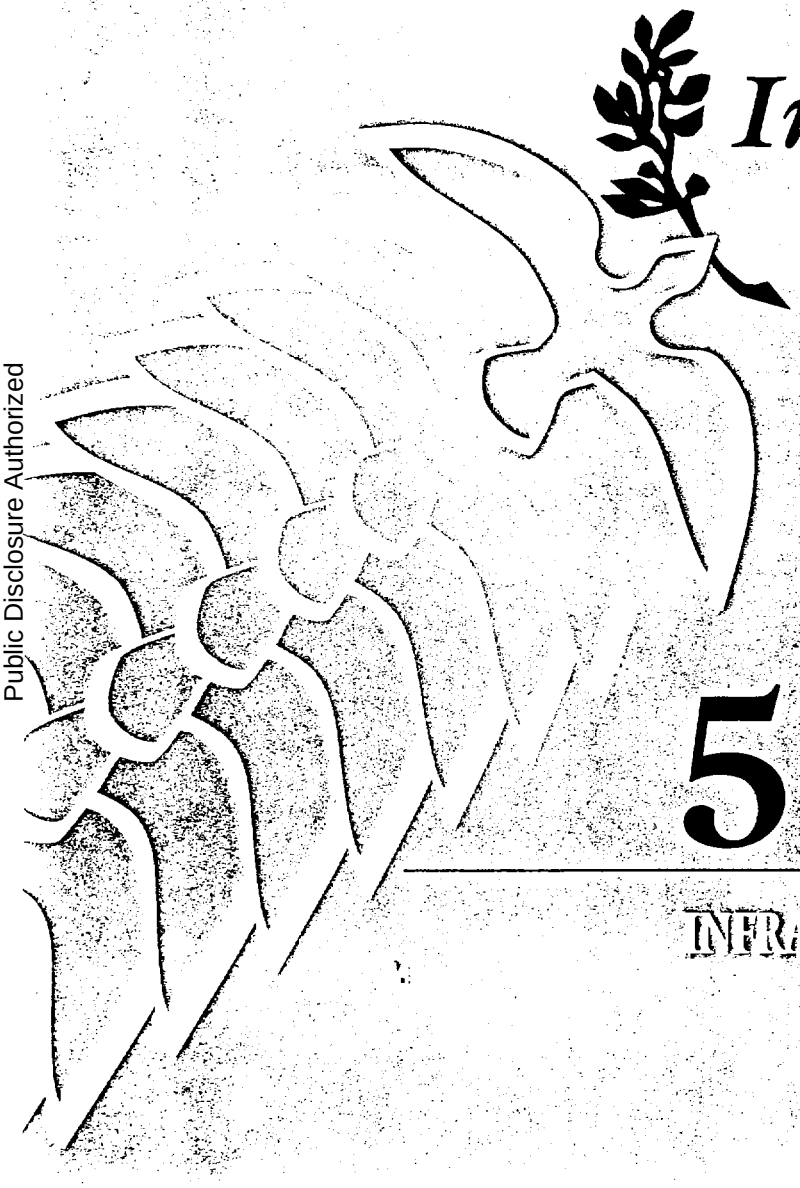
DEVELOPING THE OCCUPIED TERRITORIES



An Investment in Peace

5

INFRASTRUCTURE

A World Bank Publication

DEVELOPING THE OCCUPIED TERRITORIES

AN INVESTMENT IN PEACE

Volume 5: Infrastructure

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CURRENCY EQUIVALENTS

(As of January 1, 1993)

Currency Unit in use = New Israeli Sheqalim (NIS) and Jordanian Dinar (JD)

NIS 1.00	=	US$0.361
US$1.00	=	NIS 2.764
JD 1.00	=	US$1.453
US$1.00	=	JD 0.688

FISCAL YEAR

(January 1 to December 31)

WEIGHTS AND MEASURES

km (kilometer)	=	0.62 miles
m^3 (cubic meter)	=	35.31 cubic feet
l (liter)	=	0.264 US gallons/0.219 Imperial gallons
ton (metric)	=	2240 pounds
1 donum	=	1000 square meters

GLOSSARY OF ABBREVIATIONS

ADT	=	Average daily traffic
ANERA	=	American Near East Refugee Aid
CA	=	Civil Administration
EC	=	European Community
ESCWA	=	Economic and Social Committee for West Asia
GDP	=	Gross Domestic Product
GWh	=	Gigawatt hour
HPC	=	High Planning Council
IBRD	=	International Bank for Reconstruction and Development
ICTAF	=	Interdisciplinary Center for Technological Analysis and Forecasting, Tel-Aviv University
IEC	=	Israel Electric Corporation
JDECO	=	Jerusalem District Electricity Company
JWURD	=	Jerusalem Water Undertaking, Ramallah District
kV	=	Kilo Volt
kVA	=	Kilo volt ampere
kWh	=	Kilowatt hour
lcd	=	Liter per capita per day
LF	=	Load factor
mg/l	=	Milligrams per liter
MVA	=	Mega volt ampere
MW	=	Megawatt
NGO	=	Non-Governmental Organization
NIS	=	New Israeli Sheqalim
OT	=	Occupied Territories (West Bank and Gaza Strip)
UNRWA	=	United Nations Relief and Works Agency
VAT	=	Value Added Tax
WB	=	West Bank
WHO	=	World Health Organization

CONTENTS

PREFACE

1. At the request of the sponsors and organizers of the Middle East Peace Talks, the World Bank has been supporting the work of the Multilateral Working Group on Economic Development and Regional Cooperation by providing analyses of the key economic issues and developmental challenges facing the Middle East region. At its second meeting in Paris in October 1992, the Working Group requested the Bank to expand its contribution to include, *inter alia*, an assessment of the development needs and prospects of the economies of the West Bank and the Gaza Strip (commonly referred to as the Occupied Territories). In response to this request, a Bank mission visited the Occupied Territories during the period January 21-February 24, 1993. The mission comprised five teams focusing on the following areas: Private Sector Development, Agriculture, Human Resources, Infrastructure and Macroeconomics. Each team was in the field for about two weeks. The mission was led by Prem Garg who, together with Samir El-Khouri, stayed in the field throughout to provide continuity and guidance to the five teams. The staffing of the five teams was as follows:

Agriculture	Gert van Santen (Team Leader) Ulrich Kuffner (Water Resource Engineer) Merle Jensen[1] (Horticulture Specialist)
Human Resources:	Fredrick Golladay (Team Leader) Maureen Field[1] (Education Specialist) Radwan Ali Shaban[1] (Human Resource Economist)
Infrastructure:	Alastair McKechnie (Team Leader) Ulrich Kuffner (Water Resource Engineer) Lawrence Hannah (Urban Specialist) Nail Cengiz Yucel (Transport Sector Specialist) Ted Moore[1] (Power Engineer)
Macroeconomics:	Michael Walton (Team Leader) Samir El-Khouri (Fiscal Analyst) Ishac Diwan (Macroeconomist)
Private Sector Development:	Albert Martinez (Team Leader) Robert Mertz (Financial Sector Specialist) Joseph Saba (Legal Specialist) Dileep Hurry[1] (Regulatory Environment and Tourism Specialist)

2. Mission members travelled extensively in the West Bank and Gaza, visiting municipalities, farms, businesses, industries, academic institutions, refugee camps and NGO-run facilities. Mission members also travelled in Israel, as needed, and paid several visits to Amman. The representatives of the key bilateral and multilateral donors in Jerusalem, Tel Aviv and Amman responsible for the Occupied Territories were kept briefed about the work of the mission. Close contact was also maintained with the field staff of UN agencies.

1/ Bank consultant.

3. The Bank mission was received warmly by all sides, who took keen interest in the work of the mission and provided superb logistical and counterpart support for the field work. The main counterparts on the Israeli side were the Bank of Israel and the Civil Administration in charge of the Occupied Territories. On the Palestinian side, the main contacts were the Technical Committees of the Palestinian Team to the Peace Conference, consisting mainly of Palestinians who are members of the bilateral or multilateral peace teams. The Ministry of Planning was the main counterpart on the Jordanian side. The Bank would like to thank all concerned parties, especially the Israeli, Jordanian and Palestinian hosts, for the excellent support and cooperation that the Bank mission received for this field work.

4. This report is based on the findings of the above mission. The report is in six volumes:

- **Volume 1** provides a summary ***overview*** of the key findings and recommendations of the study. After commenting selectively on the current socioeconomic situation in the OT and its evolution over time, it discusses prospects for sustainable development in the future and outlines the priority agenda of policies and programs needed to promote such development.

- **Volume 2** explores the strategic choices at the ***macro*** level that will be faced by the OT in the future and the implications for economic relations between the OT and the rest of the region. It looks at the present situation, relating the current crisis to a history of rapid, but unbalanced, growth and to a sequence of shocks that have buffeted the economies and the people of the OT. The study then examines several policy choices for the future affecting the structure of development in the OT. Finally, it outlines some illustrative scenarios for the future, focussing on the consequences of current developments in the region.

- **Volume 3** reviews the performance of the ***private sector*** in the OT; assesses the environment in which it operates and its future prospects; and makes recommendations for accelerating private sector development in the future.

- **Volume 4** reviews the evolution and structure of the ***agricultural*** sector in the OT; analyzes its current characteristics; assesses OT competitiveness in the immediate and longer term; outlines the main policy options and their implications; and provides a preliminary assessment of sectoral financial and technical assistance (TA) needs.

- **Volume 5** assesses the current situation in the ***infrastructure*** sectors (electricity, water supply and sanitation, transport, housing and solid waste services) in the OT; identifies the major issues confronting these sectors; and outlines priorities for TA and investment needs. As local authorities are major institutions in the delivery of public services in these sectors, the study also includes a review of their current situation and makes recommendations for improving the functioning of municipalities.

- **Volume 6** reviews the current status as regards ***human resource*** development; analyzes options for enhancing individual welfare and labor productivity in the OT; and outlines investment and TA priorities for strengthening existing programs and for laying the foundation for later reforms.

5. It is worth highlighting three limitations of this study right at the outset. First, a number of key issues bearing upon the future development of the OT (e.g., the allocation of land and water resources, the disposition of Israeli settlements in the OT, the future status of expatriate Palestinians, the territorial issues surrounding Jerusalem and, most importantly, the nature of the proposed "autonomy" for the OT) are the subject of ongoing bilateral negotiations between the Israelis and the Palestinians. Many of these issues involve competing claims to property rights, and their resolution is likely to be based primarily on political and security considerations. As the Bank mission to the OT was a *technical mission*, with neither the mandate nor the expertise to deal with political or security aspects, this study does not take any positions on issues that are on the agenda for bilateral negotiations. The focus instead is on policies, institutions and investments--where optimal choices are largely invariant to the eventual political arrangements to be agreed at the bilateral negotiations.

