimated amount of money for project implementation is less than 0.3% of MOE's annual recurrent expenses. It will not also be difficult for MOE to adequately reallocate the budgetary funds and secure necessary funds for project implementation.

In view of above, the Project will bring in various effects and satisfy all the requirements for the Grant Aid Programme of the Government of Japan. Thus, it is concluded that implementing the Project under the Grant Aid of the Government of Japan is worthwhile and meaningful.

4 - 2 Recommendation

As examined in the previous section, implementing the Project will result in various effects and Project implementation with Grant Aid from the Government of Japan is considered as appropriate. However, the Project will be smoothly implemented and the Project facilities will be operated more effectively if the Palestinian Authority will make effectively in regard to the following:

(1) Complete Implementation of Works to be Borne by the Patestinian Side

Based on the rules of the Grant Aid Programme of the Government of Japan, most of land preparation work, connection of infrastructure lines, building of boundary walls including gates, landscaping and planting of trees, and other outdoor work shall be undertaken by the Patestinian side at its own expense. Thus, the Palestinian Authority must secure a sufficient amount of funds for the above works in the budget of 1998 fiscal year. As such development funds are not usually allocated to MOE, the Authority must take certain measures. Although the construction of boundary walls and gates by the Palestinian side will not directly affect the progress of work to be undertaken by the Japanese side, it would be desirable that it be completed as soon as possible from the viewpoint of safe school life of pupils and more effective education, because most Project schools are located in urban areas.

(2) Proper Operation and Maintenance of the Project Facilities

The costs required for the operation and maintenance of project facilities is estimated to be US \$259,000 annually. It is a very small percentage of MOE's recurrent expenses. There is, however, some concern over securing the necessary budget when being reminded of the financial situation of MOE, who is receiving a portion of the funds for recurrent expenses from foreign aid agencies. Thus, it is highly desirable that personnel concerned in MOE and other related offices make every effort to secure sufficient funds for operation and maintenance, and also to minimize operation and maintenance costs by conducting daily cleaning and inspections, and timely repair work of project facilities.

(3) Effective Use of Science Laboratory Equipment in Low Basic Schools

As a general principle, teachers at the low basic schools in the Gaza Strip have to teach all subjects. It would be rather difficult for a teacher to teach science classes by fully utilizing science laboratory equipment, if he or she is not a specialized science teacher. By taking this situation into full consideration, items of equipment were selected so that ordinary teachers could easily use them. However, to utilize the equipment more effectively, it is desired that ordinary class teachers be trained or science teachers be assigned to low basic schools as often as possible.

(4) Preparation of Books in Library

Only a few low and high basic schools in the Gaza Strip have libraries for pupils. The reason is not only due to the lack of facilities, but to the shortage of books for pupils. On the other hand, having libraries at schools is very important for education. By taking into consideration the present situation and the fundamental necessity, libraries are planed to function as study rooms. It is requested that MOE continuously increase the book stock of school libraries so that the libraries will be used not only for students led by teachers but also for independent book reading and studies on the part of pupils.

APPENDICES

1. MEMBER LIST OF THE SURVEY TEAM

Basic design study team (June 2 through July 1, 1997)

Yoshie Muramatsu	Leader	Second Project Study Division, Grant Aid Project Study Department, Japan International Cooperation Agency (JICA)
Taro Kikuchi	Grant Aid Project Planning	Grant Aid Division, Ministry of Foreign Affairs
Masao Okui	Chief / Architectural Design and Facility Planner	Mohri, Architect & Association, Inc.
Kenichi Tanaka	Education and Social Environment	Mohri, Architect & Association, Inc
Shiro Sasaki	Facility and Equipment Planner 1	Mohri, Architect & Association, Inc
Nobuhiro Mohri	Facility and Equipment Planner 2	Mohri, Architect & Association, Inc
Yoshiaki Ichibagase	Construction Planner and Quantity Surveyor	Mohri, Architect & Association, Inc

Draft report explanation team (August 29 through Sept. 9, 1997)

Kiyoto Kurokawa	Leader	JICA U.K. Office Japan International Cooperation Agency (JICA)
Masao Okui	Chief / Architectural Design and Facility Planner	Mohri, Architect & Association, Inc.
Yoshiaki Ichibagase	Construction Planner and Quantity Surveyor	Mohri, Architect & Association, Inc

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2. SURVEY SCHEDULE

Education and Facility and Facility and Construction **HCA Leader:** Chief Consultant No. Date Day Equipment Planner and Social Architectural Equipment Y.Muramatsu (A) Environment Design and Planner 1: Planner 2: **Ouantity** Ministry of Foreign Affairs: Facility Planner: Planner: Surveyor: Y.Ichibagase (G) K.Taneka (D) N.Mohri (F) M.Okui (C) S.Sasaki (E) T.Kikuchi (B) ACE:Ly.Narita10:45 (NH-285)-> Ar. Vienna16:10 6' 2 Men ACE:Lv. Vienna10:35 (OS-711)-> Ar. Tel Aviv15:05 3 Tue Meeting with Embassy of Japan (Tel Aviv) ACE: Meeting with MOE (Ramallah) (Tel Aviv) Wed 4 (Tel Aviv) ACE: Meeting with MOE (Gaza) 5 Thu ACE: Meeting with EU (Jenusalem) 6 Fn B:Ar. Tel Aviv (AZ-810) (Tel Aviv) Lv. Narita10:45(NH-285) -> Ar. Vienna16:10 Meeting with MOPIC, MOE (Gaza) (Tel Aviv) 7 Sat Lv. Vienna10:35(OS-711)-> Ar. Tel Aviv15:05 Meeting on Minutes of Discussion, MOE (Gaza) (Tel Aviv) 8 Sun (Tel Aviv) Meeting with MOE (Gaza). World Bank CPU, UNRWA, Survey on school buildings (Tel Aviv) 9 Mon R (fel Aviv) Meeting with MOE (Ramallah), Signing of Minutes of Discussions 10 a Tue Meeting with local consultant Same as Same as Same as ABFD:Report to AB CE AB Embassy of Japan (Jerusalem) B:Ly.Tel Aviv18.55(RJ3401) -• Ar.Amman19:30 (Tel Aviv) Architecural data collection Wed 10 n A School Survey Planning Same as A (Tel Aviv) B:Meeting w/ JICA Transfer to Gaza, Meeting with MOE(Gaza) A Lv. Tel Aviv 8.05 ü 12 Thu -> Ar.London11:30(BA657) B-Meeting w/ UNRWA Report to (Gaza) Embassy of Japan (Jordan) Data collection & Analysis, Meeting among team member Fri A Report to 12 13 U.K.JICAOffice Lv London 19:45(JL402) B.Lv. Amman10-25(BA6706) (Gaza → Ar London14:05 (Gaza A:Ar.Narita15:20 Meeting with MOE (Gaza) 13 14 Sat Data Analysis Same as C Same as D Same as F Sile 14 15 Տաո (Gaza Inspection (2) Same as F Same as D 15 Data Analysis Site Survey on 16 Mod (Gaza Trial Tender Inspection (3) Exist schools Survey: on Same as F Same as D Plansing Sile 16 17 Tue (Gaza Inspection (2) Exist. schools Same as F Survey on Exist Survey on Same as D Wed Site 17 18 (Gaza Exist.schools schools Inspection (3) 18 19 Դիս Trial Tender, Survey on Same as C Survey on Exist Infrastructure (Gaza) schools (Gaza) Data Analysis, Meeting among team member 19 20 Fri Same as F Meeting with Survey on Data 20 21 Sat Same as F MOE Infrastructure Analysis Meeting with MOE Meeting w/ UNRWA (Gaza Meeting w/ Data collection Same as F 21 22 Sun Planning Re-survey of sites (5) People (Gaza Meeting w! Planning Same as F 22 23 Mon Survey on Meeting w/ Gaza city staff People (Ga7a Furniture Data Analysis Same as F Meeting with Meeting w/ Data 23 Tue 24 K.Y. city staff Analysis (Gaza MOE Same as I Meeting w/ Same as C 24 25 Wed Meeting with Same as C (DE:Tel Aviv) Curriculam MOE (CEG:Gaza) Center Meeting and Explanation of Same as C Same as F Data 25 The 26 Progress reportatat at MOE(Gaza) Collection at MOE (Tel Aviv) (Tel Aviv) 26 27 Fn Data Analysis (Tel Aviv) Report to MOE(Ramallah), Inspection of Jericho Hospital 27 28 Sat Report to Embassy of Japan 23 29 Տսո Lv. Tel Aviv16:25(LH-710) -> Ar Frankfurt (Frankfurt) Lv.Frunkfurt20:50(JL-408) (In-flight) 30 29 Mon Ar. Narita14:20 7/1 Tue 30

