No. 1

MINISTRY OF EDUCATION
PALESTINIAN AUTHORITY

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR
CONSTRUCTION OF SCHOOL FACILITIES
FOR BASIC EDUCATION
IN
THE GAZA STRIP

OCTOBER 1997

JAPAN INTERNATIONAL COOPERATION AGENCY
MOHRI ARCHITECT & ASSOCIATES, INC.

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PREFACE

In response to a request from the Palestinian Authority the Government of Japan decided to conduct a basic design study on the Project for Construction of School Facilities for Basic Education and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the West Bank and the Gaza Strip a study team from June 2 to July 1, 1997.

The team held discussions with the officials concerned the Palestinian Authority, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to the West Bank and the Gaza Strip in order to discuss a draft basic design, and as this result, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Palestinian Authority for their close cooperation extended to the teams.

October, 1997

Kimio Fujita
President
Japan International Cooperation Agency

October, 1997

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Construction of School Facilities for Basic Education in the Gaza Strip.

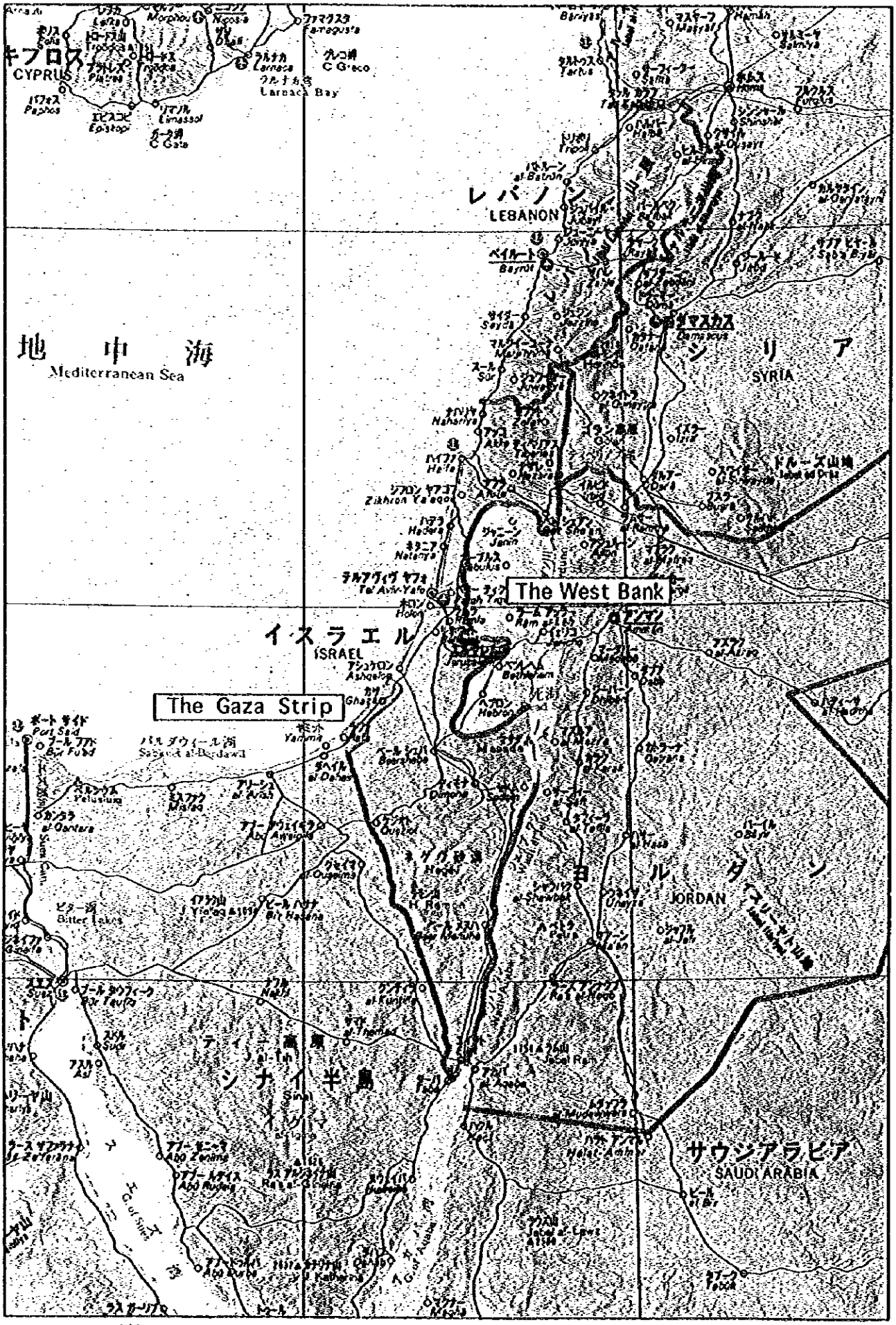
This study was conducted by Mohri, Architect & Associates Inc., under a contract to JICA, during the period from May 20, 1997 to October 31, 1997. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of the West Bank and the Gaza Strip and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,

Masao Okui
Project manager,
Basic design study team on
The Project for Construction of
School Facilities for Basic Education
Mohri, Architect & Associates Inc.