6. The second limitation relates to the *definition* of the OT. Israel has annexed East Jerusalem and considers it part of Israel. The Palestinians, on the other hand, consider East Jerusalem part of the West Bank as per the pre-1967 boundaries. Much of the data on the OT are, directly or indirectly, from official Israeli sources, which treat East Jerusalem as part of Israel and exclude it from the OT data. Furthermore, data on East Jerusalem from Palestinian and Israeli nonofficial sources are also sparse and selective. Therefore, purely as a practical matter, and without implying any Bank stance on the issue, the bulk of the analysis in this report concerns the OT excluding Jerusalem. However, where the results of the analysis might be particularly sensitive to the definitional issue, it is so noted in the report, together with a discussion in qualitative terms. To a somewhat lesser extent, similar data limitations apply to Israeli settlements in the OT, and a parallel approach has been adopted in this report in dealing with issues related to Israeli settlements.

7. Lastly, the study has had to cope with very serious *data gaps and inconsistencies*. A population census has not been carried out in the OT for more than 25 years. Accordingly, most of the demographic and labor force data are based on extrapolations and on sample surveys, the reliability of which are undermined by problems of nonresponse, especially since the onset of the *Intifada* in 1987. Data available on trade between the OT and Israel and on the profitability and competitiveness of the agricultural, industrial and service enterprises are also very limited. Independent Palestinian data, when they exist, are often based on nonstandard definitions, with indeterminate sampling and non-sampling errors. In many instances, data differ between sources, and, even when the same source is used, there are gaps and apparent inconsistencies. Given these data problems, the report uses estimates that appear plausible in light of the mission's field observations. In cases where the data differences among various sources are particularly sharp (e.g., population, unemployment and social indicators), the report attempts, where possible, to examine the reasons for these differences and to indicate the implications of alternative estimates for the results of the analysis.

8. In view of the limitations on the mission mandate, the data and definitional difficulties and the time and resource constraints, this study can only be considered a beginning. The analysis in the study, especially for the longer term, is necessarily incomplete; as, and when, progress is made in the bilateral negotiations, the study will need to be updated and expanded to take account of the agreements reached. Also, notwithstanding the care exercised in locating and interpreting the data from various sources, the empirical underpinnings of this study leave something to be desired, and, therefore, the conclusions of the study should be treated only as indicative of broad trends and priorities. Further, in-depth studies and project feasibility work will be required before the findings of this report could be used to make operational decisions.

I
OVERVIEW AND SUMMARY

1.1 This study aims at: a) assessing the current situation in the infrastructure sectors (power, water supply and sanitation, transport, housing and solid waste services) in the Occupied Territories (OT); b) identifying the major issues confronting these sectors; and c) establishing priorities for technical assistance and development needs. As local authorities are major institutions in the delivery of public services in these sectors, the study also includes a review of their current situation and recommendations on improving the functioning of municipalities. The report primarily focuses on sectors where public authorities would play a direct role in the provision of services. Accordingly, the telecommunications sector and petroleum distribution activities, which are, in general, provided through private initiatives, have been excluded from the study. With the implementation of the recommended strategy for private sector development outlined elsewhere in the study, it is expected that these services will be provided by private enterprises.

1.2 Because of the paucity of detailed information, the study, at times, relies on observations made in the field and anecdotal evidence. Also, the study attempts to cover several sectors and a wide area of institutional, investment and policy issues. Therefore, some of the recommendations made need further analysis and in particular, the estimated investment needs of the OT should be regarded as indicative magnitudes. In all cases, it is recommended that before implementation the investments identified and individual projects included in the program be subjected to comprehensive feasibility studies establishing their economic and financial viabilities.

A. Infrastructure and the Development of the OT

1.3 The services provided by infrastructure sectors lie at the foundations of the economic and social life of the OT. The basic water supply, transport and power facilities and the services provided in these sectors, to a large extent, determine both the quality of life and the industrial and agricultural development potentials of the OT. However, despite some positive improvements in service levels under the Israeli administration, in all these vital areas the level, and particularly the *quality*, of service provided is below that generally found in countries with comparable incomes. Moreover, the poor state of the existing physical facilities for sewerage, water supply and solid waste and drainage, and the inadequacy of service provided in these areas, has already placed a heavy strain on the environment.

1.4 The basic reason for the poor state of the infrastructure sectors and the inadequacy of the services provided is related to the governance of the OT. First, the institutional structure to formulate, implement and manage investments is inadequate, and Palestinians are only weakly involved in the decision-making process. The lack of an effective mechanism for responding to the wishes of the population has resulted in formulation of policies and investments that do not serve the needs of the OT well. Second, there is no sovereign guarantor to enable international borrowing and no formal financial sector to provide funding for maintaining and developing infrastructure services in response to the growing demand. Third, there is some evidence that not all of the tax revenues collected by the Israeli authorities from residents of the OT have been made available to the Civil Administration (CA) for *inter alia*, investment

and municipal services.[2/] Fourth, municipalities have been forced to siphon funds from the utilities to maintain municipal services. Consequently, utilities have had to finance almost all their investment from their remaining internal resources. Furthermore, these internal resources were further depressed by frequently low levels of efficiency which in turn were due to inadequate investment and institutional weakness.

1.5 The recovery program, therefore, must start with technical assistance and studies to build a technical capability and institutional framework to develop rational policies and efficient investment programs. Particular attention should be given to the creation of analytical capacity for the economic and financial evaluation of investment and operational improvement priorities. Without strong institutions, investments to redress infrastructure shortcomings are unlikely either to be implemented efficiently or be sustainable in operation. Existing local government structures, despite their weaknesses, and the utilities appear to be the starting point in establishing an adequate institutional capability. In addition, a significant inflow of funding is needed initially to carry out rehabilitation works and, subsequently, to expand capacity to meet demand.

B. Local Government and Public Administration

1.6 The implementation of Israeli policies in the OT is entrusted to the Ministry of Defence which has the overall responsibility for maintaining law and order. The Coordinator of Government Activities, assisted by the CA has responsibility for maintaining civilian affairs in the OT. However, three significant problems affect the ability of local government to deliver services in the OT. First, the legal basis for local government in the OT currently in force, rests upon a complex amalgam of several legal systems amended by military orders is not transparent to all parties, and gives extensive discretion over the application and interpretation of laws and regulations to the CA. Second, local governments have very limited control over resources, transfer utility revenues to subsidize other services and have difficulty in collecting revenues in the context of current governing arrangements. Finally, the procedures for selecting investments for external funding by the CA are neither transparent nor predictable and there is a general unwillingness among Palestinians to cooperate with the CA. Taken together, these three factors result in local government arrangements that are characterized by an unclear distribution of authority and a general lack of accountability. Performance of those services that local governments do provide is poor and there is significant unmet demand for services.

1.7 Measures to foster effective provision of infrastructure services by local government include:

(a) establishing a rational, transparent legal foundation for local government which clearly assigns an appropriate degree of local discretion over issues of local interest;

(b) implementing a more appropriate assignment of revenues providing greater local autonomy over user charges and local taxes; and

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2/ The World Bank paper on Economic Development and Policy Choices in the West Bank and Gaza estimated that there was a net revenue loss to the OT of about 6% of GDP in 1991.

(c) introducing more systematic and transparent criteria for allocating capital investment funding.

1.8 Some aspects of the realignment of control over local resources--through decentralizing revenue and expenditure control--is amenable to immediate action. While studies can be initiated immediately, actions necessary to (i) identify a transparent legal foundation, and (ii) introduce mechanisms for greater local government financial autonomy are likely to be possible only over the medium term.

1.9 The immediate financing needs (about US$1.0 million) for local governments in the OT are for technical assistance, training and studies for institutional change and policy development.

C. Electric Power

1.10 Available electric power in the OT is limited due to restricted supply from the Israeli Electric Company (IEC), over-control by the Israeli authorities and constrained financial resources. Electricity supply per capita of around 679 kWh is low compared to countries of similar income levels--Egypt 815, Colombia 1198, Jordan 1054, Tunisia 615, Syria 699, Turkey 893 and Zimbabwe 891--because of artificial supply restrictions, under-investment in electricity supply and the low industrial load in the OT. However, because of very high network losses and unaccounted-for electricity (around 20%), electricity available to consumers in the OT is even lower than these figures suggest. Load shedding at peak is normal in the OT and there are typically 10 or more power interruptions per month.

1.11 Electricity is supplied to the OT almost totally from the IEC power system via thirty 33-kV or 22-kV feeders supplied from IEC 161-kV step-down substations. Electric utilities in the OT operate as departments within the various municipalities, except for the Jerusalem District Electricity Company, (JDECO), which supplies East Jerusalem and the immediate area. All the OT electric utilities are in poor financial condition due to inadequate final consumer tariffs (which are set by the municipalities but require formal approval of the CA), outstanding consumer accounts, the poor condition of all facilities, overdue maintenance and system losses of 20 percent or more due to the overloaded lines and equipment.

1.12 The geography of the OT suggests that the optimal organizational arrangements may be built around four sub-systems, three in the West Bank and one in Gaza. There is also a need to create commercially oriented utilities in the OT that are capable of meeting the future demand for electricity. Considering that these four regions could each handle their respective distribution activities, there are three possible forms for structuring the OT power sector:

(a) vertical integration with a single utility handling generation, transmission and distribution;

(b) a generation and transmission bulk supply utility selling to the four distribution utilities; and

(c) a transmission utility for the OT receiving power from generation and import companies that sell to the distribution companies.

Box 1.1: The Issue of Jerusalem

The city of Jerusalem has occupied a central place in the history of three great religions - Judaism, Christianity and Islam. It has also played a major role in shaping the economic, social and political lives of the Middle East Region for over three thousand years. Therefore, an important aspect of the current conflict in the Region centers on the control of Jerusalem.