(1) ITINERARY OF THE FIELD STUDY TEAM

No.	Date	Ъзу	JICA Leader	Chief Consultant / Architectural Design and Facility Planner	Construction Planner and Quantity Surveyor
			Kiyoto Kurokawa (A)	Masao Okui (B)	Yoshiaki Ichibagase (C)
1	8/29	£'n		Lv.Narita11:55 -> Ar.London16:25	
			Meeting among Team members		(London)
2	30	Sat	Ly, London10:15 -> Ar, Tel Aviv17:10		(Tel Aviv)
3	31	Sun	Courtesy visit and Meeting with Embassy of Japan, MOPIC, and MOE(Gaza)		(Gua)
1	9.1	Meo	Inspectiegn of Sites and Meeting with MOE(Gaza)		(G223)
5	2	Tue	Inspection of Sites and Meeting with MOE (Gaza) (G		(Gaza)
6	3	Wed	Courtasy visit and Meeting with MOE (Ramallah) (Ramallah)		
7	4	Thu	Meeting with MOE (Ramallah), Discussions on Minutes (Ramallal		
8	5	Fn	Meeting among Team members		(Ramailah)
9	6	Sat	Signing of Minutes of Discussions (Tel Av		(Tel Aviv)
10	7	รษก	Report to Embassy of Japan		
			Lv.Tel Aviv18:35 → Ar.London22:00	Lv. Tel Aviv16:50 -> Ar. Paris20:40	(Paris)
11	8	Mon	Lv. Paris20:15 (In-Ili		(In-flight)
12	9	Tue	Ar. Narital5.00		

(2) ITINERARY OF THE DRAFT REPORT EXPLANATION TEAM

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3. LIST OF PARTY CONCERNED IN THE PROJECT AREA

(1)	Ministry of Education, Ramallah	
	Naim Abu Hommous	Deputy Minister
	Fawaz Mujahed	Director General, Buildings & Projects
	Khalil Mahshi	Director General, International & Public Relations
	Ashraf Shuaibi	Director of Project
(2)	Ministry of Education, Gaza	
	Dr. Abdallah Abdul Min'em	Assistant to the Deputy Minister for Gaza Strip Affairs
	Dr. Haifa'a F. El-Agha	Assistant to the Director General, Education Planning & Development
	Mr. Nu'man A. Sherif	Assistant to Director General, International & Public Relations
	Mr. Mohammed Nizar Jaradeh	Assistant to the Director General, Buildings & Projects
	Mr. Mazen K. Murshed	Engineer of Buildings & Projects
	Mr. Saher Mushtaha	Chief, Procurement Department
	Mr. Mohammed Hassan Matar	Surveyor of Buildings & Projects

Mr. Mohammed Hassan MatarSurveyor of Buildings & ProjectsMr. Khalil MahdiDraftsmanMr. Ziyad A. KullabP.C.U. Assistant, Civil Engineering

(3) Ministry of Planning and International Cooperation

	Mr. Waleed Slam	International Cooperation
(4)	Ministry of Housing	
	Mr. Ghassen Arkhaldi	Infrastructure Engineer, Consultant Department
	Mr. Mohamed Jarada	City & Regional Planner, Urban Development
(5)	Ministry of Telecommunication	

5) Ministry of Telecommunication Mr. Yousef A. Abu Dayer

Engineer

- (6) Palestine Energy Authority Dr. Amin Abu Warden Dr. Rafig Maliha Mr. Jawdat Abadlah
- (7) Palestine Water Authority Mr. Saml Hamdam
- (8) Municipality of Gaza Mr. Hamdam Zeyar Mr. Huseen S. Abu Zaid

Mr. Gassan Jaber Mr. Farok El-Nabi

(9) Municipality of Khan Yunis Mr. Saleem El-Agha Mr. Abdo Alla Shopait Mr. Khames Abd Alezez Reshwan

Mr. Mohamed Saied Brahim

(10) Municipality of Deir El-Balah Mr. Sami Abu Salim Mr. Hassan Ouda Barak

(11) Municipality of Abasan El-Sagera Mr. Ismail A. El-Shawaf

(12) Municipality of Jabalia El-Nazla Mr. Hamdy Mutair

Mr. Yousef H. Abu Warda

(13) Municipality of Beit Lahia Mr. Bassam A. Hamouda Mr. Younes Hossain Ghalia

Director General Planning & Research Director of Power Generation Director of Transmission

Hydrogeologist, Data Bank Coordinator

Head of Water Department Deputy Director, Operation & Maintenance, Waste Water Electrical Engineer, Electrical Department Luitenant Colonel, Fire Station

Chief, Water & Waste Water Department Head, Electric Division Head, Department of Regulation and Planning Head of Fire Station

Mayor Consultant Engineer

Engineer

Head of Water & Waste WaterDepartment Director, Technical Department

Mayor Engineer

(14) UNRWA, Gaza Office

Mr. Richard J. Cook
Mr. Sean A. Collin's
Mr. Yahya R. Khatib
Mr. Patrick Barbieri
Mr. Ahmed Mouba
Mr. Isa Qavva
Mr. Mustafa El-Halabi

Deputy Director Field Technical Officer Deputy Field Technical Officer Project Officer Chief Field Education Officer Public Information Officer Field Relief Services Officer

(15) European Union

Mr. Fernard Clement Mr. Khalil Nakhleh Project Coordinator, EU Technical Assistance for Education, EU

(16) Embassy of Japan in Israel

Mr. Toshio Kunikata	Minister
Mr. Matahiro Yamaguchi	First Secretary
Mr. Katsuo Shoji	First Secretary
Mr. Katsuyoshi Hayashi	Secretary

(17) The Study Team on Sewerage Development Plan in the Area of Khan Yunis Dr. Noribiro Noda Mr. Shohei Sata Engineer

Mr. Shohel Sala	Engineer
Mr. Kenji Uchida	Engineer
Mr. Hiroyuki Kimura	Engineer

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4. MINUTES OF DISCUSSIONS

Minutes of Discussions on the Basic Design Study on the Project for Construction of School Facilities for Basic Education in the Palestinian Authority Territories "the Gaza Strip"

In response to a request from the Palestinian Authority (PA), the Government of Japan has decided to conduct a Basic Design Study on the Project for Construction of School Facilities for Basic Education in the PA territories (hereinafter referred to as "the Project"), and entrusted the study to Japan International Cooperation Agency (JICA).

JICA sent to the PA territory for "the Gaza Strip" the Basic Design Study Team headed by Ms. Yoshie MURAMATSU, Second Project Design Division, Grant Aid Project Study Department, JICA, and is scheduled to stay in the country from the 3rd June to the 29th June, 1997.

The team held a series of discussions on the Project with the officials concerned of the PA and conducted a field survey at the study area.

As a result of discussions and field survey, both parties confirmed the main items described on the attached sheets.

The Team will proceed to further work and prepare the Basic Design Study Report.

Ramaliah, the 10th June, 1997

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Yoshie Muramatsu Leader Basic Design Study Team Japan International Cooperation Agency

Varine Aber Homenson

Naim Abu Hommous Deputy Minister Ministry of Education

Witness

Waleed A. Siam Deputy Director Genral International Cooperation Ministry of Planning & International Cooperation

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ATTACIIMENT

1. Objective of the Project

The objectives of the Project are to improve the educational environment by constructing new school buildings, providing equipment for the basic education in the Gaza Strip, and to contribute the human resources development.

2. Responsible and Executing Organization

The responsible and executing organization of the Project is the Ministry of Education (MOE). After the implementation, the MOE for Gaza Strip Affairs will be responsible for the maintenance of the schools and equipment granted under the Japan's Grant Aid.

3. Sites of the Project

The ten (10) sites in the Gaza Strip listed in Annex-1 have been confirmed as the candidate sites for the new school construction and be surveyed for the Project. The location of the each site is shown in Annex-2.

- 4. Contents of the Request by the Ministry of Education (MOE)
 - (1) After a series of discussions, the MOE requested the items attached as Annex-3.
 - (2) Both Sides have agreed on the criteria for the basic design of the Project as follows.
 - a) The project sites will be examined in accordance with the criteria attached as Annex-4.

The project sites and the type of each school will not be either changed nor added after the study team completes the field survey. If any project site were found inappropriate based on the criteria Annex-4 after the completion of the field survey, the site should be automatically withdrawn.

b) The buildings will be designed in accordance with the criteria attached as Annex-5.

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- c) The equipment will be selected in accordance with the criteria attached as Annex-6.
- (3) The final contents of the Project will be decided by the Japanese side at its discretion.
- 5. Japan's Grant Aid Programme

The MOE has understood the system and characteristics of Japan's Grant Aid Programme explained in Annex-7 by the Team.

- 6. Necessary Measures to Be Taken by the MOE
 - (1) On condition that the Grant Aid Programme by the Government of Japan is extended to the Project, the MOE will take the necessary measures described in Annex-8 for smooth implementation of the Project. Moreover, the implementing agency will secure the proper and effective operation and maintenance of the buildings as well as the equipment provided under the Project.
 - (2) Since the allocation of teaching and administration staff members is one of the most important measures to be taken by the MOE for the Project, the MOE should submit the detailed plan with the budget estimation for the new employment as well as the transfer of staff already employed.
 - (3) The MOE assigns (a) officer(s), who is in charge of the Project and responsible to supervise the construction and maintenance of the basic schools in the Gaza Strip, to accompany the study team surveying the Project sites and the existing schools.
 - (4) For the smooth operation while surveying the existing schools, the MOE shall secure that school masters, teaching and administration staff assist the survey. The MOE shall also support the study team for conducting interviews with parents and representatives of communities.
- 7. Further Schedule of the Sturdy
 - (1) JICA will prepare a draft report of the Study, and dispatch a mission in order to explain the contents to the Palestinian side around August, 1997.