PROJECT AREA MAP



出典：世界地図帖／株式会社 国際地図協会
Source : World Atlas / KOKUSAI CHIGAKU KYOKAI Co. Ltd.

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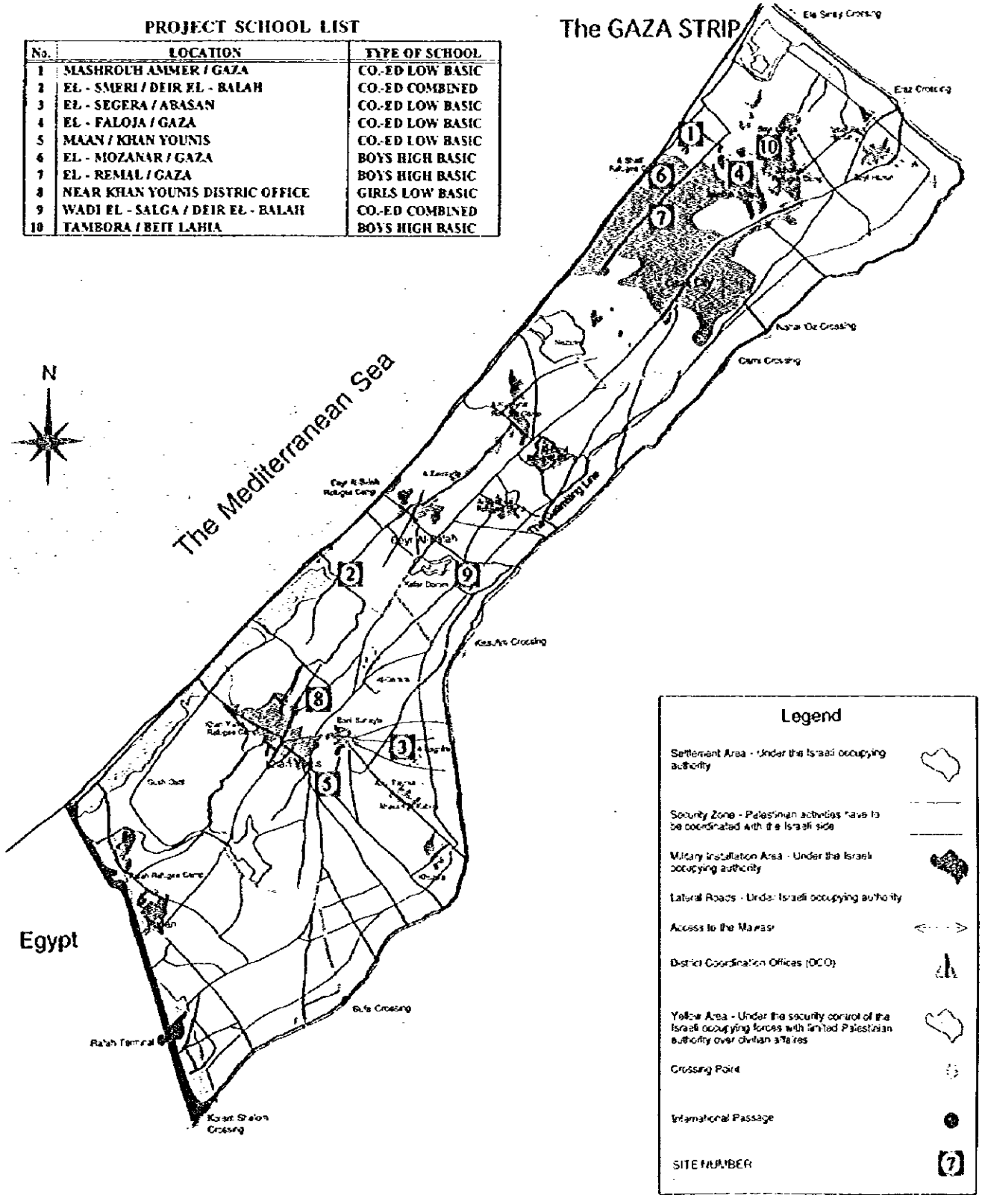
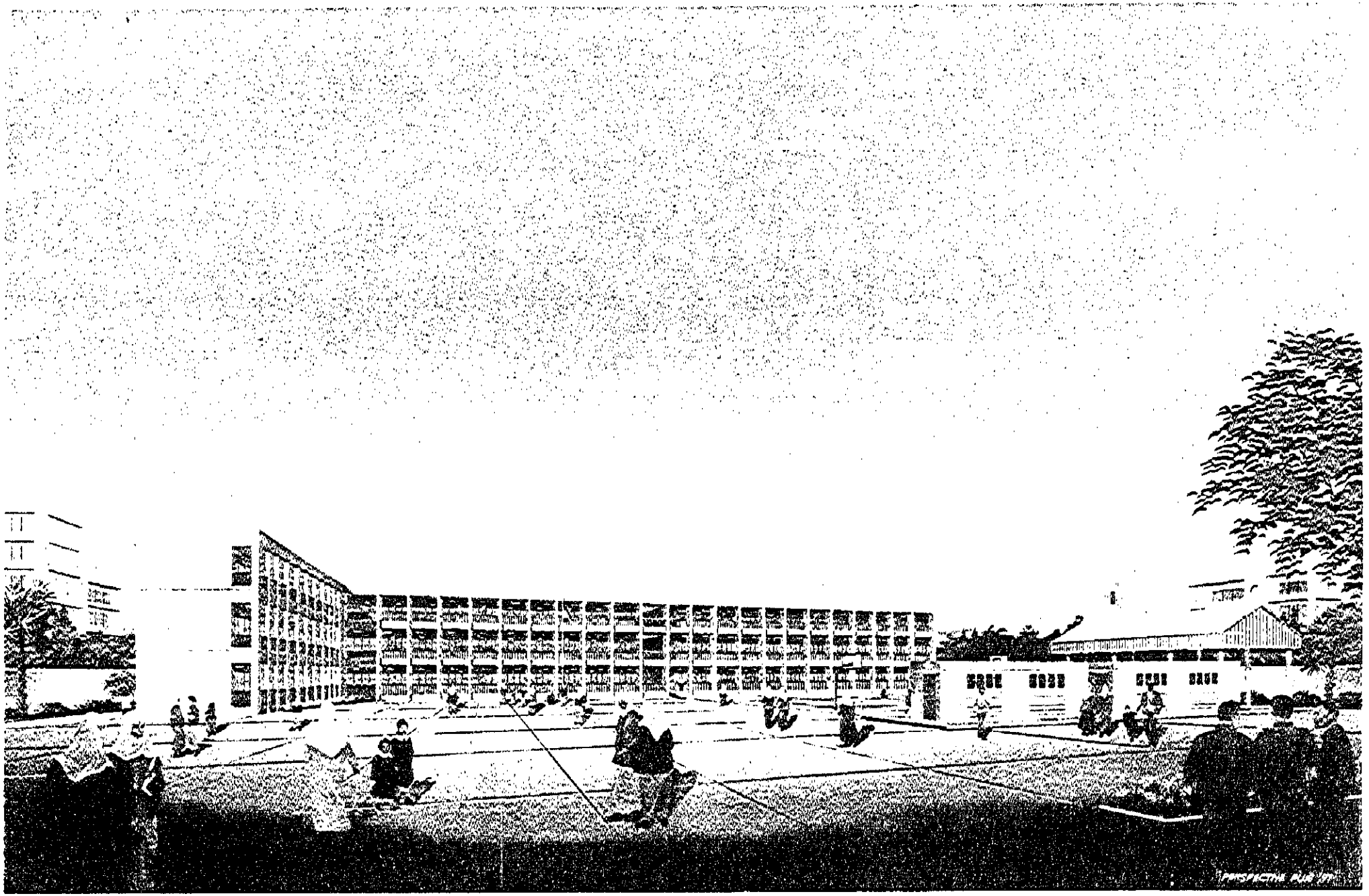
SITE LOCATION MAP