The 1948 war led to partition of Jerusalem into the Eastern and Western parts. At the end of the 1967 War, East Jerusalem was occupied by Israeli forces. Following the occupation, the Jerusalem city limits were expanded by Israel to include some surrounding areas from the West Bank. The expanded city was annexed by Israel on July 30, 1980. Arab residents of Jerusalem have been given the option of obtaining Israeli citizenship although very few have chosen to do so. Israel views Jerusalem as its historic capital and maintains that Jerusalem must never again be a divided city.

Actions taken by Israel were considered invalid by the United Nations, which called upon Israel to refrain from taking any action that would alter the status of Jerusalem. Although the international community has not recognized the Israeli annexation of East Jerusalem, Israel continues to exercise authority over the area and considers it an integral part of Israel and not subject to further negotiations. The Palestinians insist that East Jerusalem is part of the West Bank as per the pre-1967 borders and that Israel should withdraw from all areas occupied during the 1967 war as per the United Nations resolutions.

There are important economic links between the West Bank and Gaza Strip and Jerusalem. Decisions concerning Jerusalem would, therefore, have important implications for future economic prospects and priorities for the OT. The following are among the most important of these links:

- The tourist potential of the West Bank is critically dependent on the ancient religious sites of Jerusalem.
- Major north-south transportation links in the West Bank pass through Jerusalem.
- The only tertiary care hospital and some of the best secondary care hospitals available to the West Bank population are located in East Jerusalem.
- East Jerusalem houses much of the Palestinian financial services, marketing facilities, and social and cultural infrastructure.
- Qalandia airport, a potential outlet for linking the West Bank with regional airports, is within annexed Jerusalem.
- Parts of East Jerusalem are an integral part of the power network covering the area from Ramallah to Bethlehem.

Considering that the question of Jerusalem is essentially a political matter, this report should not be construed as taking any position on this issue. Therefore, while analyzing the links where appropriate, this report has endeavored to avoid making any recommendations that might imply prejudging the status of Jerusalem.

1.13 The form of organization and the long-term power system facilities in the OT will be influenced by two major issues that are to be determined through the peace negotiations, i.e., the resolution of the Israeli settlement issue and the nature of infrastructure connections between the West Bank and the Gaza Strip. If IEC continues to supply the settlements, it probably means overlapping Israeli and Palestinian transmission systems, which would be difficult to justify on the grounds of economic efficiency. If no direct transmission connection is available between the West Bank and Gaza, a unified Palestinian power system would not be possible, although one utility could theoretically serve both territories.

1.14 Some studies, training, and technical assistance, costing about US$7.0 million, can start immediately to determine the staff development and training requirements to include, training Palestinian staff at foreign utilities to set up appropriate commercial systems and to develop staff skills.

1.15 As soon as peace negotiations have progressed so that self government arrangements are in place, strengthening of Palestinian utilities, studies and investments in transmission lines, and in distribution rehabilitation, expansion and reinforcement, costing US$350 million, can proceed to relieve major distribution system constraints, to create a transmission system, and to expand the electricity supply for economic development in the OT. It may be possible to commence with investments needed to improve the transmission system in the immediate term. Technical assistance requiring US$7.0 million will be needed to define these investment requirements, complete designs, and finalize cost estimates.

1.16 When the outcome of the peace settlement is known, investment in the long-term power facilities for the OT can proceed. There are economies of scale benefits for the OT electric utility system from retaining low-cost IEC supply from large coal-fired 500 MW units. To ensure some degree of independence and security of supply, low investment cost, high fuel cost, standby/peaking 100 MW gas turbine units could be installed in the OT and operated as part of a regional system. If gas is available from Egypt, a gas-fueled combined cycle plant could be installed at Gaza. Interconnection of the OT power system with Jordan, Egypt, Syria and other Arab countries, while retaining the Israel-OT interconnection, would seem a high priority. Indeed, after a peace agreement the OT could serve a pivotal role in electricity trade between Israel and the neighboring countries. The long-term investment requirements for power in the OT are estimated to cost US$600 million, for studies, generation and system operation. Thus, the overall estimated cost for immediate, interim period and long-term power investment in the OT is US$950 million.

D. Water Supply and Sanitation

1.17 Although almost all the people in the urban areas and about half of the rural population have access to piped drinking water, the sector faces serious problems: deteriorating water distribution networks with losses of 40 to 60 percent in most municipalities; very low service levels in comparison to countries with similar income levels (the average supply for domestic use[3/] is about 62 liter per capita per day -- compared to 115 for Tunisia, 137 for Jordan, 230 for Egypt and 280 for Israel); limited access to water; and the lack of financial resources to maintain the existing systems. Water quality problems exist in Gaza and some West Bank municipalities. Septic tanks are used to dispose wastewater in urban and rural areas. Most municipalities have unsatisfactory wastewater collection systems, and,

3/ This figure includes system losses and unaccounted for water.

consequently, the pollution caused by the inadequate disposal of wastewater is creating serious problems, especially where farmers use untreated wastewater to irrigate their fields.

1.18 The supply of water in both regions depends mainly on groundwater. The aquifers extend into Israel and are, therefore, a common resource, claimed by both Palestinians and Israelis. The restrictions imposed by the Civil Administration, which determines the quantity of water available to the Palestinians distort water demand in the OT. The allocation of water rights is essentially a political matter that can only be resolved through negotiations.

1.19 The annually renewable recharge in the West Bank of aquifers amounts to about 600 million cubic meters. The Palestinian population of the West Bank is permitted to use about 110-133 million cubic meters annually. Israeli settlers use about 45 million cubic meters and as aquifers extend into Israel, groundwater has been exploited in the Israeli coastal plains up to the level of available supply. Currently, many of the water sources are overexploited. The Jordan River water is at present unavailable to the Palestinians.

1.20 In Gaza, the water situation is precarious since about 95 million cubic meters of groundwater are withdrawn every year, compared to an annual recharge of about 60 million cubic meters. The share of water use by Israeli settlers is relatively small at around 3-6 million cubic meters which is compensated by supply from Israel through the Kissufim pipeline. Over-exploitation of the aquifer has led to falling groundwater levels and deteriorated water quality. Furthermore, groundwater quality is made worse through infiltration of sewage, polluted surface water and solid waste leachates.

1.21 Most institutions dealing with water supply and sanitation are weak. This is due, first, to the organizational structure of the sector and, second, to human resource constraints. The water departments of the municipalities have to deal with a complex legal basis, inadequate managerial capacities, bureaucratic constraints and difficulties in collecting water charges and raising funds for investments and rehabilitation works. The Civil Administration controls the volume of water available to the Palestinians, which has substantially limited their water use.

1.22 There is a need to restructure the sector to create financially autonomous water and waste water utilities with clear commercial and service objectives. Consideration should be given to merging some of the small municipal water departments into larger subregional companies to take advantage of economies of scale. There is also a need to create an association of water utilities to begin the process of developing a coherent strategy for water and wastewater sector development and to start assessing sector-wide operational and investment priorities and the future organizational structure. Technical assistance will be required for both the utility restructuring and the initiation of an association with a coherent and achievable work program.

1.23 Practically, all water supply and sewerage systems are in need of rehabilitation and expansion. As a systematic assessment of the investment needs does not exist, only a tentative cost estimate could be prepared for bringing the services to adequate levels. The total investment cost is estimated to reach about US$500-600 million. The most urgent needs are improvements in the quality of the water supply in Gaza (reduction of groundwater extraction and intrusion of pollutants), the rehabilitation and expansion of water supply systems in the West Bank, and projects to reduce pollution. This investment program should be designed according to technical, economic and financial criteria. Furthermore, pricing policies need to be implemented to encourage the efficient use of this scarce commodity, mobilize resources to

finance investment, and ensure that low income households have affordable water for their basic drinking, cooking and personal hygiene needs. Immediate technical assistance is needed to define immediate rehabilitation needs and to prepare investment programs and project designs for investments to expand water supply and treat wastewater to improve the quality of the environment and make treated water available for agriculture.

E. Transportation

1.24 Existing transport facilities of the OT are inadequate to provide a cost-effective service to the region and to realize its full development potential. While the length of road networks per capita is typical of economies with similar income levels, the physical condition of the roads serving the Palestinian population has deteriorated to the point where the assets will be lost unless immediate action is taken to rehabilitate them. Although since 1967 there have been developments in transport infrastructure, the orientation and coverage of these have been primarily in response to the needs of the Israeli settlements to be fully integrated with the economic and social structures in Israel. As a result of these Israeli policies, there are currently two weakly connected road networks in the OT: one well-designed and high standard road system linking the settlements with major centers in Israel, and another that is largely neglected and poorly maintained, serving mainly the Arab population. The roads in the OT designed to meet mainly Israeli needs are also used by the Arab population depending upon the availability of Israeli security-related permits.

1.25 The total length of the road networks in the West Bank and the Gaza Strip are 2,000 km and 168 km, respectively. The networks consist of main, regional and local roads. The main road network which was largely constructed before 1967, is about 700 km in length, serves the major population centers. It forms a grid with two north-south corridors and four east-west corridors. The regional network, about 500 km in length, is also oriented on north-south and east-west axes. The local road network, about 800 km, connects smaller communities and provides access to the regional and main networks. In addition, about 880 km of agricultural roads serve farming communities.

1.26 In terms of the ratio of the length of the road network to population (a standard comparative indicator for determining the degree of access provided by the existing road facilities), the accessibility of the road network in the OT (1.2 km per 1000 population) is less than elsewhere in the region, with the exception of Egypt--1.4 for Jordan, 2.0 for Syria and 0.6 for Egypt. By comparison, Israel which has a greater per capita GDP, has nearly two and a half times the road network of the OT per 1000 population (2.75 km compared to 1.2 km).

1.27 About 40 percent (760 km) of the road network in the West Bank is in a very poor state requiring immediate rehabilitation if the system is not to be lost. Many sections of the network need to be improved through pavement strengthening. Several sections of the system need to be upgraded through improved vertical and horizontal alignments. Furthermore, about 11 percent of the network (210 km) also requires extensive repair work and maintenance.

1.28 The condition of the urban networks is also very poor. Only a small portion of the local revenues collected through various road-user charges, mainly the tax on gasoline, are returned by the Israeli authorities to the municipalities to improve infrastructural facilities, including the road network.[4/] As a result, roads in all municipalities lack adequate marking, lighting[5/] and the capacity to serve the needs of the population. Traffic jams are a common occurrence in town such as Nablus and Ramallah.

1.29 Enterprises providing road passenger and freight services are operating under extremely difficult conditions. The lack of readily available credit facilities and high cost of spare parts have put many of them under financial duress; in recent years several enterprises have left the industry creating a vacuum, particularly in passenger services.