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(2) In case that the contents of the report is accepted in principle by the Palestinian side, JICA will complete the final report of the Study and will send it to the Palestinian side around November, 1997.

8. Other Relevant Issues

With special consideration for the unusual density and population growth in the Gaza Strip, the MOE has requested to design the school building structure preparing the future extension above the top floor due to the lack of Land.

However, both sides agreed that the final decision will be made by the Japanese side, in accordance with the nature of Japan's Grant Aid which supports the minimal necessity in principal.

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Annex-1 List of Candidate Site for Schools to be Surveyed for the Project

(1)	Gaza	Mashrouh Ammer, Low Basic, Co-Ed (24 cl)
(2)	Khanyovnis	EL-Smeri, Low Basic, Co-Ed (24 cl)
(3)	Khanyounis	Abasan EL-Sagera, Low Basic, Co-Ed (18 cl)
(4)	Gaza	EL-Faloja, Low Basic, Co-Ed (24 cl)
(5)	Khanyounis	Maan, Low Basic, Co-Ed (24 cl)
(6)	Gaza	EL-Mozanar, High Basic, Boys (24 ci)
(7)	Gaza	EL-Remal(Palestine Play Ground), High Basic, Boys (24 cl)
(8)	Khanyounis	Near Khanyounis Dir. of Ed., Low Basic, Girls (18 cl)
(9)	Khanyounis	Deir EL-Balah-Wadi- EL-Saiga, Low Basic, Co-Ed (18 cl)
(10)	Gaza	Beit Lahia-Tambora, High Basic, Girls (24 cl)

Annex-2 Location Maps of the Project Sites

(Attached)

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Annex-3 Items Requested by the MOE

Ten (10) School Buildings

Normal Classrooms

Special Classrooms

(Science Laboratory(ies), Vocational Workshop, Art Room,

Computer Practice Room, Multi-purpose Room, Library)

Administration Offices

(Head Master Room, Secretary Room, Teacher Room,

Emergency Clinic, Social Worker Rooms, Guard Rooms, Storages)

Canteen

Toilets

Water Supply Facilities (Inside the Site)

Electric Facilities (Inside the Site)

Drainage Facilities (Inside the Site)

Equipment

Science Laboratory Equipment

Other basic equipment needed

Furniture

Desks

Chairs

Cabinets

Others



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Annex-4 Criteria for the Site Selection

- 1. Give a priority to the site which will be necessary to relieve overcrowding of the double shifts operation.
- 2. Give a priority to the site which will be necessary to relieve a long distance journey to the schools and secure the equal access both for boys and girls.
- 3. The legal rights for using a project site must be secured by the commencement of the construction work.
- 4. There must exist minimal required pupils in the school district wherein a project site is located.
- 5. Any plan for school construction or other projects, by either the MOE or international / bilateral donors, should not exist on the same project sites.
- 6. Proper access road must exist in order to carry construction materials and equipment into each project site.
- 7. A project site in topographically inappropriate for construction (e.g. steep land, swamp, etc.) shall be eliminated.
- 8. On each project site, there shall be no foreseen natural and environmental or social hazards which endangers the workers safety during the construction.



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Annex-5 Criteria for the Building Design

- 1. Buildings should satisfy the minimal functions complied with the curriculum for basic education at present and near future.
- 2. The number of classrooms and other rooms in a building should accommodate the minimal necessity complied with circumstances at present and near future, such as the educational system, school age population in each school district, etc.
- 3. The specification of buildings shall follow the building standards and city code in the Gaza Strip.
- 4. Buildings should secure the enough durability against the climate and predictable natural disaster.
- 5. The most portion of the buildings should be able to be built with materials procured locally, especially in the Gaza Strip.
- 6. Buildings should be able to be built with locally procurable technics.
- 7. Buildings should be able to be maintained locally under the responsibility of the MOE.
- 8. Should other subujects be recognized through the Basic Design Study, both sides should be satisfied.

Annex-6 Criteria for the Equipment Selection

- 1. Each equipment should satisfy the minimal requirement complied with the curriculum for basic education.
- 2. Each equipment should have the enough durability against the climate and proper use.
- 3. Each equipment should be procured locally, especially in the Gaza Strip, in principle.
- 4. Each equipment should be maintained locally, and its consumable materials must be supplied easily and continually in locally, especially in the Gaza Strip.
- 5. Should other subujects be recognized through the Basic Design Study, both sides should be satisfied.

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Annex-7 Japan's Grant Aid Programme

1. Grant Aid Procedures

1) Japan's Grant Aid Program is executed through the following procedures.

· · Application	(A request made by the recipient country)
• Study	(Basic Design Study conducted by JICA)
 Appraisal & Approval 	(Appraisal by the Government of Japan and Approval by the Cabinet of Japan)
 Determination of Implementation 	(Exchange of Notes between the Governments of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study) using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Programme, based on the Basic Design Study Report prepared by JICA, and the results are then submitted to the Cabinet for an approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and recipient country.

Finally, for the implementation of the project, JICA will assists the recipient country in such matters as preparing tenders, contract and so on.

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2. Basic Design Study

1) Contents of the study

The aim of the Basic Design Study (hereafter referred to as "the Study") conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows :

- a) Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- d) Preparation of a basic design of the Project.
- c) Estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whether measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA select (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consultant firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid undue delay in implementation should the selection process be repeated.

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- 3. Japan's Grant Aid Scheme
- 1) Grant Aid

The Grant Aid Programme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, ect., are confirmed.

3) Period

"The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Purchase of the Products and or Services

Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

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6) Undertakings required of the Government of the Recipient Country

(As described in ANNEX 8)

7) Proper Use

The recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

8) Re-export

The products purchased under the Grant Aid should not be re-exported from the recipient country.

- 9) Banking Arrangements (B/A)
 - a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
 - b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

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Annex-8 Necessary Measures to be taken by the MOE

Following necessary measures should be taken by the MOE on condition that the Grant Aid by the Government of Japan is extended to the Project:

- 1. To provide data and information necessary for the Project.
- 2. To prepare the land for the Project and secure the rights to build a building.
- 3. To secure, clear, level and reclaim the site for the Project prior to the Project implementation.
- 4. To provide proper access road to the Project area.
- 5. To undertake incidental outdoor works, such as landscaping, fencing, exterior lighting, and other incidental facilities in and around the Project site, if necessary, but not for the use of contractors.
- 6. To provide facilities for distribution of electricity, water supply, telephone, drainage, sewage and other incidental facilities into the Project site, if necessary, but not for the use of contractors.
- 7. To allocate appropriate budget and teaching and administrative staff members for proper and effective operation and maintenance of buildings and equipment provided under the Grant Aid.
- 8. To bear commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commission.
- 9. To ensure prompt unloading, tax exemption, customs clearance at the port of disembarkation and prompt internal transportation therein of the materials and equipment for the Project purchased under the Grant Aid.
- 10. To exempt Japanese juridical and physical nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in MOE territory with respect to the supply of the products and services under the verified contracts.
- 11. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the PA territory and stay therein for the performance of their work in accordance with the relevant laws and regulations of the PA territory.
- 12. To provide necessary permissions, licenses and other authorizations for implementing the Project, if necessary.
- 13. To maintain and use properly and effectively the facilities constructed and the equipment provided under the Project in responsibility of the MOE.
- 14. To bear all the expenses, other than those to be borne by the Japan's Grant Aid within the scope of the Project.

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Minutes of Discussion on the Basic Design Study on the Project for Construction of School Facilities for Basic Education in the Palestinian Authority Territories "the Gaza Strip" (Consultation on Draft Report)

In June 1997, the Japan International Cooperation Agency (JICA) dispatched the Basic Design Study Team on the Project for Construction of School Facilities for Basic Education (hereinafter referred to as "the Project") to the PA territories, and through discussions, field survey, and technical examination of the results in Japan, has prepared the draft Basic Design report of the study.

In order to explain and consult the Ministry of Education, the PA, on the components of the draft report, JICA sent a study team, which is headed by Mr. Kiyoto KUROKAWA, JICA UK Office, and is scheduled to stay in the PA territories from 30th August to 7th September, 1997.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

Ramallah, the 6th September, 1997

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Kiyoto Kurokawa Leader Basic Design Study Team Japan International Cooperation Agency

Noria Mu- Hommer

Naim Abu Hommous Deputy Minister Ministry of Education

ATTACHMENT

1. Components of the Draft Basic Design Report

The Ministry of Education (MOE) has agreed and accepted the components of the draft Basic Design report proposed by the Team.

2. Responsible and Executing Organization

The responsible and executing organization of the Project is the Ministry of Education (MOE). After the implementation, the MOE for Gaza Strip Affairs will be responsible for the maintenance of the schools and equipment granted under the Japan's Grant Aid.

3. Contents of the Items of the Project

Both sides have confirmed the ten (10) sites in the Gaza Strip listed in Annex-1 as the sites for the Project.

The items which will be constructed or procured under the Japanese Grant Aid is attached as Annex-2.

4. Japan's Grant Aid Programme

The MOE has understood the system and characteristics of Japan's Grant Aid Programme explained in Annex-3 by the Team.