PROJECT SCHOOL LIST

No.	LOCATION	TYPE OF SCHOOL
1	MASHROUH AMMER / GAZA	CO.-ED LOW BASIC
2	EL - SMERI / DEIR EL - BALAH	CO.-ED COMBINED
3	EL - SEGERA / ABASAN	CO.-ED LOW BASIC
4	EL - FALOJA / GAZA	CO.-ED LOW BASIC
5	MAAN / KHAN YOUNIS	CO.-ED LOW BASIC
6	EL - MOZANAR / GAZA	BOYS HIGH BASIC
7	EL - REMAL / GAZA	BOYS HIGH BASIC
8	NEAR KHAN YOUNIS DISTRIC OFFICE	GIRLS LOW BASIC
9	WADI EL - SALGA / DEIR EL - BALAH	CO.-ED COMBINED
10	TAMBORA / BEIT LAHIA	BOYS HIGH BASIC





ABBREVIATIONS

Abbreviation	Full Name
CO-ED	Co-Education
D. E-B	Deir El-Balah (Name of Town in Gaza)
EU	European Union
FSMOE	Facility Standard of MOE
GDP	Gross Domestic Production
GNP	Gross National Production
IDA	International Development Association
K. Y.	Khan Yunis (Name of City in Gaza)
MOPIC	Ministry of Planning and International Cooperation
MOE	Ministry of Education
MOF	Ministry of Finance
PCU	Project Coordination Unit
PEA	Palestinian Energy Authority
PECDAR	Palestinian Economic Council for Development and Reconstruction
PWA	Palestinian Water Authority
UNDP	United Nations Development Plan
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNRWA	United Nations Relief and Work Agency for Palestine People
WB	World Bank

Summary

The areas governed by the Palestinian Authority consist of the West Bank and the Gaza Strip. The Gaza Strip, project area, is a 360 km^2 area, being narrow and long, bounded on the north-west by the Mediterranean Sea. The area is a typically mild and comparatively dry Mediterranean climate. The annual average rainfall in Gaza City is approximately 400mm, mainly concentrated during the winter season from November through to March. The area's population is approximately 930,000, including 680,000 registered refugees.

Major industries in the area are agriculture, retail, and other service oriented industries. The percentage of manufacturing and construction industries is small. Most of the daily necessities, including energy source, are imported from Israel. Many laborers go to work in Israel. The area's economy largely relies on Israel. In accordance with the World Bank's 1994 statistics, the area's GNP per capita was US $1,299. The Palestinian Authority has indicated that although no national development plan has been established, it gives priority to the national development policy to the development of the infrastructure, education, and health sectors.

In the West Bank and the Gaza Strip, the basic education during 10 years compulsory education. Both basic education and secondary education, that requires an additional two years after completing basic education, are under the jurisdiction of the Ministry of Education (MOE). Due to the long occupation by Israel, there are various problems in the basic and secondary education sector of the areas. For example, there are different education systems and curricula between the West Bank and Gaza Strip, and lack of classrooms in the whole area that has led to double shift operations. MOE has made efforts to solve these problems by giving priority to the following issues:

1) Development of Palestinian curriculum and reform of textbooks;

2) Securing of school facilities in quantity and quality and proper allocation of schools throughout the areas;

3) Strengthening of science education and technical education;

4) Securing of quality of education and improving of teacher's capability.

To solve the classroom shortage problem in the areas, the World Bank, Germany, EU, Netherlands, China, Norway, and others assisted the Palestinian Authority in school construction. However, the classroom shortage problem still remains serious. In the circumstances MOE established a school facilities construction plan in August 1996, focussing on grant aid from Japan. In December 1996, the Government of Japan conducted a project formulation study in the education sector. The study team discussed the plan with the Palestinian Authority. As a result, the Palestinian Authority revised part of the plan and officially requested grant aid from the Government of Japan in January 1997.

After examining the contents of the Request, the Government of Japan decided to conduct a basic design study on the Project for Construction of School Facilities for Basic Education in the Gaza Strip as requested for the first phase of the plan. The Japan International Cooperation Agency (JICA) dispatched a basic design study team to the Areas from June 2 to July 1, 1997. The Study Team held a series of discussions on the contents of the request with officials of MOE and the Ministry of Planning and International Cooperation (MOPIC), conducted field surveys on the proposed sites, and visited international agencies including UNRWA, to obtain information and data necessary for the basic design study. Based on the field study results, the Team examined the necessity and appropriateness of the Project, suitability of project sites, scope of the Project, the requested facilities, and the operation and maintenance system of MOE. After returning to Japan, using the examination results above, the Team prepared the basic design of the optimum contents and sizes of project facilities and selected optimum equipment for the Project. Then, the Team estimated the Project costs. The results of the basic design were explained to the Palestinian Authority during the period from August 29 through September 9, 1997.