1.30 Improvements needed to bring the transport sector to a level which could support future Palestinian economic and social activity require a well-coordinated strategy to (a) develop an effective institutional capability; (b) train experts and professionals capable of formulating efficient sector policies; and (c) mobilize adequate funds to implement the urgently needed rehabilitation and selective capacity expansions. Palestinian experts and officials currently employed by the CA can play a significant role in the initial stages of institution building activities and in developing adequate expertise.

1.31 In the immediate term the focus should be placed on training activities to begin the process of institutional building and on rehabilitation/repair of municipal roads. Core staff capable of undertaking analytical work to determine priority rehabilitation works and designing projects should be established. The training activities to be carried out within this time frame would require an initial commitment of about US$1.5 million. Another US$4.5 million is needed to start feasibility studies for road rehabilitation and expansion projects to be implemented in the interim period.

1.32 In the interim period, extending over a period of about five years, the priority road rehabilitation and selective capacity expansion works identified in the earlier stage should be carried out although some modest initial investments may be undertaken in the immediate term. Based on the latest unit cost figures from the Jordanian experience, it is roughly estimated that the rehabilitation/expansion program would require about US$330.0 million. During this time frame, feasibility studies should be initiated to assess the economic and financial viabilities of major transport projects. Among such projects, the expansion and rehabilitation of the Qalandia airport appears promising from an economic standpoint and would justify a feasibility study. However, the airport is in Israeli annexed East Jerusalem and an identified project could only be implemented after bilateral negotiations to resolve the status of airport land, or to arrive at a special solution such as the Basel-Mulhouse airport which serves Switzerland and France. In addition, selective capacity expansion in certain segments of the main road network should be subjected to feasibility studies. In the interim period, efforts to build an adequate institutional capacity need to be continued.

1.33 The specific long-run financial requirements of the sector cannot be determined with any degree of confidence at this time. However, it appears likely that major regional projects serving the growing international traffic will prove to be financially and economically viable. These projects need to be

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4/ This is apparently based on pre-existing Jordanian law, where a portion of the fuel tax is earmarked for municipal finance.

5/ Some streetlighting was destroyed during the intifada.

subjected to technical, financial and economic analyses to determine the extent of those facilities that would be located within the OT. It is roughly estimated that the sections of such regional transport projects that fall within the OT would require about US$100.0 million. In addition, development of Qalandia airport, if found economically, financially and politically viable, will require about US$250 million. Rehabilitation and selective capacity expansion of the road network will also need about US$150 million.

F. Solid Waste

1.34 The present arrangements for collection and disposal of solid waste in the OT are not satisfactory from health, local public service delivery or environmental points of view. Although all urban communities in the OT have a refuse collection system in place, the present level and quality of service leaves many households with sporadic collection and most communities with significant improper and unsafe disposal, including considerable random dumping where collection is not undertaken regularly. At present there is no sanitary landfill site in the OT for municipal wastes, leaving all refuse to be disposed of by less than safe methods.

1.35 The poor performance of solid waste services is due largely to a system that divorces accountability for service delivery from the authority to raise resources to pay for it. Fees and charges for solid waste collection are set at uniform, and probably inadequate, levels throughout the OT. Since local authorities can not charge more for better service (and its not clear that residents would pay more under the existing government arrangements), there is little means or incentive to improve the situation. Once some credible authority to organize and charge for solid waste collection is vested in the local governments, we would expect this situation to change.

1.36 There are numerous technical and institutional arrangements for collecting and disposing of municipal solid wastes. Some options involve considerable participation from private firms and even citizens themselves. Each local government will need flexibility to work out the best collection system that its citizens want and are willing to pay for. The disposal system is different, however. Environmentally sound disposal requires large and costly facilities, such as sanitary land-fill sites where there are considerable economies of scale and complex management and financing arrangements required. Studies are urgently needed to determine the most appropriate disposal solution and carry out engineering designs and institutional arrangements and cost recovery mechanisms. Some immediate investment in equipment to clean up urban areas is needed and investment over a 5-year period in sanitary landfills and transfer facilities is likely to amount to about US$100 million.

G. Housing

1.37 Housing is an economic sector in the OT accounting for significant shares of employment, investment and privately held wealth. Because of the virtual absence of public housing and strong private construction sector, the OT are well positioned to develop a modern housing policy. A basic strategic choice is whether the supply of housing should be left to the private sector, as Lebanon and Jordan have largely done, or whether to adopt a public sector role as in Israel and Egypt. International experience suggests that policies involving direct public provision of housing seldom work. Public housing tends to be expensive, unresponsible to public preferences and limited by financial constraints to provide shelter to only a small fraction of the population. Given the limited financial resources likely to be available to

the self-government and the traditionally effective private supply of housing, the strategy should be to create a well functioning housing sector, not to use housing to create a welfare system. Issues of access of low income households to adequate shelter should be dealt with by carefully targeted transfers to families, rather than overall subsidization of the housing sector.

1.38 Demand for housing has been strong and will likely grow if the peace process is successful. Although public authorities need to prepare for the possibility of migration, a responsive housing supply system in the OT will be essential to accommodating the highly uncertain future demand. Supply side problems in the sector include, inter alia, generally cumbersome and cost-increasing regulations in the land and building area, but also weak infrastructure supply capability, minimal finance for either builders or their customers, and specific regulatory bottlenecks, some of which pre-date Israeli administration, such as a binding rent control law that makes provision of rental housing unattractive. The strong demand and unresponsive supply system result in relatively expensive land, construction and housing prices in the OT compared to comparator economies.

1.39 The strategy for reform is to make the housing and urban land markets in the OT function better so that the resources invested by households produce as much housing as possible. Specific reforms recommended in Chapter 7 of this report address facilitating housing supply through better regulation of land and housing development, provision of infrastructure for residential development, and support for improving the organization of the building industry. Broadly based housing demand should be stimulated by developing better property rights, creating an efficient program of assistance for the poor and developing mortgage finance. There is also the need for a new institutional framework for managing the housing sector in terms of making and implementing better policies.

1.40 The appropriate strategy for assistance should start with studies of key reforms and the technical assistance to develop policies and institutions to carry them out. The larger investment role for the public sector should be in the provision of infrastructure as described elsewhere in this report.

H. Public Utilities

1.41 Public utilities provide infrastructure services in a market where competition is weak or non-existent for technical reasons. In the OT, the existing public utilities are in the electricity, water and telecommunications sectors. Sector specific aspects of the organizational structure of the electricity and water sectors are discussed in Chapters 3 and 4. The following paragraphs deals with generic issues that cut across sectors.

1.42 Well functioning public utilities are essential to implement and operate investments on the scale needed in the OT in the future. For the period after a peace agreement, the authorities responsible for the OT will have to decide on how the ownership of utilities should be structured, and how the regulatory and policy making roles should be organized. The legal framework of these arrangements also will need to be established, taking account of the special circumstances of the OT.

Ownership Arrangements

1.43 The present ownership arrangements consist of two quasi-private utilities (Jerusalem District Electricity Company, Jerusalem-Ramallah Water Undertaking), municipal electricity and water departments, the Civil Administration telecommunications department, and the Israel Electric Corporation and Israeli water authority (Mekhoroth) which supply in bulk to Palestinian utilities and distribute to the Israeli settlements.

1.44 International experience has demonstrated that central government or municipal departments are a poor form of organization for public utilities. Utilities which are revenue earning are capable of financing a significant portion of investment from their own resources and servicing debt or equity used to finance the remainder. Management can perform better when its mandate is clear, it is free from political interference and is accountable for meeting quality of service and financial objectives.

1.45 To provide a sound basis for autonomy, accountability and efficiency, we recommend that commercially oriented utility companies be established. Municipal governments should disengage from the direct provision of water and electricity, to an indirect role of owner (shareholder right to appoint board members etc). In principle, local governments could receive dividends from their equity in utilities which could be used to fund local government services, but the magnitude of such financial flows could be small in the medium term as resources are channelled to new investment.

1.46 Since the legal framework governing the OT after a peace settlement is not yet clear, the simplest legal basis for new reconstituted utilities would be the prevailing companies law. Establishing utilities as joint stock companies under normal commercial law, in most cases with the shares held in the public sector, has other advantages too. First, it provides a framework for enterprise autonomy and commercial orientation. Second, it makes future partial or total privatization straightforward through sale of shares through the capital market without necessarily requiring special legislation.

1.47 Some of the problems of poor public utility performance in other economies have been due to the concentration of the ownership, regulatory and policy-making roles in one government ministry. To enable the new Palestinian utilities to avoid such problems we recommend first, separating these roles among different institutions, and second, spreading the ownership (share holdings) as widely as possible among different municipalities, other official or administrative agencies, pension funds, etc.

Regulation of Public Utilities

1.48 In order to prevent abuse of potential monopoly power most countries regulate public utilities to prevent over-charging and price discrimination that lacks an economic basis, and to ensure that service provision and quality of supply obligations are met. There are three main approaches to regulating public utilities that might be considered:

(a) regulation through a contract or concession that stipulates obligations regarding supply and sets out a basis for adjusting prices, often through a formula. Variants of this type of regulation is practiced in France (water) and in the United Kingdom;

(b) a commission which reviews proposed price increases on a case by case basis, often making judgements concerning the prudence of management decisions (e.g. investments) that influence the price level. This form of regulation is common in the United States; and

(c) supervision of the utility by a sector ministry staffed by technical experts who can review investment programs, procurement decisions and financial performance. These arrangements are common in developing countries and approximate the existing situation in the OT where the Civil Administration is the de facto regulator.

1.49 Of the three alternatives, the third has rarely led to an efficient, financially viable utilities sector. Decisions on pricing become subordinated to short term political pressures, ministers become utility managers rather than policy makers and the investment/procurement decision process is sometimes corrupted. The second alternative, while a viable option, requires a heavy administrative burden, regulators who are credible, and sometimes a cumbersome legal process. The first alternative, while simpler to implement, may be less flexible in adapting to conditions that were not foreseen when the contract was agreed. It may also induce undesirable behavior, e.g. lack of maintenance and investment, towards the end of the contract.

1.50 In both alternatives, the relation between the governing authorities and the regulators should be defined and limited by law, i.e. regulators would act on the basis of principles defined by law, with no intervention by the political authorities in specific decisions. To ensure their independence, regulators would be appointed on renewable fixed term contracts with strictly limited and defined grounds for dismissal.