- 5. Necessary Measures to be Taken by the MOE
 - (1) On condition that the Grant Aid Programme by the Government of Japan is extended to the Project, the MOE will take the necessary measures described in Annex-4 for smooth implementation of the Project. Moreover, the implementing agency will secure the proper and effective operation and maintenance of the buildings as well as the equipment provided under the Project.
 - (2) Japanese side requested the MOE to implement the proper allocation of students as well as teaching and administration staff members necessary to operate the project schools.

Nor

(3) Palestinian side shall complete the construction of approach road and land preparation for following three (3) sites before the commencement of construction by Japanese side.

> No.1 Mashrouh Ammer No.2 El-Smeri No.5 Maan

The team has confirmed the site preparation of No.2 El-Smeri has been already completed, however, the construction of approach road by the Palestinian side shall be completed by March, 1998.

Before the commencement of second phase, Japanese side will confirm the site preparation by Palestinian side for the site No.1 and No.5.

At least the concrete plan for the preparation of those two (2) sites are required to be submitted to Japanese side by the end of March, 1998.

- (5) The construction of the retaining wall between the site No.7 and adjacent land will be included to the Japanese portion for the special consideration.
- (6) Although out-door works should be provided by Palestinian side in principle, the sunshade structures and basket courts will be included to the Japanese portion because of the necessity for school activities.

6. Further Schedule of the Study

JICA will complete a final report of the Study in accordance with the confirmed items, and send it to the Palestinian side by the end of November, 1997.

Non

Annex-1

List of Site for the Project

- (1) Gaza Mashrouh Ammer, Low Basic, Co-Ed (24 cl)
- (2) Khanyounis El-Smeri, Low and High Basic, Co-Ed (24 cl)
- (3) Khanyounis Abasan El-Sagera, Low Basic, Co-Ed (18 cl)
- (4) Gaza El-Faloja, Low Basic, Co-Ed (24 cl)
- (5) Khanyounis Maan, Low Basic, Co-Ed (24 cl)
- (6) Gaza El-Mozanar, High Basic, Boys (24 cl)
- (7) Gaza El-Remat (Palestine Play Ground), High Basic, Boys (24 cl)
- (8) Khanyounis Near Khanyounis Dir. of Ed., Low Basic, Girls (18 cl)
- (9) Khanyounis Deir El-Balah-Wadi-El-Saiga,
- Low and High Basic, Co-Ed (18 cl)(10) GazaBeit Lahia-Tambora, High Basic, Boys (24 cl)

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Annex-2 Items to Be Provided under the Japanese Grant Aid Project

Ten (10) School Buildings Normal Classrooms **Special Classrooms** (Science Laboratory(ies), Multi-purpose Room, Library and Study Room) Administration Offices (Head Master Room, Secretary Room, Teachers Room(s), Emergency Clinic & Social Worker Room, Guard Room, Storages) Canteen Toilets Sunshade Structure **Basket Court** Water Supply Facilities (Inside the Site) Electric Facilities (Inside the Site) Drainage Facilities (Inside the Site) Equipment Equipment for Science Furniture Desks Chairs

Cabinets

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Annex-3 Japan's Grant Aid Programme

1. Grant Aid Procedures

1) Japan's Grant Aid Program is executed through the following procedures.

Application	(A request made by the recipient country)
• Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approved by the Cabinet of Japan)
 Determination of Implementation 	(Exchange of Notes between the Government of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondary, JICA conducts the study (Basic Design Study) using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Programme, based on the Basic Design Study Report prepared by JICA, and the results are then submitted to the Cabinet for an approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and recipient country.

Finally, for the implementation of the project, JICA will assists the recipient country in such matters as preparing tenders, contract and so on.

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2. Basic Design Study

1) Contents of the study

The aim of the Basic Design Study (hereafter referred to as "the Study") conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- a) Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- d) Preparation of a basic design of the Project.
- e) Estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whether measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA select (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consultant firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid undue delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

1) Grant Aid

The Grant Aid Programme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) Period

"The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Purchase of the Products and or Services

Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

- 6) Undertakings required of the Government of the Recipient Country (As described in ANNEX 4)
- 7) Proper Use

The recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

8) Re-export

The products purchased under the Grant Aid should not be re-exported from the recipient country.

- 9) Banking Arrangements (B/A)
 - a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
 - b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

Annex-4 Necessary Measures to be taken by the MOE

Following necessary measures should be taken by the MOE on condition that the Grant Aid by the Government of Japan is extended to the Project:

- 1. To provide data and information necessary for the Project.
- 2. To prepare the land for the Project and secure the rights to build a building.
- 3. To secure, clear, level and reclaim the site for the Project prior to the Project implementation.
- 4. To provide proper access road to the Project area.
- 5. To undertake incidental outdoor works, such as landscaping, fencing, exterior lighting, and other facilities in and around the Project site.
- 6. To provide facilities for distribution of electricity, water supply, telephone, drainage, sewage and other facilities into the Project site which are necessary for the school operation.
- 7. To allocate appropriate budget and teaching and administrative staff members for proper and effective operation and maintenance of buildings and equipment provided under the Grant aid.
- 8. To bear commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commission.
- 9. To ensure prompt unloading, tax, exemption, customs clearance at the port of disembarkation and prompt internal transportation therein of the materials and equipment for the Project purchased under the Grant Aid.
- 10. To exempt Japanese juridical and physical nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imported in the PA territory with respect to the supply of the products and services under the verified contracts.
- 11. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their work in accordance with the relevant laws and regulations of the PA territory.
- 12. To provide necessary permissions, licenses and other authorizations for implementing the Project, if necessary.
- 13. To maintain and use properly and effectively the facilities constructed and the equipment provided under the Project in responsibility of the MOE.
- 14. To bear all the expenses, other than those to be borne by the Japan's Grant Aid within the scope of the Project.

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5. COST ESTIMATION BORNE BY THE PALESTINIAN AUTHORITY

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5. COST ESTIMATION BORNE BY THE PALESTINIAN AUTHORITY

When the Project is approved by the Government of Japan and Exchange of Notes is executed by and between the both governments, the Patestinian Authority shall undertake and bear the costs for the following:

- 1) Site levelling work
- 2) Construction of access roads
- 3) Construction of boundary walls and gates
- 4) Intake of available infrastructures to the sites
- 5) Banking arrangement and issuance of authorization to pay
- 6) Other necessary measures as listed in 3-1-7

The costs for the above works are hereinafter estimated.

(1) Basis of Estimate

1) Quantity of Work

All the work quantities are calculated based on the field survey results and drawings prepared in the course of the basic design study, which are shown in Table -1.

2) Unit Prices

Unit prices quoted for the estimation are categorized as follows:

- a) Unit prices analized by the Study Team and applied to the project cost estimate.
 - Soil work
 - Access road work
- b) Revised unit prices by adding 20% price escalation to those unit prices proposed by a local contractor for the World Bank Project in May 1996.
 - Retaining walls, boundary walls, and gates
 - Sewage manhole and 200 mm piping work
- c) Unit prices collected by the interviews at relevant section of Municipalities of Gaza and Khan Yunis.
 - Electrical pole work, wiring work, and transformer
 - Water supply piping work of 50 mm and water meter
 - Telephone wiring work and pole installation work

(2) Estimated Cost

1) Costs for Civil Works

The costs for civil works as listed in 1) to 4) above approximately amounts US\$ 474,400 of which breakdown is shown in Table -2.

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2) Other Expenses

The Palestinian Authority shall conclude a banking arrangement with a Japanese foreign exchange bank and bear the commissions which total approximately US\$ 10,700 for two phases.

3) Total Burden of the Palestinian Authority US\$ 485,100

Work Item	Unit	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10
Site Levelling										-	
Soil cut	cu m	6,547				5,660					
Soil fill	cu m	6,547				5,660					<u> </u>
Retaining wall	cum	112			87		78				
Access Roads										:	
6m wide gravel compactiona sphalt	n	300	100			120					
Boundary Walls 2m high											
with foundation	ศา	150	278	242	16	295	133		227	259	272
on retaining wall	m	137			91		112	143			
Gale	L.S.	1	1	1	1	1	1	1	1	1	1
Power Supply											ļ
Electrical pole	pes	12				4	1	2		2	
Wiring	m	600	30	10	20	200	50	160	10	80	20
Transformer	pes	1		<u> </u>		1		1		1	<u> </u>
WH meter	pes	1	1	1	1	1	1	1)	1	ļ!
Telephone											
Electrical pole	pes		2	3							
Wiring	m	600	100	150	10	200	10	100	10	80	10
Water Supply											<u> </u>
Piping	m	600	100	10	20	0	20	100	10	80	2
Water meter	pes	1	1	1	1	1)	1	1	1	
Sewage					<u> </u>				<u> </u>		
Manhole	pes				1	ļ	1	2	<u> </u>		
Piping	m				100		20	100			