As a result of the field study, it was confirmed that classroom shortage was most serious in the Gaza Strip where the population density and increase were very high. Approximately 90 percent of the low and high basic schools have to conduct double shift operations. In addition, some secondary schools must also conduct double shift operations. The facility shortage has resulted in overcrowded classrooms and pupils have been forced to walk long distance to their schools. The situation has caused problems of unequal education opportunities for boys and girls.
Through the field survey on the proposed sites, it was clarified that demand for classrooms in the requested ten school areas was very high. It was also confirmed that seven of the ten school sites were suitable for school building construction

without any preparation work. The other three school sites were suitable but required land preparation work and/or access roads to be constructed by the Palestinian side. It also became clear that building low and high basic combined schools with ten year education system could be more appropriate than building low basic schools as requested for School Sites No. 2 El-Smeri, Deir El-Balah and No. 9 Wadi-El-Salga, Deir El- Balah, taking into consideration the demand for classrooms in the whole Deir El-Balah. Furthermore, it became clear that a boys' high basic school, as proposed to a girls' high basic school as requested should be built in School Site No. 10 Tambora.

It was also confirmed that the project implementation would barely affect the environment of each project site area because no large scale land development nor tree cutting would be required at each project site.

As a result, the Study Team changed a part of the contents of the request, prepared a basic plan, and explained it to MOE, who were in agreement.

Table 1. Type and Size of Each Project School

Project Phase	Site No.	Name of Site	Grades	School Type	No. of Classrooms	No. of Pupils	Total Floor Space (m²)
I	No.2	El-Smeri, Deir El-Balah	1 to 10	Co-ed	24	960	3,258.45
	No.3	El Sagera, Abasan	1 to 6	Co-ed	18	720	2,440.00
	No.4	El-Faloja, Jabalia	1 to 6	Co-ed	24	960	3,035.70
	No.6	El-Mozanar	7 to 10	Boys	24	960	3,382.65
	No.8	Near K.Y. District Office	1 to 6	Co-ed	18	720	2,390.05
	No.9	Wadi El-Salga, Deir El-Balah	1 to 10	Co-ed	18	720	2,662.75
	No.10	Tambora, Beit Lahiya	7 to 10	Boys	24	960	3,382.65
II	No.1	Mashrouh Ammer	1 to 6	Co-ed	24	960	3,059.70
	No.5	Ma'an	1 to 6	Co-ed	24	960	3,035.70
	No.7	El-Remal	7 to 10	Boys	24	960	3,332.70

It was planned to provide each school with a three storey main school building of reinforced concrete, two independent student toilets, a shed for pupils' daily waiting

and playing on rainy days, a canteen, and a guard room. Design of the facilities was made to comply as closely as possible to MOE's facility standards by adding necessary improvements. Building arrangement was made by taking into consideration predominant winds in the project area, minimum necessary access for handicapped pupils was secured, and seismic and wind forces were taken into account for structure design.

Table 2. Types and Sizes of Planned Rooms

Name of Building	Name of Room	Functions	Floor Area(m^2)	Remarks
Main School Building	Normal Classroom	To tech ordinary classes	54.45	
	Science Laboratory	To teach science classes with experiments	81.76 or 108.90	See note 1.
	Library and Study Room	For storing books and data and for reading space	81.76 or 108.90	See note 1.
	Multipurpose Room	To teach arts and crafts and home economics, and hold meeting	108.90	
	Teacher Room	For class preparation and resting	72.60 or 108.90	See note 2.
	Headmaster Room	Office and meeting with visitors	26.06	
	Secretary Room	For clerical work	12.11	
	First Aid Room	For emergency medical treatment and care	36.30	See note 3.
	Teacher Toilets	For washing and toilet	18.50	Male and female separate
	Kitchenette	For making hot water	5.98	
	Machinery Room	Installation of lift pump	13.78	
Annex	Pupil Toilets	For washing, drinking water, and toilet	63.70 or 84.70	See note 4.
	Shed	For pupils waiting and playing during rainy days	96.00 or 126.00	Varies from school to school
	Canteen	For simple cooking and food stand	24.00	
	Guard Room	For managing incoming and departing people and security	7.20	

Notes: 1. Room sizes for low and high basic schools are different.
2. Floor space varies in accordance with school type and size.
3. Also provide counselling to pupils in the room.
4. Two toilet buildings for each school. The size varies depending upon school size.