1.51 When the self-governing arrangements for the OT after a peace agreement become clearer, the responsible authorities will need to commission a study to design a regulatory system. Issues that such a study might examine include:

(a) whether to have one regulatory body for all infrastructure sectors, e.g. electricity, water, waste water, telecommunications, irrigation water, public transport, etc, which would effectively utilize scarce administrative resources in regulatory matters, or whether to establish sector specific regulatory bodies which might become unduly influenced by the firms they regulate;

(b) the relation between regulation of the infrastructure sectors and the potential need for an organization to promote competition generally;

(c) whether regulation of water resource use should be carried out within the infrastructure framework, included with environmental management, or have a separate institution insulated from agricultural and urban users;

(d) the basis for setting prices, i.e. based on company submissions of costs, or perhaps more appropriately, based on an initial average price indexed for general inflation, adjusted for real productivity gains, or increasing water scarcity;

(e) the extent to which major investment and procurement decisions can be devolved to companies that have a majority public sector share holding; and

(f) arrangements for funding the regulatory function, e.g. through a fee on the gross revenues of the regulated companies.

Policy Making Institutions

1.52 The institutional model outlined above would devolve most of the responsibility for the delivery of infrastructure services to the companies and regulators. An important role for the self-government would remain in strategic planning, policy making, overseeing the implementation of laws, international relations, etc. Because of the small population of the OT and the need to channel resources to development that promotes rising living standards, the equivalent of large sectoral ministries would not seem a high priority. Indeed, there would appear to be a good case for having "ministries" which cover several sectors. Further analysis on institutions for policy-making is inappropriate at present since the self-governing arrangements for the OT after an initial peace agreement are not yet clear.

Technical Assistance

1.53 To define the institutional basis of public utility ownership and regulation, immediate technical assistance amounting to about US$1.0 million would be required. During the implementation period another US$1.5 million would be required to provide specialized technical assistance for specific tasks, e.g. drafting legislation, preparing legal documents, designing price adjustment formulas, etc.

I. Role of the Private Sector

1.54 In view of the large magnitude of financial resources that will be required for infrastructure in the OT, the limited experience of managing facilities on the scale required, and the poor performance record of public sector infrastructure provision in developing countries, we would recommend that first consideration be given to the private sector alternative where this is institutionally viable and cost effective. However, given the history of the region it is probably unrealistic to expect massive private sector investment in infrastructure in the short term. Nevertheless, there may be possibilities to bring in the private sector as an operator, e.g. through performance based management contracts and through leasing or the French *affermage* model.

1.55 Immediate priorities for private sector participation include construction services where the private sector is already involved; i.e.:

(a) housing where the private sector is already strong and where the world-wide record of public housing programs is poor;

(b) road maintenance and construction where some expertise exists and where international experience indicates lower costs from the private sector than direct labor organizations;

(c) construction and rehabilitation of electricity and water networks;

1.56 The first priorities for private sector investment in infrastructure services would be: (a) public transport, buses as well as taxis; (b) solid waste collection; and (c) telecommunications, where Palestinian experience is limited, economies of scale are now reduced due to technological change, and where there may be strong interest by the private sector.

1.57 For the longer term when there is a stable regulatory and political environment, private sector involvement should be considered firstly in electricity generation, particularly for any regional plant, especially using technologies with low capital cost, e.g. gas turbines or combined cycle; and secondly, for electricity and water utilities where there is already some private ownership and where this could be gradually increased if conditions permitted and if the utilities were established under companies law (see para. 1.46).

1.58 Necessary conditions for private sector involvement in the provision of infrastructure services include a transparent regulatory and legal arrangements in a general policy environment conducive to private sector investment.

1.59 Some of the political problems involving regional infrastructure might be defused if regulated private companies were involved in trading with both sides. Profitability, commercial and contractual matters rather than political questions, would be of paramount interest to private companies.

J. Environment and Natural Resources

1.60 While quantitative data is not always available, there is evidence of environmental degradation in the OT that affects the quality of life and future economic development:

(a) water quality is deteriorating due to infiltration of sewage, solid waste leachates and agricultural chemicals. Water quality in Gaza fails to meet international guidelines (chloride content 200-1000mg/l, 77% of wells with nitrate concentrations greater than 50mg/l and 44% greater than 100mg/l) while although water quality in the West Bank is generally satisfactory at present, sewage infiltration creates local problems. Nevertheless, the rate of dysentery is high on the West Bank with a 1991 case rate of 246/100,000;

(b) water resources are being depleted in Gaza, while present consumption in the West Bank and in Israel is near the level of the renewable supply; (see paras. 20-21);

(c) solid waste collection and disposal is very inadequate. Piles of trash facilitate the transmission of disease and lead to groundwater contamination and air pollution when trash is burned;

(d) while air pollution is not generally a serious problem at present, there is potential for local problems, particularly in towns located in valleys;

(e) the soil cover is fragile and prone to erosion; and

(f) some of the oldest human settlements exist in the OT. Three major religions have important associations with the territory and the area has been central to the history of the Eastern Mediterranean. Consequently the OT are rich in cultural property which could be lost or damaged under accelerated economic development. Measures would need to be put in place after a peace agreement to prevent loss of cultural property from the OT.

1.61 The high population density in Gaza, which could increase after a peace settlement, and the limited and fragile resource base mean that increased economic activity after a peace settlement could have undesirable environmental consequences. Under the occupation economic activity in the OT has been constrained. A high proportion of income has come from Palestinians working in Israel and industrial activity in the OT has been minimal. Furthermore, the Israeli authorities have implemented strict land use controls and measures that have protected the environment and antiquities that might not be in place after a peace agreement.

1.62 Because of the potential for increased stress on the environment after a peace agreement there is a need to prepare a strategy for environmentally sustainable development that would lay out a plan of action for environmental protection and natural resource management and define the institutional basis for environmental coordination and monitoring. Technical assistance amounting to about US$500,000 would be required to prepare and environmental action plan that would need a high level of public participation. An embryonic environmental management organization would require about US$1 million per annum of technical assistance during its first 5 years of operation.

K. Estimated Investment

1.63 The total immediate financial need in the various infrastructure sectors is estimated at about US$25.5 million (commitments in 1993 prices) for studies, technical assistance and training that could take place before a peace agreement, but in many cases would require the approval, or at least acquiescence, of the Israeli authorities. For the medium term period, after a peace agreement has been signed which removes most political constraints, financial requirements for improving the infrastructure sectors would amount to about US$1,100.5 million with the emphasis shifting from technical assistance, US$40.5 million (4 percent) to investment, US$1,060.0 million (96 percent). These figures are very preliminary and would need to be confirmed through rigorous feasibility studies. Investment needs for the long term period are somewhat speculative and could amount to US$1,300 million in 1993 prices. In the medium term, investment would be mainly in the water and sanitation and highways sectors, while in the long term there would be a shift towards power and transport as regional projects become more politically feasible after a permanent peace agreement is implemented.

Infrastructure Sectors
Summary of Financial Needs
The West Bank and Gaza Strip
(US$ million, constant 1993 prices)

Category	Immediate Term (commitments to end 6/94)	Interim period (7/94-6/99)	Long Term (7/99-6/04) (3)
Physical Investments:			
Water & Waste Water (1)		280.0	200.0
Transport		330.0	500.0
Power		350.0	600.0
Solid Waste		100.0	0.0
Sub-total		1,060.0	1,300.0
Studies & TA:			
Water & Waste Water	8.0	10.0	0.0
Transport	6.0	12.0	0.0
Power	7.0	7.0	0.0
Solid Waste	1.5	0.0	0.0
Local Government & Public Administration (4)	1.0	3.0	0.0
Housing (2)	0.5	2.0	0.0
Institutional & Regulatory Framework for Public Utilities	1.0	1.5	0.0
Environmental Action Plan and Management TA	0.5	5.0	0.0
Sub-total	25.5	40.5	0.0
Total	**25.5**	**1,100.5**	**1,300.0**

Notes: The above investment figures should only be construed as tentative. They are based on preliminary estimates. Figures shown are commitments within the period indicated. Disbursements would follow commitments with a lag of several months.

(1) The Water and Waste Sector investment figures are based on preliminary estimates indicating that about US$500-600 million would be needed to provide adequate water and sanitation service.

(2) Physical Investments in the Housing Sector to be financed by the Private Sector.

(3) Long term investments may require resolution of political issues during bilateral negotiations.

(4) For ine interim period, see PSD report: US$3.0 million for Development of Public Administration capacity.

Sources: World Bank mission estimates

II
LOCAL GOVERNMENT AND PUBLIC ADMINISTRATION

A. The System of Local Government

2.1 During the transition period after an initial peace agreement local government[1/] will play a critical role in improving the delivery of urban public services. This chapter highlights some of the dimensions of the present situation of local governments in the OT and suggests priorities for reform. Local authorities in the OT consist of a large number of small units. In the West Bank there are 25 municipalities and some 87 village councils. The two large municipalities of Nablus and Hebron have populations of about 100,000 and 80,000 persons respectively. The average population of the remaining 23 municipalities is only 13,000, or about two thousand households. Village councils are much smaller. In addition, Gaza has four municipalities with an average population of just over 100,000, and nine smaller village councils.

2.2 Although the West Bank and Gaza have somewhat different legal status at present their past history has seen similar changes in the legal foundation of the local authorities. Until 1922, the area fell under Ottoman law. There were two tiers of government: central and local. From 1922 to 1948, the area was governed by Great Britain under a League of Nations mandate. After 1948 armistice lines delineated Israel, and the areas of Gaza and the West Bank emerged as residual territories from within Mandate borders. From 1948 to 1967, the Gaza strip was held "in trust" by Egypt. The practical implication of this status was that Gaza was not subject to the legal foundation governing the rest of Egypt. During this same period, the West Bank was incorporated as part of Jordan. The situations of the two territories were not similar in that Jordan considered the West Bank to be part of its territory: as such, the West Bank was fully subject to all Jordanian laws. Since 1967, the pre-existing body of law has been amended by military orders. Israeli settlements are administered under Israeli law. The Ministry of Defence of the Israeli Government has the overall responsibility for ensuring law and order in the OT.