Table -1 Work Volume

			Costs					
Work Item	Unit	Unit Price	No.1	No 2	No.3	No.4	No.5	
Site Levelling								
Soil cut	cu.m	2.71	17,807.84	0.00	0.00	0.00	17,843.20	
Soil fill	cu.m	2.71	17,807.84	0.00	0.00	0.00	17,843.20	
Retaining wall	cu m	180.00	20,160.00	0.00	0.00	15,660.00	0.00	
Sub-total			55,775.68	0.00	0.00	15,660.00	35,686.40	
Access Roads								
6m w gravel compaction	m	50.00	15,000.00	5,000.00	0.00	0.00	6,000.00	
Sub-total			15,000.00	5,000.00	0.00	0.00	6,000.00	
Boundary Wals 2m h								
Gate	L.S.	840.00	840.00	840.00	840.00	840.00	840.00	
with foundation	m	84.00	12,600.00	23,352.00	20,328.00	1,344.00	24,780.00	
on retaining wall	m	72.00	9,864.00	0.00	0.00	6,552.00	0.00	
Sub-total			23,304.00	24,192.00	21,168.00	8,736.00	25,620.00	
Power Supply								
Electrical pole	pcs	262.52	3,150.24	0.00	0.00	0.00	1,050.08	
Wiring	m	7.50	4,500.00	225.00	75.00	150.00	1,500.00	
Transformer	pes	12,000.0	12,000.00	0.00	0.00	0.00	12,000.00	
WH meter	pes	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	
Sub-total			20,850 24	1,425.00	1,275.00	1,350.00	15,750.08	
Telephone				, <u>,,,</u>				
Electrical pole	pes	262.52	0.00	525.04	787.56	0.00	0.00	
Wiring	m	7.50	4,500.00	750.00	1,125.00	75.00	1,500.00	
Sub-total			4,500.00	1,275.04	1,912.56	75.00	1,500.00	
Water Supply								
Piping	m	10.00	6,000.00	1,000.00	100.00	200.00	0.00	
Water meter	pes	514.00	514.00	514.00	514.00	514.00	514.00	
Sub-total			6,514.00	1,514.00	614.00	714.00	514.00	
Sen age								
Manhole	pes	336.00	0.00	0.00	0.00	336.00	0.00	
Piping	m	25.00	0.00	0.00	0.00	2,500.00	0.00	
Sub-total			0.00	0.00	0.00	2,836.00	0.00	
Total			125,943.92	33,406.01	24,969.56	29,371.00	85,070.48	

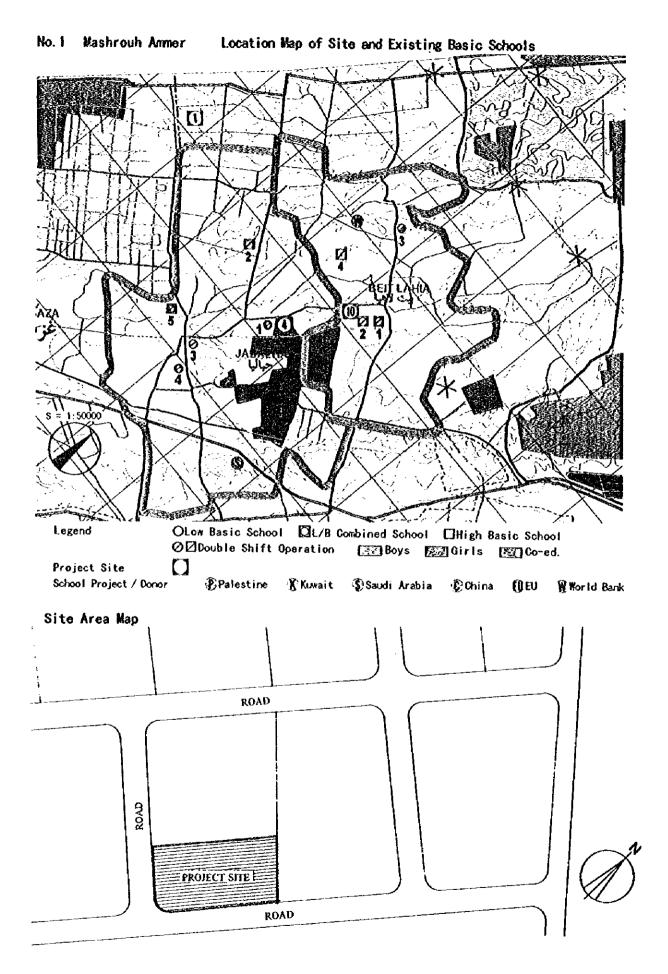
Table -2 Estimated Costs

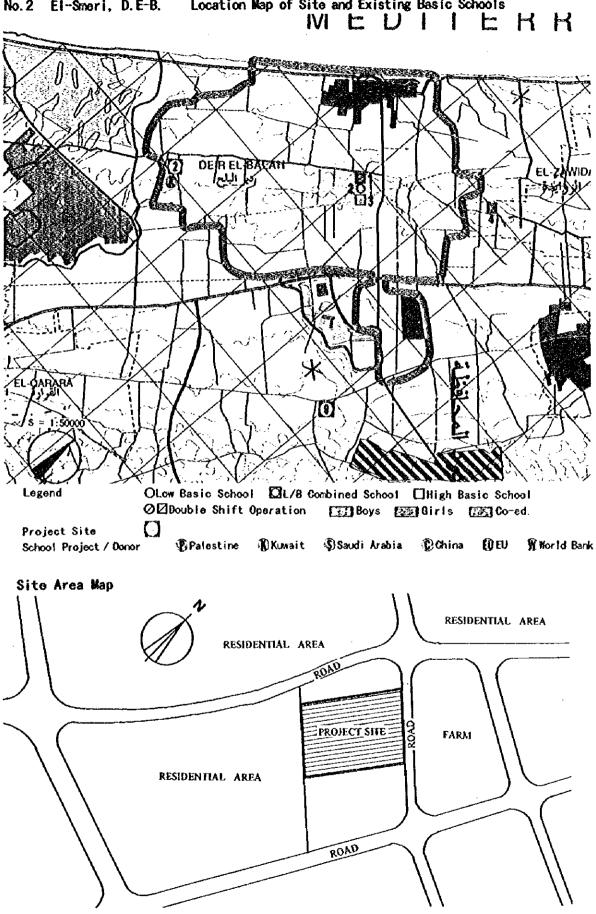
			Costs				
Work Item	Unit	Unit Price	No.1	No 2	No.3	No.4	No.5
Site Levelling							
Soil cut	ເ ນ.ຄາ	2.71	0.00	0.00	0.00	0.00	0.0
Soil fill	દ ય.m	2.71	0.00	0.00	0.00	0.00	0.0
Retaing wall	cum	180.00	14,040.00	20,700.00	0.00	0.00	0.0
Sub-total			14,040.00	20,700.00	0.00	0.00	0.0
Access Roads							. <u>.</u>
6m w gravel compaction	m	50.00	0.00	0.00	0.00	0.00	0.0
Sub-total			0.00	0.00	0.00	0.00	0.0
Boundary Walls 2m h							
Gate	L.S.	840.00	840.00	840.00	840.00	840.00	840.0
With foundation	m	84.00	11,172.00	0.00	19,068.00	21,588.00	22,848.
On retaining wall	m	72.00	8,064.00	10,296.00	0.00	0.00	0.0
Sub-total			20,076.00	11,136.00	19,908.00	22,428.00	23,688.
Power Supply							
Electrical pole	pes	262.52	262.52	525.04	0.00	525.04	0.0
Wiring	m	7.50	375.00	750.00	75.00	600.00	150.0
Transformer	pes	12,000.0	0.00	12,000.00	0.00	12,000.00	0.0
WH meter	pes	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.
Sub-total			1,837.52	14,475.04	1,275.00	14,325.04	1,350.0
Telephone							
Electrical pole	pcs	262.52	0.00	0.00	0.00	0.00	0.0
Wiring	m	7.50	75.00	750.00	75.00	600.00	75.0
Sub-total			75.00	750.00	75.00	600.00	75.0
Water Supply							
Piping	n	10.00	200.00	1,000.00	100.00	800.00	200.0
Water meter	pes	514.00	514.00	514.00	514.00	514.00	514.0
Sub-toial			714.00	1,514.00	614.00	1,314.00	714.0
Sewage							
Manhole	pcs	336.00	336.00	672.00	0.00	0.00	0.0
Piping	m	25.00	500.00	2,500.00	0.00	0.00	0.0
Sub-total			836.00	3,172.00	0.00	0.00	0.0
Total			37,578.52	51,747.04	21,872.00	38,667.04	25,827.0

Table -2 Estimated Costs (2)