Regarding equipment, school furniture and science laboratory equipment units were requested by the Palestinian Authority. The requested furniture units were almost appropriate, but some science laboratory equipment were in need of further examination. For example, the requested items of science equipment for low basic school included those items that would be difficult to be handled by ordinary class teachers. On the other hand, the requested items for high basic school where science study is to be taught by special teachers did not include fundamental items, such as test tubes and beakers. The Study Team selected necessary items to be procured for the Project by examining the science texts used in schools in the project area and the equipment lists of the Request. The Team prepared revised equipment lists, explained them to MOE, and obtained their agreement.

Table 3. Major Equipment Units

Category	Use Purpose and School	Major Item
Science Laboratory Equipment	Low Basic Schools	Magnifier, microscope, school balance, electric circuit kit, magnet, thermometer, alcohol lamp, test tube, beaker, flask
	High Basic Schools	Magnifier, microscope, dissecting kit, concave and convex lenses, concave and convex mirrors, school balance, sheave pulley, mass set, ammeter, voltmeter, generator model set, ohmmeter, magnet, thermometer, barometer, atom model set, gas burner, alcohol lamp, test tube, beaker, flask, clamp support
School Furniture	Ordinary Classrooms	Student's desks and chairs, teacher's desks and chairs, book shelves
	Science Laboratories	Demonstration tables, experiment tools
	Multipurpose Room	Work bench, student's chairs, cabinet
	Libraries and Study Rooms	Student's desks and chairs, teacher's desks and chairs
	Headmaster Rooms	Headmaster's desk and chair, meeting table and chair, cabinet
	Teacher Rooms	Teacher's desks and chairs, cabinets , lockers
	Emergency Clinics	Teacher's desk and chair, cabinet, medical couch

The average construction and equipment procurement period for each school will be approximately one year. The Project will be implemented in two phases during the 1997/1998 period. Project schools that require access road construction and/or land development by the Palestinian side will, in principle, be implemented in Phase II.

To make the operation and maintenance of completed project facilities easy, the basic design is made so that all construction materials, science laboratory equipment, and school furniture should be procured in the Gaza Strip.

For the operation of the project school, the pupils and teachers from nearby schools will be transferred to each Project school. It is estimated that approximately 40 to 50 new staff members are to be hired for the operation. In view of the present labor market situation in the Gaza Strip, there should be no problem in hiring the required staff members.

Personnel expenditures and other operation and maintenance costs newly required for the Project facilities are estimated to be US $259,000 per year. The estimated amount is equivalent to 0.15% of MOE's 1997 recurrent budget of 171 million US dollars. By taking into consideration the fact that MOE's budget amount for the 1997 fiscal year has been increased by 3% from the 1996 figure, it will be possible to secure the estimated additional fund for the Project, which is approximately one twentieth of MOE's annual budgetary funds.

The costs to be born by the Palestinian Authority amounts to US$ 485,100. As for the Project period, detailed design and construction work tender will require four months and construction work will require twelve months for both Phase I and Phase II.

Considering the present problems of the basic education sector in the Gaza Strip, the Project implementation is expected to achieve the following effects:

1) Alleviation of Classroom Shortages:

In accordance with the Basic Statistics of General Education in the Gaza Strip compiled by MOE Gaza Office in January 1997, the Area's low and high basic schools have respectively 1,210 classrooms, 2,370 classes, and 101,716 pupils. The increase rate of school-aged children in the Gaza Strip is said to be 8% per year. The rate can be interpreted to read that the number of school-aged children increases by more than 8,000 annually and 200 new classrooms will be needed each year. In addition, to completely abolish the present double shift operations, approximately 2,000 classrooms should be built by the year 2000.

As a result of the project implementation, 222 new classrooms will be built by the construction of ten project schools. As each classroom accommodates 40 pupils, 8,880 pupils in the case of single shift operations and 17,760 pupils in the case of double shift operations will directly benefit from the Project. The former figure is equivalent to the increased number of school-aged children in a one year period and the latter figure in a two year period respectively. Furthermore, the number of the project school classrooms is equivalent to 11% of the classrooms needed to abolish double shift operations.

2) Alleviation of Long-distance Schooling:

As there are no existing schools in the five project site areas, No. 1, No. 2, No. 3, No. 5, and No. 9, children in these areas have to travel long distances to go to their schools. After completing the project schools, children's long-distance schooling will be alleviated.