2.3 Public administration for the OT is handled by the Israeli Coordinator of Government Activities assisted by the Civil Administration (CA). The CA has overall responsibility for the promotion of economic development and improvements to some basic infrastructure and public services in the OT. It is the policy of the CA to include Palestinians in the activities of the CA. Approximately 21,000 out of 22,000 employees of the CA are Palestinian residents of the OT.

2.4 The CA has a broad organizational structure for administering many aspects of civilian life in the OT (see Annex 2.3). The main activities of the CA are grouped as "economic", "infrastructure" and social services". Smaller offices for finance, manpower and comptroller activities are coordinated directly by the head of the CA. Public administration in the OT will require that many of the functions presently managed by the CA continue in the future. The Palestinian employees of the CA therefore provide a sound human resource base for the continued supply of public services.

2.5 The basis for division of responsibility between the CA and local governments is not explicit in all cases. Generally, however, municipalities deliver power, water, solid waste and local road services. Some municipalities also deliver other miscellaneous services (e.g. market, slaughter house, library, fire

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1/ See Annex 2.1 for the definition of 'local government' in the OT as used in this context.

services). Many municipalities operate water and power utilities. In Gaza, some municipalities also operate separate sewerage utilities.

2.6 The CA takes principal responsibility for delivering education, health and inter-city road services. It hires and pays teachers and health workers, and builds necessary facilities. In addition, the CA assists municipalities -- in the form of capital grants -- in building water, sanitation and other facilities.

B. Legal Framework

2.7 Since 1967, the territories of both Gaza and the West Bank have been subject to Israeli control. Under international law, they are not considered as part of Israel, and as occupied territories are subject to military control. The result is that it is currently difficult to discern a single integrated legal framework applicable in the OT. Much of the confusion is attributable to a series of over one thousand military orders generated since occupation which govern activity in the OT.[2/]

2.8 Although the ambiguous legal framework for local government in the OT does leave room for various interpretations of responsibility it is not the clarity of jurisdiction which is the main problem. Instead the lack of a unified and transparent legal framework, in the present political environment, gives extensive discretion over application and interpretation of laws and regulations to the CA. The scope for local decision making power is unclear and proposals by local governments or individuals (e.g. on investments) have uncertain outcomes. The responsibility of local government is circumscribed, such that permission or denial of a permit, or the decision to change a local public service, is subject to referral to higher levels of authority.

C. Control Over Revenues

2.9 The structure of financing local government in the OT is fairly simple. Ordinary income is composed of "own" taxes and fees of local government plus a transfer from the CA (details are in the Annexes to this chapter). Ordinary income is used for expenditures of a recurrent nature and for O&M of the local governments. Extraordinary income is the capital budget which comes almost entirely from the CA as a grant transfer. The third category is enterprise income which is related to the operation of some local utilities such as water and electricity.

2.10 Although there is no detailed study of local government finances for the OT, the mission was able to gain sufficient insight to suggest where reforms might be needed. First, the low level of own resource income to local governments appears to be coupled to an extraordinarily tight control on virtually all aspects of local government finance. In addition to approving all local budgets, the CA collects property and other indirect taxes at the request of the municipalities, regulates almost every rate and fee which municipalities can levy and controls municipalities personnel complement and appointments. The extensive controls themselves certainly discourage local initiative and the tight regulation of fees and taxes discourages any particular jurisdiction from responding to its citizens desires for more and better public services even where the willingness to pay exists.

2/ Coon, p 40, puts this at 1,300 published (unknown number of unpublished)

2.11 The response of local authorities to the very modest resources within their control is to transfer revenues from municipal enterprises. As shown in the following graphs both Gaza and West Bank municipalities rely heavily on the surplus from enterprises. In Gaza approximately one-third of the "ordinary" expenditure was financed from "establishment" income. In the West Bank the share was approximately one-fifth. This means that utility charges significantly subsidize other services throughout the OT.

D. Allocation of Capital Funding

2.12 The third anomaly in the local government financing system is related to the system by which capital investments are selected and financed. Most local governments rely almost completely on CA transfers for capital investments. This would not be a serious problem if the system for selecting investments were more accessible and transparent to local authorities and the funding were more predictable. The mission was told that the actual amount of the transfer was not known until well into the budget cycle due to the "closed loop" system of ensuring that investment is always balanced by finance from CA collections. And, as noted, the criteria for receiving a capital transfer is not openly publicized or known among the municipal authorities leading to suspicion and even neglect of the process. The reasons for the observed trend of declining capital transfers in Gaza and rapidly increasing ones in the West Bank are impossible to analyze from the information made available to the mission.

DISTRIBUTION OF LOCAL INCOME AND EXPENDITURE: GAZA
(AVERAGE FOR 1988/89 - 1990/91)

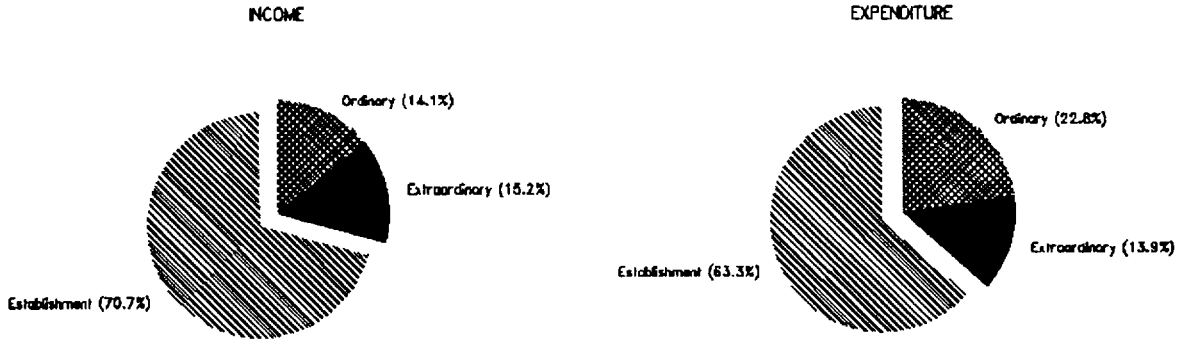


Figure 2.1

DISTRIBUTION OF LOCAL INCOME AND EXPENDITURE: WEST BANK
(AVERAGE FOR 1988/89 - 1990/91)

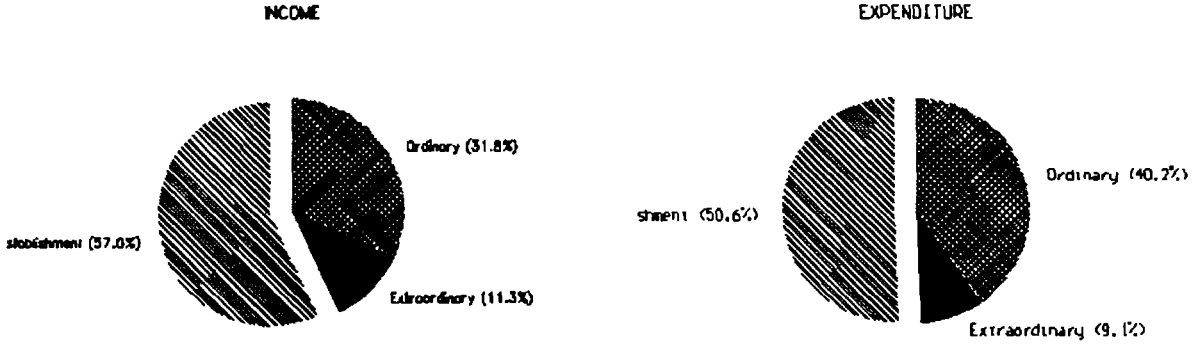


Figure 2.2

E. Priorities for Strengthening Local Governments in the OT

2.13 Steps can be taken to remove some of the distortions arising from the situation described above. Efforts to foster effectiveness of local governments should be linked to four objectives:

(a) identify and implement a rational legal foundation which clearly assigns an appropriate degree of local discretion over issues of local interest;

(b) implement a more appropriate assignment of revenues providing greater local autonomy over user charges and local taxes;

(c) introduce more systematic and transparent criteria for the allocation of capital investment funding.

2.14 Local governments in the OT are neither very robust nor particularly effective under current arrangements. Municipalities operate within a complicated -- and sometimes over-regulated -- legal framework. They deliver limited services of inadequate quality to residents and have constrained resources. Although no assessment of the manpower needs of local governments was undertaken, it is logical that significant investment in their human resources will be needed in the near future. There will also need to be investment in basic local public facilities and a survey to determine the present status and future needs would be appropriate. Further, the control which they can exercise over resources they do have is closely circumscribed. Actions -- primarily studies and technical assistance -- which can be taken immediately to move towards each objective are briefly summarized in Table 2.1.

Table 2.1: Studies and Technical Assistance for the Local Government Sector in the OT

Actions that can be taken immediately to:	Description
Identify Legal Foundation	**Study**: Analysis of current legal framework for local governments, with emphasis on users' roles and inter-jurisdictional conflict resolution.
Enhance Authority to Control Resources	**Study**: Consistent with recommendations for water and power sectors local governments should devolve these departments into individual utilities. Consequently, a new revenue basis for the local government should be established. Preliminary analysis of revenue systems--including yield estimates--to determine which revenue sources can be fully assigned to local governments in the medium term.
Clarify Accountability	**Study**: Service-specific analysis of current relation between suppliers and demanders. Should include analysis of possibility for supply- and demand-side associations across municipalities (joint service councils). **Technical Assistance**: Initiative -- in coordination with local NGOs -- to assist larger municipalities in identifying users' demands for local services (e.g. rapid assessment, design of complaint systems, identification of coping techniques currently in use). Experience can then be disseminated to smaller municipalities.
Human Resources Development	Training should be organized for the employees of local governments and the public administration (see also PSD report)[1/] of the OT. The range of programs should include overall management of urban services, modern techniques of financial planning and budgeting as well as appropriate technical instruction.

Total Cost US$1,000,000

1/ US$3.0 million for Development of Public Administration Capacity.

Annex 2.1

Local Government Notes

Urban jurisdictions in the Occupied Territories (OT) are classified as either municipalities or village councils. For Israeli settlements in West Bank and Gaza local councils exist. The basis for differentiation among jurisdictions is population. For presentational simplicity, all urban jurisdictions in the OT are referred to in this chapter as 'municipalities' – and it is these units which are the local governments of interest.

All Tables and figures reflect best approximations, and are derived from data drawn from three sources. **Local tax data** are taken from detailed breakdowns of municipalities' budgets. **'Central' tax** data such as income, VAT and customs are taken from tables provided by the Civil Administration. GDP estimates used are those provided by the Civil Administration.