6. PRPJECT SITE AREA MAP

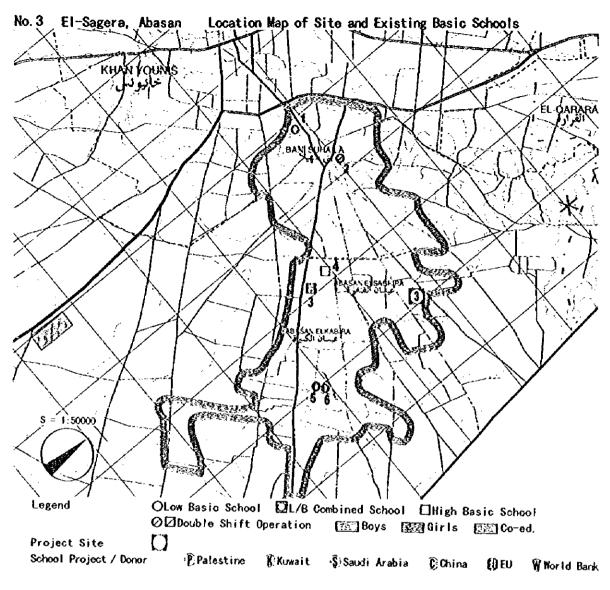
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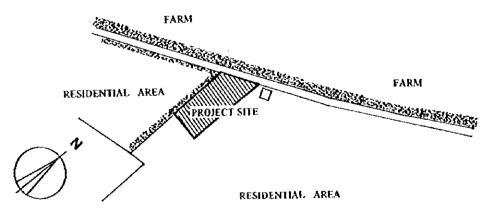


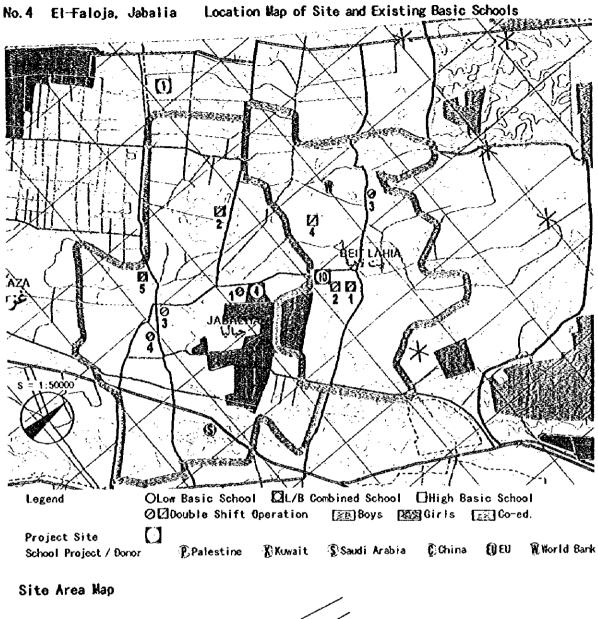
No.2 El-Smeri, D.E-B. Location Map of Site and Existing Basic Schools

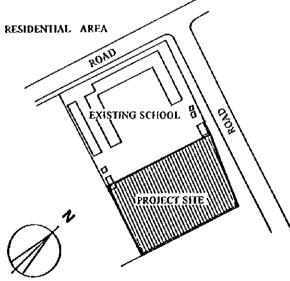
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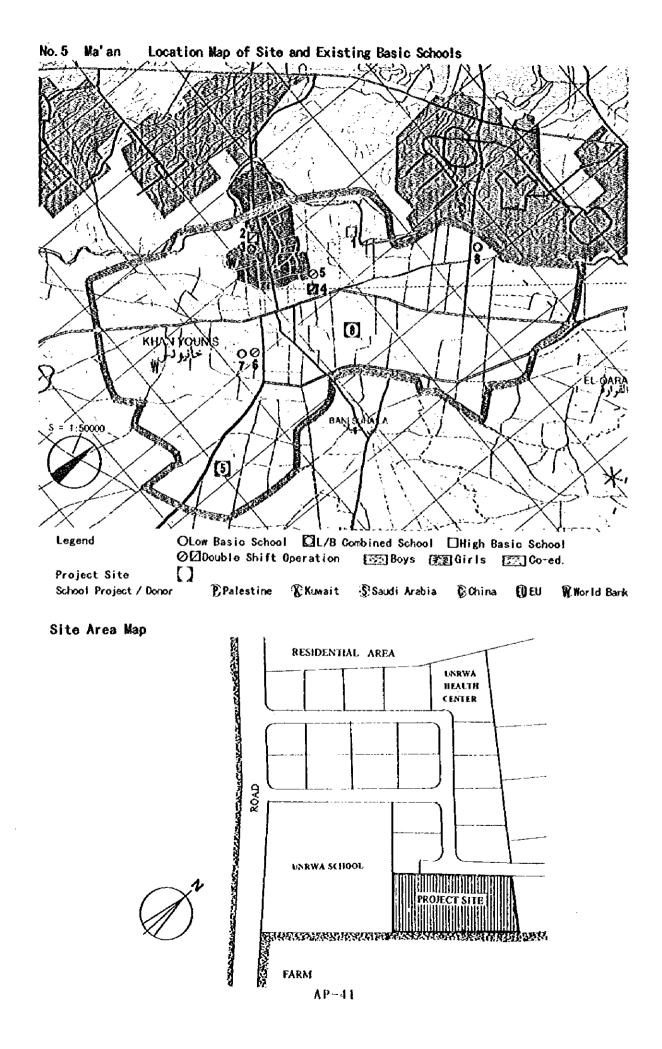