3) Improvement of Unequal Access Opportunities for Boys and Girls to Schools

In the Gaza Strip, construction of many low and high basic schools is progressing under the financial aid from various donors. On the other hand, such school construction is causing unbalanced access opportunity to schools between boys and girls. To solve such unbalanced access problems, high basic schools for boys will be built at project sites Nos. 5, 7, and 10.
In addition to the above-mentioned direct effects, it is expected that the quality of education will be generally improved in the project schools which will be furnished with science laboratories and other special rooms.

MOE intends to achieve human resource development necessary for social and economic growth in the West Bank and the Gaza Strip by conducting education that suits social needs. Thus, MOE has given the first priority to developing unified Palestinian curricula for both basic and secondary education and is promoting it under the assistance of Italy and UNESCO. To implement the new curriculum, the abolishment of double shift operations will be inevitable and construction of many classrooms will be necessary. Building classrooms under the Project will, therefore, result in making the foundation for implementing the new curriculum.

MOE has substantial experience in conducting projects under financial aid from various foreign agencies, although it has no experience in implementing a project under the Grant Aid Programme of the Government of Japan. As for the Project, MOPIC, which has been responsible for the signing of the Exchange of Notes and other related works for the implementation of projects under the Grant Aid Programme of the Japanese Government, will assist MOE in implementing the Project. Thus, MOE will have no problem to act as the implementation organization of the Project.

Consequently, the Project will meet the requirements of the Grant Aid Programme of the Government of Japan as well as will achieve great effects. Thus, it will be worthwhile and meaningful to be implemented under the Grant Aid of the Government of Japan.

To smoothly implement the Project, it is required that the Palestinian Authority secures the necessary budget and completes their undertakings that are to be borne by their side. In addition, it is requested to prepare a staff assignment plan for the completed project schools, to secure the necessary budget for proper operation and maintenance, and to effectively use the science laboratory equipment procured for low basic schools.

Contents

Appendices

CHAPTER 1 BACKGROUND OF THE PROJECT

CHAPTER 1 BACKGROUND OF THE PROJECT

1 - 1 Background of the Request

The governing areas of the Palestinian Authority consist of the West Bank of the Jordan River and the Gaza Strip. The West Bank stretches 135 km in a north-south direction and 30 to 58 km in a east-west direction and has an area of 5,575 square kilometers. Approximately 1.31 million people including 0.52 million refugees live in the region. Geology of the region varies from place to place. 500 to 800 meter high plateaus are developed in the central part; the eastern part of the region is bounded by the Jordan Valley that is minus 250 to 400 meter below sea level.

The Gaza Strip, the project area, is 5 to 12 kilometers wide and approximately 45 kilometers long situated along the Mediterranean Sea. Its area is approximately 360 square kilometers. Approximately 0.93 million people including 0.68 million refugees live in the region. The Gaza Strip belongs to the mild and rather dry Mediterranean Climate. The average annual rainfall in Gaza City is about 400 mm which is concentrated in the winter season from November to March.

The economy in the West Bank and the Gaza Strip relies mainly on agriculture, retail, and service oriented businesses, such as restaurants. Approximately 40% of the GDP comes from agriculture, 33% from service oriented industries, and 20% from manufacturing and construction industries.

The GDP decreased from 1.4 billion US dollars to 1.2 or 1.3 billion US dollars during the 1987 to 1992 period. During that time, the population increased by 6% annually (source: the Ministry of Planning and International Cooperation: MOPIC) and, as a result, per capita GDP drastically decreased. In accordance with the World Bank's 1994 statistics, per capita GDP during that period decreased from US $1,500 to US $1,000. As Israel's closures have been occasionally enforced since 1994, the Palestinian economy has been seriously damaged and become lower than the 1992 level. In 1994, the Gaza Strip's per capita GNP including remittance from overseas was US $1,290. GNP is usually 1.3 to 1.5 times of GDP in the areas.

As the movement towards peace becomes steady in the areas, various international organizations have been preparing various development plans based on various studies. However, since the Palestinian self-government started just after signing the Gaza - Jericho Agreement in May 1994, and due to the short history of the

Palestinian Authority, no national development plan has yet been prepared. In accordance with MOPIC, the organization responsible for the development plan, the Palestinian Authority presently places more weight on policies for infrastructure construction and social development in the field of education and health.

In the West Bank and the Gaza Strip, 10 year period basic education is compulsory. The compulsory education and the additional two year secondary education are under the jurisdiction of the Ministry of Education (MOE). The pupil attendance rate at the low basic schools is almost 100%. However, the number of pupils who complete the tenth year grade at the high basic schools is estimated to be 60%. Basic education is greatly contributed by the United Nations Relief and Work Agency for Palestinian People (UNRWA). Children of registered refugees who number more than half of the area's population are taught in schools constructed by UNRWA, using teachers hired by UNRWA. Other children (non refugee children) are taught at MOE's public schools and at a small number of private schools.