Budgetary data used in Figures 2.1 and 2.2 are detailed below.

Income & Expenditure
Municipalities in OT
(NIS thousands)[a/]

	88/89	89/90	90/91
Gaza			
Income:			
Ordinary	9,189	8,733	8,047
Establishment	34,144	43,627	52,322
Extraordinary	10,692	9,960	7,287
Expenditure:			
Ordinary	14,154	14,824	13,930
Establishment	28,680	42,025	48,409
Extraordinary	10,337	8,545	7,207
West Bank			
Income:			
Ordinary	17,830	21,292	24,607
Establishment	28,736	36,052	49,421
Extraordinary	2,950	6,209	13,417
Expenditure:			
Ordinary	24,685	27,674	32,103
Establishment	19,622	39,114	47,532
Extraordinary	5,801	4,840	8,500

[a/] Nominal terms, taken from annual publication on OT (various issues), Central Bureau of Statistics.

Annex 2.2

Statistical Data for Resources Mobilization Calculations

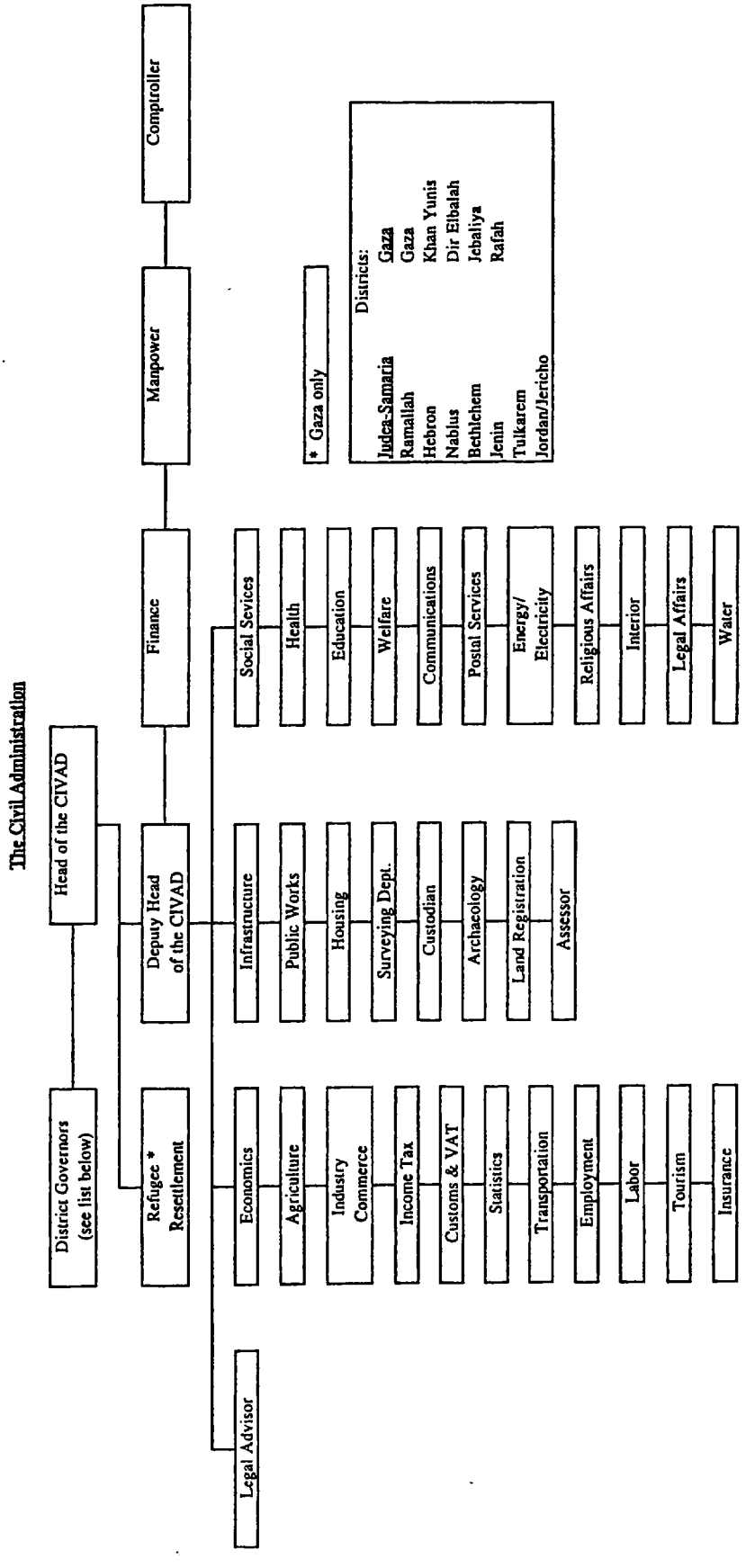
	GAZA	WEST BANK	TOTAL OT
	1989/90 (current) million NIS		
Income Tax[a]	45.0	64.0	109.0
Customs[a]	1.0	54.0	55.0
V.A.T.[a] 18.0	51.0	69.0	
Health (CA) Fees[a]	5.0	26.0	31.0
Other (CA) Fees[a]	59.0	99.0	158.0
Local Fees & Taxes[b]	8.0	14.9	22.9
Establishments[b]	43.6	36.1	79.7
TOTAL	179.6	345.0	524.6
ESTIMATED GDP[c]	921.3	2521.3	3442.0
Total Gov't Revenue as a percent of GDP	19.5	13.7	15.2
Local Fees & Taxes (w/ Establishments) as a percent of GDP	5.6	2.0	3.0
Local Fees & Taxes (w/o Establishments) as a percent of GDP	0.9	0.6	0.7
Local Revenue (w/ Establishments) as a percent of Total Gov't Revenue	28.8	14.8	19.6
Local Revenue (w/o Establishments) as a percent of Total Gov't Revenue	4.5	4.3	4.4
Own-collected Revenue (w/o Establishments) as a percent of Local Fees & Taxes	3.9	n/a	

[a] Taken from 'Budget of the Civil Administration', letter dated March 1, 1993.

[b] Taken from Statistical Abstract of Israel, Central Bureau of Statistics.

[c] See Table 2, chapter on Public Finances in OT.

Annex 2.3


The Civil Administration
Head of the CIVAD
Deputy Head of the CIVAD
Finance
Manpower
Comptroller
District Governors (see list below)
Refugee * Resettlement
Legal Advisor
Economics
Agriculture
Industry Commerce
Income Tax
Customs & VAT
Statistics
Transportation
Employment
Labor
Tourism
Insurance
Infrastructure
Public Works
Housing
Surveying Dept.
Custodian
Archaeology
Land Registration
Assessor
Social Sevices
Health
Education
Welfare
Communications
Postal Services
Energy/ Electricity
Religious Affairs
Interior
Legal Affairs
Water
* Gaza only
Districts:
Judea-Samaria
Ramallah
Hebron
Nablus
Bethlehem
Jenin
Tulkarem
Jordan/Jericho
Gaza
Gaza
Khan Yunis
Dir Elbalah
Jebaliya
Rafah

III
ELECTRIC POWER

3.1 This chapter describes the electricity supply situation in the OT, offers recommendations for organizing an independent OT power sector following a peace settlement and provides estimates of the investment needed to establish a strong OT power sector. Most OT electricity is supplied in bulk to the OT from the Israel Electric Corporation (IEC) and sold by local distributors since the Civil Administration (CA) and IEC closely control planning, construction and operation of the OT power systems. IEC facilities and operations are described below as a basis for understanding the electricity

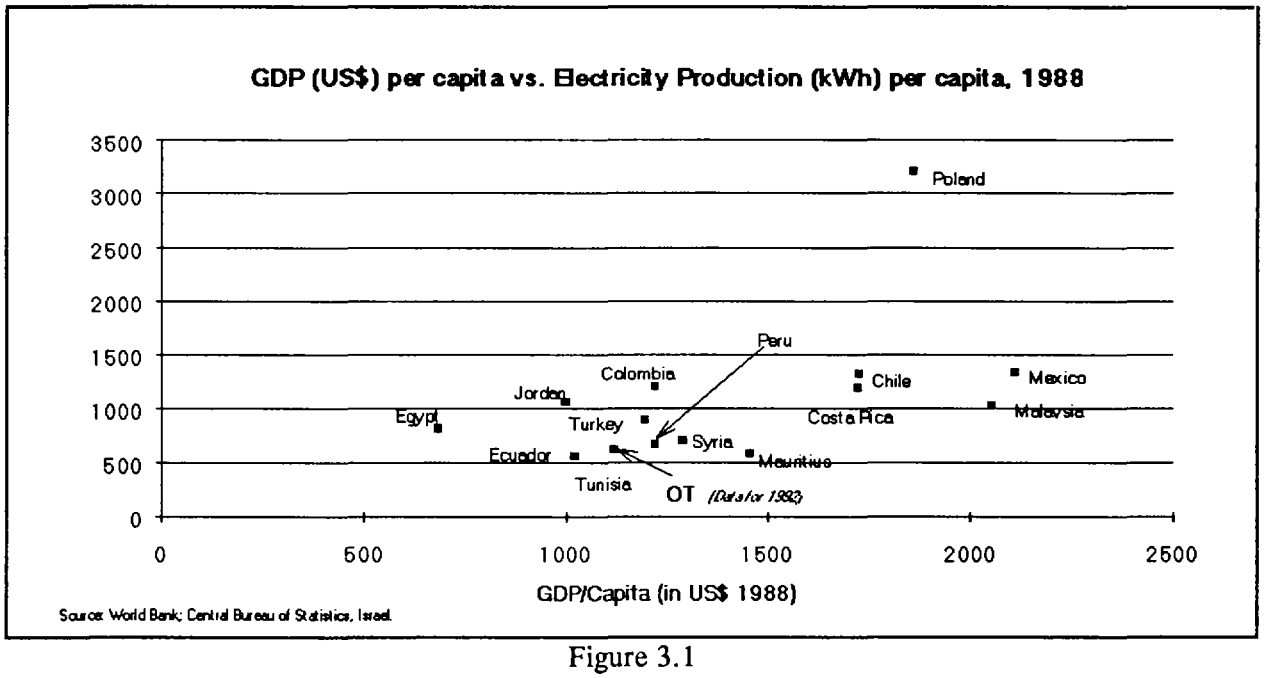


Figure 3.1

supply to the OT (also see Map---). As Figure 3.1 shows, electricity production per capita in the OT is relatively low compared to other economies with similar income levels.