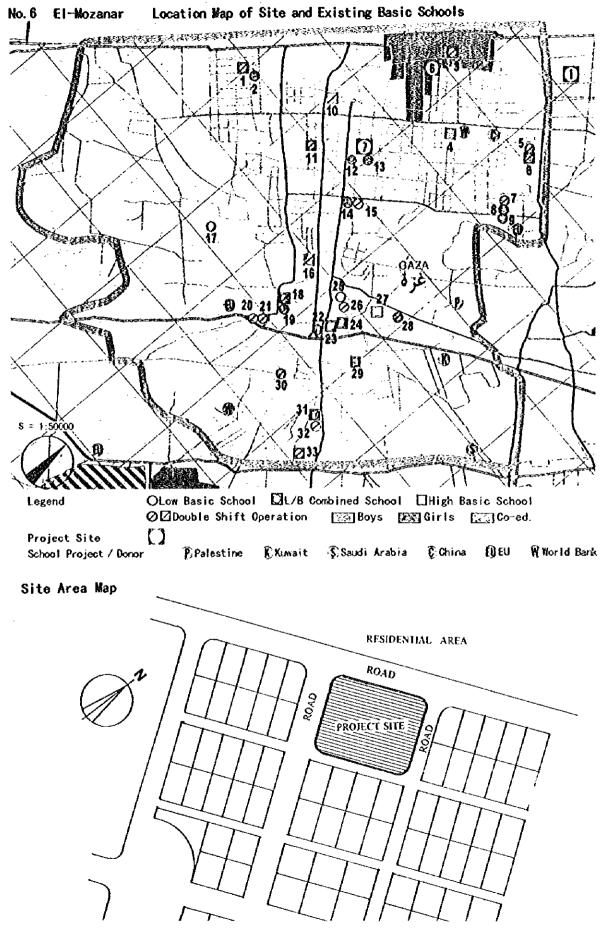




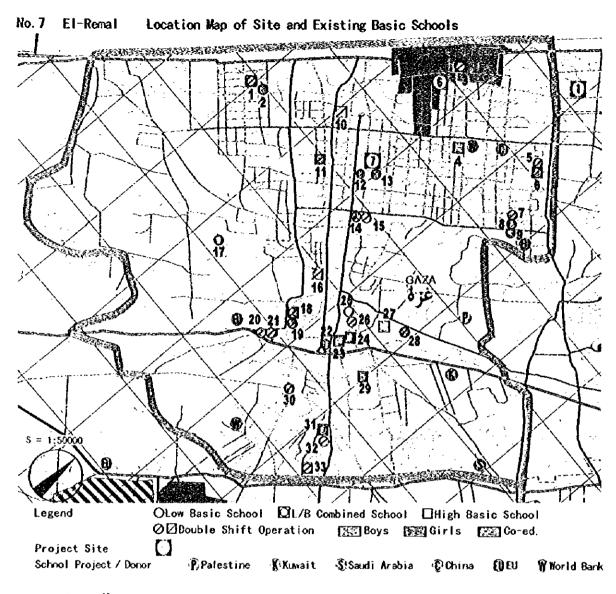




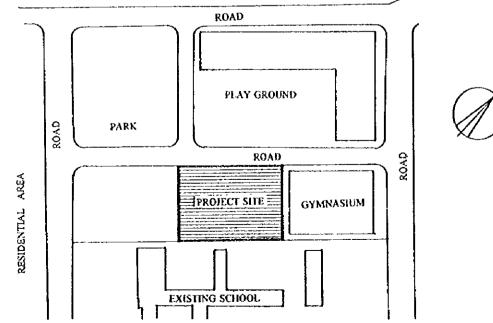




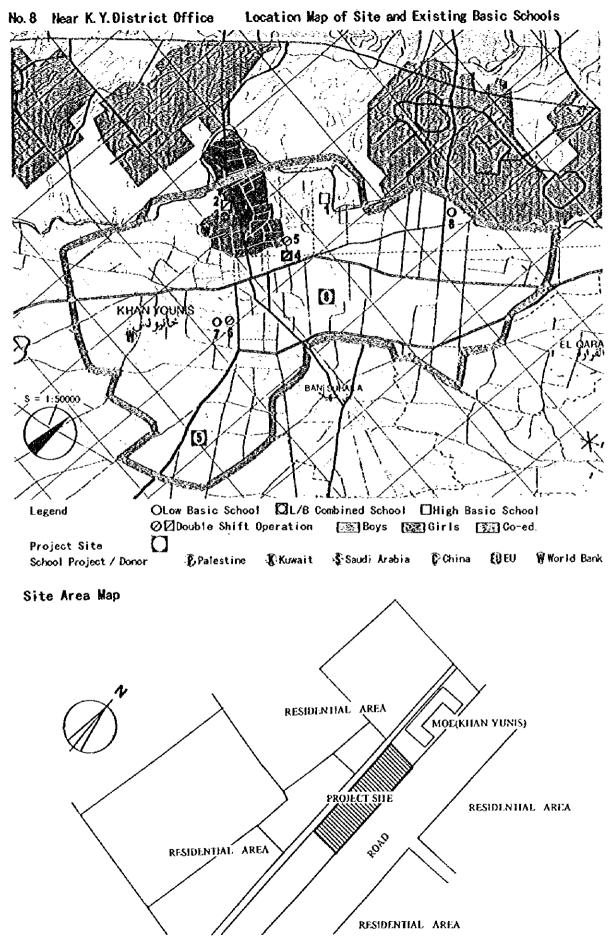
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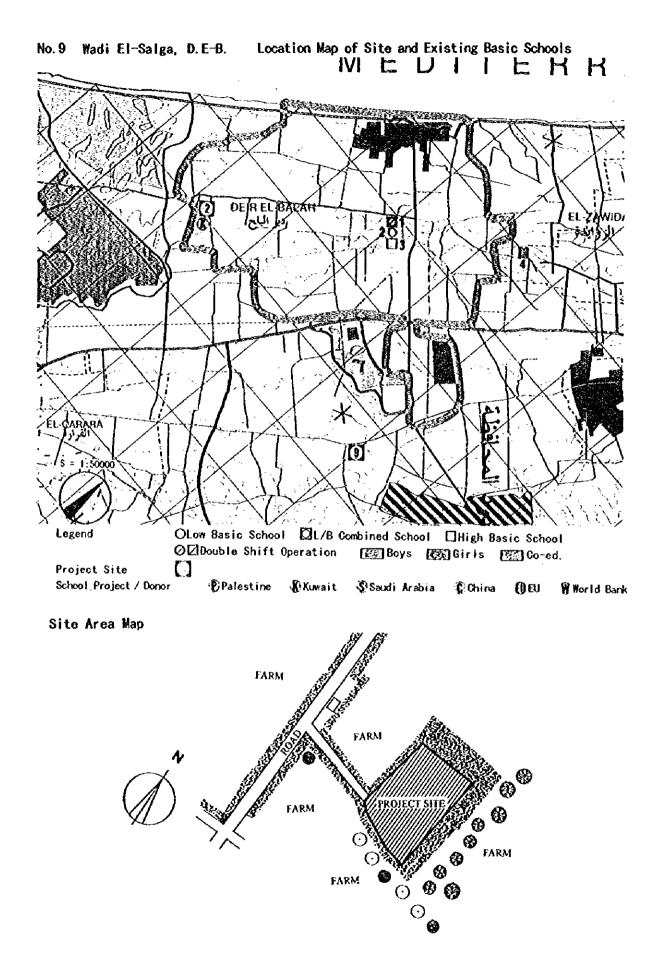


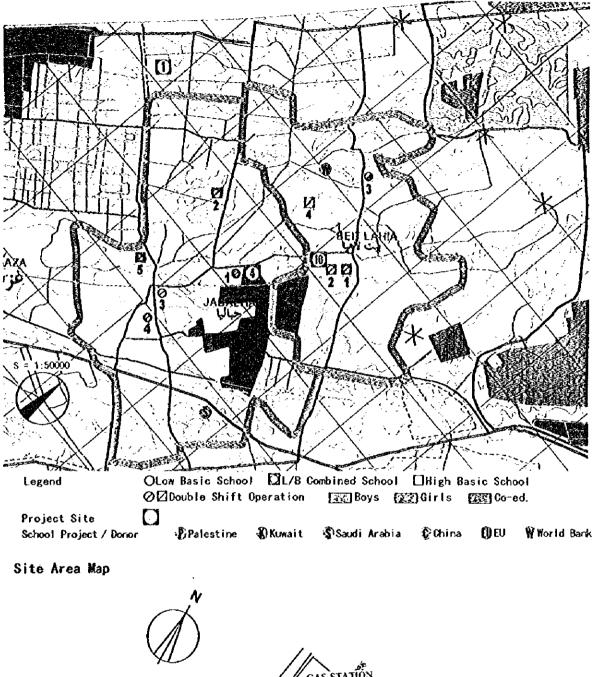


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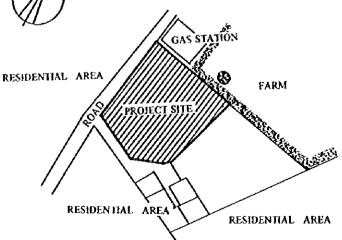


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No.10 Tambora, Beit Lahia Location Wap of Site and Existing Basic Schools



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7. LIST OF REQUESTED ITEMS OF EQUIPMENT

7. LIST OF REQUESTED ITEMS OF EQUIPMENT (1) Science Laboratory Equipment for a Low Basic School

No.	Item	Specification	Quantity	
1	Filter paper	General purpose, school grade, chemical resistance, high wet strength and filter paper	5	
2	Alcohol Ismp	Glass made, 202	5	
3	Wire gauze	Ceramic fiber, 4x4"	20	
4-1	Horseshoe magnet (A)	Iron made, 5 1/4 x 3 x 1/2"	10	
4-2	Horseshoe magnet (B)	Alnico, 1 x 1 1/8"	10	
5-1	Bar magnet (A)	Rectangular section, with keeper 6 x 3/4 x1/4"	10	
5-2	Bar magnet (B)	Alnico, rectangular section with keeper 2 x 1/2 x1/4"	10	
6	Crucible tong	Nickel plate made	5	
7	Ball and ring	Demonstration of thermal expansion of metal	5	
8-1	Beaker (A)	Tall shape w/ graduation, pouring lip, capacity: 250ml	15	
8-2	Beaker (B)	Tall shape w/ graduation, pouring lip, capacity: 400ml	15	
9	Test tubes	Glass made w/out lip 6 x 50mm	300	
10	Flat bottom flask	Glass made w/ ground rim, capacity: 250ml	15	
11	Medical thermometer	Glass made, mercury filled	5	
12	Thermometer Clear Glass made, mercury filled, range: -10C - 110C		5	
13-1	3-1 Thermometer Max / Min. (A) Mercury filled, Celsius and Fahrenheit degree, push button index resting system, without magnet		5	
13-2	Thermometer Max. / Min. (B)	Mercury filled, Celsius and Fahrenheit degree, push button index resting system, without magnet	5	
14	Microscope slide	Glass made w/ polished edge	3	
15	Dissecting set With leather case, 8 item set		3	
16	Lens	Glass made biconcave, 65mm dia., focal length 150mm	15	

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No.	Item	Specification	Quantity
17-1	Tube (A)	Transparent PVC, resistance to strong acid and alkaline	2
17-2	Tube (B)		2
18-1	Graduated measuring cylinder (A)	Capacity: 100ml	15
18-2	Graduated measuring cylinder (B)	Capacity : 250ml	15
19-1	Stoppers (A)	Rubber made with one hole	50
19-2	Stoppers (B)	Rubber made with two holes	50
19-3	Stoppers (C)	Rubber made w/out hole	50
20	Concave mirror	110mm dia, focal length 150mm	15
21	Prism	50mm x 25mm	10
22	Tuning forks on resonance box		2
23	Filter funnel	Glass made, 50mm dia.	10
24	Test tube brush	3" long, 1/2" dia.	20
25	Liebege condenser	100mm long	5
26	Liquid level apparatus	Glass made, 4 types capillary tubes with wood base	5
27	Balance double beam	Lower beam: 200 x 10g Upper beam: 10 x 0.1g	2
28-1	Procelinene stand	Fixed to table, 20"lod	5
28-2	Clamp	4 1/4"-5"adjustment, 1/2" ~1 1/2"	5
29	Glass reagent bottles	Glass made, narrow mouth with cap 1 oz	5 set
30	Glass bottles for powder	Glass made, 1 oz, h=2 1/8", 1 1/2"dia.	4 set
31	Needle compass	Magnet with stand, needle 5 1/2"long	10
32	Test tube holder		15
33	Cork boring	Brass made, 15set, 3/16" - 7/8"	5
34	Microscope	For student	2
35	Burner gas	With small jug 0.5kg	4
36-1	Compass with socket (A)	Liquid filled type,45mm dia	5
36-2	Compass with socket (B)	12 set, 42mm dia	5
37	Glass tubes	4 types, straight tube: 70mm, 170mm, 90 ° tube:60-90mm, 60-60mm	10 set
38-1	Capillary tubes (A)	50-100 μ L, 250 pcs	set
38-2	Capillary tubes (B)	1-5 μ L, 250 pcs	set

Cont'd

No.	Item	Specification	Quantity
39-1	Glass bell (A)	Glass bell shape jar with knob, H=9"	5
39-2	Glass bell (B)	Glass bell shape jar with knob, H=11"	5
40	Dissecting pans with vinyl dissecting pad	Aluminum made, vinyl dissecting pad	2