Low and high basic education in the areas has various problems due to the effect of the long occupation by Israel. Before the Third Middle East War, the West Bank was administered under the Jordanian educational system. On the other hand, the Gaza Strip was administered under the Egyptian educational system. After the War, under the rule of Israel, the educational systems and contents were barely improved for 27 years. During that period, the population doubled, but only a small number of schools were constructed and very minor educational reform was undertaken. Thus, classroom shortage has become very serious. For example, 90% of low and high basic schools, and even some secondary schools, have to conduct double shift operations. MOE has estimated that 4,392 classrooms are needed to abolish double shift operations. In the Gaza Strip, 3,265 classrooms are needed. Thus, it is easily recognizable that the need for school facilities is urgent.

In the past, each foreign aid agency mainly assisted UNRWA for school facility construction projects. After 1994 when the Ministry of Education and Higher Education (MOEHE) was established (the Ministry of Higher Education became independent in 1996), foreign donors such as the World Bank, Germany, EU, Netherlands, China, and Norway have also provided MOE with assistance for the construction of public schools. The Government of Japan has also been providing great assistance for grass-roots school renovation projects and financial support through the UNDP's Japan - Palestine Fund for various educational facility projects in the West Bank.

Although school facility construction has been conducted with assistance from various foreign agencies as previously described, school facility shortage is still serious in the areas. MOE established a school facility construction plan in August 1996, expecting financial support from the Government of Japan. The Government of Japan responded to MOE and conducted a project formulation study in the education sector in December 1996. During the study period, a series of discussions were held on the plan between the study team and MOE. As a result, in January 1997, the Palestinian Authority officially requested grant aid from the Government of Japan to realize the plan.

1 - 2 Contents of the Request

The plan of the Palestinian Authority consisted of the following 3 stage projects:

Stage - 1: Construction of 10 low and high basic schools in the Gaza Strip including equipment supply.

Stage - 2: Construction of 15 low and high basic schools in the West Bank including equipment supply.

Stage - 3: Renovation of schools in the West Bank and the Gaza Strip and construction of additional new schools including equipment supply.

For the Project, the stage 1 project above was taken as the request of Palestine Authority. The contents of the request were clarified through the discussions with MOE as follows:

(1) Proposed Candidate Sites

Priority	Project Site	Sub-Directorate	Grade	Type	No. of Classes	No. of Pupils
No. 1	Mashrouh Amuner	Gaza	1 - 6	Co-ed	24	960
No. 2	El-Smeri, Deir El-Balah	Khan Yunis	1 - 6	Co-ed	24	960
No. 3	El-Sagera, Abasan	Khan Yunis	1 - 6	Co-ed	18	720
No. 4	El-Floja, Jabalia	Gaza	1 - 6	Co-ed	24	960
No. 5	Ma'an	Khan Yunis	1 - 6	Co-ed	24	960
No. 6	El-Mozanar	Gaza	7 - 10	Boys	24	960
No. 7	El-Remal	Gaza	7 - 10	Boys	24	960
No. 8	Near Khan Yunis District Office	Khan Yunis	1 - 6	Co-ed	18	720
No. 9	Wadi El-Salga Deir El-Balah	Khan Yunis	1 - 6	Co-ed	18	720
No.10	Tambora, Beit Lahiya	Gaza	7 - 10	Girls	24	960

(2) Requested Facilities

Name of Room	Size m²	No.	Note
Classroom	54.4	18 or 24	
Science Laboratory	108.8	1 or 2	Low basic 1, High basic 2
Library	108.8	1	
Art Room	54.4	1	
Computer Room	54.4	1	
Multipurpose Room	108.8	1	
Headmaster's Room	27.2	1	
Secretary's Room	13.6	1	
Teachers room	54.4	1 or 2	Separate men/women rooms in 24 class school. Same in 18 class school.
First Aid Room	13.6	1	
Social Worker's Room	13.6	1	
Staff Toilet	13.6	1	
Pupil Toilet	60.0	2	Independent building (2 buildings)
Guard Room	12.0	1	Independent building
Canteen	30.0	1	Independent building
Storage Room	80.0	1	

(3) Requested Facilities

Science laboratory equipment, reagents and materials for experiments and school furniture are requested to be procured under the Project. The detailed items are referred to the list of requested equipment in Appendices - 7.