(2) Science Laboratory Reagent for a Low Basic School

No.	Item	Quantity
1	Magnesium ribbon in packs (25mg)	5
2	Copper - sulphate cusp. 5H2O	lkg
3	Iron powder	lkg
4	Litnus paper (Red)	10
5	Litnus paper (Blue)	10
6	Boric acid (powder) H3BO3	lkg
7	Acetic acid - glacial CH3COOH	2LT
8	Indine solution 5%	ILT
9	Sulphur powder	lkg
10	Calcium - Hydroxide powder Ca(OH)2	lkg
11	Copper carbonate	lkg
12	Ammonium hydroxide solution NH4OH	2LT
13	Carbon powder	0.5kg
14	Sodium powder	lkg
15	Sodium carbonate Na2CO3	lkg

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No.	Item Specification		Quantity
1	Ammeter	3range, 500-0-500A, 100-0-100mV, 5-0-5V	5
2	Voltmeter	1 range, 0-10V	5
3	Metallic tubes for sound	20 kinds xylophone set	5
4	Compass-needle with stand	Magnet needle: 5 1/2"long	10
5	Small compass	16mm dia.	20
6	Compass with socket	42กาท dia.	5
7	Barometer	4" dia, wall mount type	2
8	Fahrenheit thermometer		5
9	Wall wether station	Desk top type, 100-V AC	1
10	Thermometer	Celsius and Fahrenheit -20~110C, 305mm long	5
11	Medical thermometer	Celsius and Fahrenheit with plastic case,	5
12	Boil apparatus	Boil's low demonstration	2 .
13	Tuning forks (4) with box	4 types, (C-256, E-320, G-384, C-512)	3
14	Concave lens		
15	Convex lens	Glass made	10
16	Dynamo model		
17-1	Rheostat (A)	43mm dia, 8 ~ 2.3Amp, 1.5 ~ 100 ohms	
17-2	Rheostat (B)	1.8 ~ 0.3 Anips, 36 ~ 5150 ohms	3
18	Copper calorimeter	Aluminum double layer, outer layer capacity: 1L, inner layer capacity:350ml	3
19	Motor model	DC motar8300rpm max, 1 1/2 ~ 3 V	3
20	Spring balance	2000g x 25g / 72oz x 10z	5
21	Pipet with bulb	10ml	10
22	Buret	50 x 0.1ml with pinch cock	
23	Glass funnel	50mm 10	
24-1	Proceliene stand	20" rod 3	
24-2	Clamp	4 1/4"-5" adjustable, 1/2" ~1 1/2"	
25	Kibb-App		

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(3) Science Laboratory Equipment for a High Basic School

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	1		<u>Cont'</u>
No.	Item	Specification	Quantity
26	Density bottle	Water pressure demonstration, 20"long	5
27	Optical bench	With wood base and screens, etc.	5
28	Concave mirror	50nun dia., 4 kinds of mirror, focal length:100, 150 200, 300mm	10
29	Convex mirror	50mm dia. 4 kinds of mirror, focal length: 100, 150, 200, 300mm	10
30	Flat mirror		10
31	Glass prism	Glass made,25mm x 50mm	5
32	Glass parallopebid	Rectangular, 2 types, 75x50x18mm, 100x60x25mm	5
33	Density hygrometer		3
34	Hope's apparatus	Water density demonstration, 203 x 50mmdia.	2
35	Thermometer / Max., Min.		5
<u>.</u> 36	Galvano scope		5
37	Crucible tong	Nickel plate made	5
38	Glass bottle for powder	Glass made, 1 oz, h=2 1/8", 1 1/2"dia.	4 set
39	Glass reagent bottles	Glass made, narrow mouth with cap, 1 oz	5 set
40	Liebege condenser	100mm long	3
41	Burner spoon	3/4"dia, 15"long	5
42	Model for atoms	Atoms and molecular model kit	2
43	Mortar and pestle	Capacity: 600ml, 160mm dia.	2
44	Beehive shelves	Porcelain made	3
45	Glass bell	Glass bell jar, H=9"	2
46	Thistle funnel	Glass made, 50mm	5
47 ·	Dissecting set	With leather case, 8 item set	3
48	Bumer gas	500g	4
49	Balance double beam		2
50	Dissecting pans with vinyl dissecting pad	Aluminum made, vinyl dissecting pad	2
51	Distilling flask	200 ml	4

No.	Item	Quantity
1	Starch	2kg
2	T.S. on olodia stem	2
3 .	T.S. on dicot stem	2
4	T.S. on dicet root	. 2
5	Chloranchyma, tissue slide	2
6	Pronechyma, tissue slide	2
7	Schlerenchyma, tissue slide	2
8	Eplithlial, tissue slide	2
9	Connective, tissue slide	2
10	Sodium hydroxide NaOH	lkg
11	Sodium carbonate Na2CO3	lkg
12	Potassium permagnate kninoy	250g
13	Sodium nitrate NaNO3	1/2kg
14	Sodium nitrite NaNO2	1/2kg
15	Sulphuric acid conc. 98%	2Lt
16	Nitric acid (conc) HNO3	2Lt
17	Hydrochloride acid	2L.t
18	Calcium chloride CaCl2	lkg
19	Calcium carbonate	lkg
20	Mercury oxide HgO	l/2kg
21	Cupric nitrate Cu(NO3)2	l/2kg
22	Sodium bicarbonate	lkg
23	Sodium sulphide Na2S	lkg
24	Zinc solid Zn	lkg
25	Magnesium roll 25g	lkg
26	Copper carbonate CuCO3	lkg
27	Barium Nitrate Ba(NO3)2	1/2kg
28	Sodium metal	1/2kg
29	Hydrogen peroxide H2O2	1/2L(
30	Potassium chlorate KClO3	1/2L(
31	Copper oxide CuO	1/2kg
32	Ferrous sulphide FeS	1/2kg
33	Aluminum powder At	1/2kg

(4) Science Laboratory Reagent for a High Basic School

No.	Item	Specification	Quant
l .	Pupil's desk	4 types, metal bar frame, wood table board A-B/3 : H=58cm, table board color: grren C-D/4 : H=64cm, table board color: ash grey E-F /5 : H=70cm, table board color: grren G-H/6 : H=76cm, table board color: ash grey	
2.	Pupit's chair	4types, metal pipe frame, chair back and seat: reinforced plastic A-B/3 : H=34cm, W=40cm C-D/4 : H=38cm, W=42cm E-F/5 : H=42cm, W=42cm G-H/6 : H=46cm, W=46cm	
3.	Teacher's desk (in classroom)	Metal bar frame, wood table board H=78cm, table board:110cm x 55cm	
4.	Teacher's chair (in classroom)	Metal bar frame, chair back and seat: reinforced plastic	
5.	Teacher's desk (in staffroom)	Metal bar frame, sandwich wood table board, with one drawer H=78cm, table board: 100cm x 60cm	
6.	Table ann chair	Metal bar frame, chair back and seat: reinforced plastic, wood tablet arm	
7.	Headmaster desk	Wood, 3 drawers and one compartment H=76cm, table board:150cm x 70cm	
8.	Headmaster chair	Swival chair w/ 5 rolls, back and seat: upholstered, elevation adjustment, with ann	
9.	Metal file cabinet (4) drawers	Metal sheet framework, with lock H=132.5cm, W=46cm, D=65cm	
10.	Metal cabinet with one door	Metal sheet framework, 4 movable shelves H=193cm, W=60cm, D=45cm	
11.	Metal cabinet with two doors	Metal sheet framework, 4 movable shelves H=193cm, W=90cm, D=45cm	
12.	Metal cabinet with four doors	Metal sheet framework, 2 movable shelves in each compartment H=193cm, W=90cm, D=45cm	
13.	Metal cabinst with twelve doors	Metal shet framework H=193cm, W=90cm, D=45cm	
14.	Wardrobe for sporting goods	Metal sheet framework, 2 movable shelves, 2 drawers H=185cm, W=120cm, D=45cm	
15.	Metal file cabinet two separated doors	Metal sheet framework, movable sheves H=193cm, W=90cm, D=45cm	
16.	Laboratory locker	Metal sheet framework, 2 drawers H=193cm, W=90cm, D=40cm	

(5) Furniture for Low and High Basic Schools

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No.	Item	Specification	Quantity
17.	Book shelves	Sandwich wood, 5 shelves H=193cm, W=90cm, D=30cm	
18.	Multipurpose chair	Chrome iron pipe frame, chair back and seat: pressed sponge H=80cm, seat: 50cm x 53cm	
19.	Secretary chair	Swival chair w/ 5 rolls, backand seat: upholstead, clevation adjustment, seat: reinforced plastic	
20.	Stool chair	Chrome iron pipe frame, elevation adjstment H=>60cm, seat: dia.34cm	
21.	Working table	Metal bar frame, sandwich wood table board H=85cm, table board: 180cm x 80cm	
22.	Computer table	Sandwichwood w/ formica sheet top H=76cm, table board:110cm x 60cm	
23.	Photo copy machine table	Sandwich wood w/ formica sheet H=76cm, table board: 110cm x 60cm	
24.	Meeting table	Sandwich wood w/ formica sheet top H=76cm, table board:160cm x 80cm	

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