3.2 The power distribution systems in the OT are all operated by municipalities, except those supplying Israeli settlements and the Jerusalem District Electricity Company. All of these systems, plus the IEC supply to the Israeli settlements in the OT, account for a total load of only 220 MW, compared to a 5,100 MW peak load on the total IEC system. From the IEC perspective, electricity supplied to the OT is only 4 percent of IEC demand and is rather insignificant . From the OT perspective, the present level of electricity supply is limited in relation to a population of about 2 million.

3.3 The power supply systems in the OT can be divided into four sub-systems: three (North, Center and South) in the West Bank and one in Gaza. The following table summarizes the electricity supply situation in these four regions.

Table 3.1: Electricity Supply, 1992

Region	Population 1000	Consumers 1000	Gross Consumption GWh	Peak MW	L.F. %	Villages IEC Feeders	Not on Grid	Losses %
North	467	40	120	25	55	7	110	20
Central	400	87	500	70	82	7	-	18
South	340	38	100	20	57	5	28	20
Gaza	711	66	370	55	77	11	-	20
Total	1918	231	1090	170	73	30	138	19
Israeli Settlement and 60 Villages Supplied by IEC (est.)				50				
Total				220				

3.4 Some features of the OT electric power sector are presented in Table 3.1 and below:

(a) there are still 138 Palestinian villages that either have no electricity supply or have only part-time supply from isolated diesels;

(b) electricity production is low in relation to per capita income at about 620 kWh per capita (in 1992), less than that in neighboring Jordan (1054), Egypt (815) and Syria (699) (in 1988). However, actual consumption by consumers in the OT is significantly lower than 620 kWh per capita due to higher distribution losses (18-20 percent) than neighboring countries;

(c) about 153 Israeli settlements with a population of about 135,000, or about 7 percent of the population of the OT, account for 23 percent of the total OT load;

(d) the average load factor[1/] is unusually high at 73 percent, even though industrial consumption is only 9 percent compared to 30 percent on the IEC system. This reflects suppressed demand amounting to 30-50 percent of the unconstrained demand; and

1/ Load factor (LF) is the ratio of average to peak demand calculated by the formula

$$LF(\%) = \frac{\text{energy delivered (GWh) X 100}}{\text{maximum demand (MW) X 8.76}}$$

(e) distribution losses are high at 20 percent reflecting the small conductor sizes, the overloading of transformers, the long lengths of feeders and the general network overloading. By comparison, in 1991 distribution losses amounted to 10.8 percent in Jordan and both transmission and distribution losses were only 5.4 percent in Israel.

A. The Present Electricity Supply in the OT

Israel Electric Corporation (Ltd.)

3.5 IEC started in 1922 as a private power company under a concession from the British mandate, which expires in 1996. The Government of Israel, which now owns IEC, is considering restructuring and possibly privatizing the company. The IEC power system supplies almost all of Israel, the Palestinian areas of the OT and Israeli settlements in the OT. IEC is, at present, organized as a vertically integrated company combining generation, transmission and distribution. Under the original 1927 concession, modified by laws passed in 1963 and 1970, IEC has sole rights for the generation, supply and distribution of electricity throughout the country.[2/]

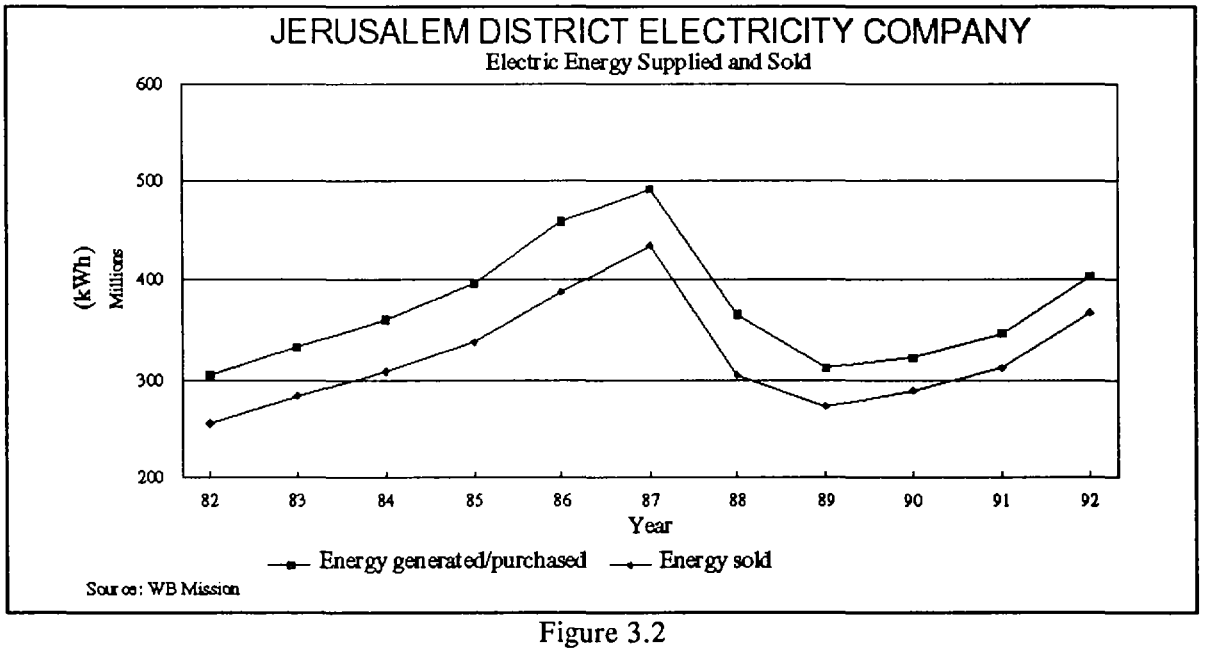


Figure 3.2

2/ See IEC Annual Report 1991, p. 43.

3.6 IEC has a fully modern power system with no power interconnections to other countries; therefore the utility has had to develop special procedures to take advantage of the latest technologies while maintaining a high level of reliability for electric service. IEC already has a 550 MW unit in service, or over 10 percent relative to the peak load. At peak, there is not sufficient spare "spinning" capacity to normally withstand the loss of such a large unit. However, IEC can accommodate this by use of automatic load shedding on frequency relays that both shed and restore load automatically for any significant frequency deviation. Nevertheless, the IEC system has the reliability problems inherent in a non-interconnected system seeking economies of scale from large unit sizes. Consumers suffer cumulative power cuts of 16 hours per annum, compared to only 20 minutes in Western Europe and the United States.

3.7 The present IEC generating capacity totals 5,835 MW, comprising two base-load coal steam plants, three mid-range oil steam plants, and several peaking gas turbine plants. The fuel breakdown in 1991 was 56 percent coal, 41 percent fuel oil and 3 percent gas oil for the peaking units. Steam plant efficiencies are high, in the 36-38 percent range, and transmission and distribution losses are low at 5 percent. The transmission voltages include 400, 161, and 110 kV, and the distribution primary voltages are 33, 22, 12.6 and 6.3 kV. To summarize, IEC has a well designed and well-operated power system, as evident from the US$0.07/kWh average final consumer tariff and positive net income for 1991. Further details are given in Annex 3-1.

3.8 Over the past 25 years, IEC has gradually almost completely taken over the supply of electricity to distribution networks in the OT. At the time of the occupation in 1967, most larger centers, and even some villages, had diesel plants operating as isolated systems. Independent generation became increasingly difficult as engines wore out, parts could not be imported and investments in new engines were not allowed by the CA. IEC extended some 33 kV and 22 kV feeders into the OT, and in this way, the loads were gradually transferred to IEC. The establishment of the Israeli settlements in the 1970s and 1980s initially meant such loads were connected to Palestinian sources. At one point, about 75 Israeli settlements were supplied from the JDECO system. The unreliable service and other considerations apparently caused the Government and IEC to establish a policy of building new 161 kV lines and substations to supply dedicated 33 kV and 22 kV feeders for the OT. This OT load transfer accelerated in 1988, the year that the JDECO concession expired. Starting in 1988, IEC took over JDECO 33 kV feeders and 33 kV substations to effect the transfer of 32,714 Israeli consumers to IEC supply, leaving only 100 Israeli consumers still on JDECO supply today (see Figures 3.3 and 3.4). At present, IEC is in full control of the electricity supply in the OT via a group of 33 kV and 22 kV feeders from six 161/33 kV or 161/22 kV substations. By a system of either remote control or the automatic tripping of feeder breakers, the IEC input to OT load centers can be monitored and limited to "contract" values. Although IEC supplies Israeli industrial consumers on such a "contract" demand basis, in practice, these controls serve as devices to suppress demand since Palestinian municipalities have fewer options to manage demand, than an industrial consumer. Indicative of the financial squeeze facing all electricity undertakings in the OT, JDECO's accumulated losses at the end of 1991 were US$25 million, due to restricted power supply from IEC, small margin allowed between IEC bulk price and consumer sales price, and high system losses.

Northern Sub-System

3.9 This sub-system covers the municipalities of Nablus, Tulkarem, Jenin, Qalqilya, 12 other cities and some 168 villages. Until 1985 diesels supplied most of the load, but now six IEC 33 kV feeders supply all the load except 7 MW of diesel capacity operating at Nablus. IEC does not allow parallel operation between 33 kV feeders, or between feeders and diesels, so outages occur during switching for load balancing. There are 10 IEC feeders supplying Israeli settlements that also supply 58 Palestinian villages. Another 110 villages either have diesels with part-time supply or no electric service at all.

3.10 The distribution network of the Nablus municipality is typical of the electricity supply problems in the OT. The municipality has an electrical department in addition to departments handling water, sewerage, solid waste and other services. The municipality has a diesel nameplate capacity of 19 MW, but the operable capacity is only about 16 MW, and the CA limits the diesel output to about 7 MW. There are two 33 kV IEC feeders, but these have "contract" delivery limits related to transformer capacity, which trip local feeder breakers if limits are exceeded. The overall electricity supply to the municipality is, therefore, limited to about 16 MW, and the local authorities feel there is an additional 12 MW of suppressed demand that could be supplied if they were allowed to expand the system. The operation of diesels to supply increased load is not economic because this costs US$0.16/kWh, compared to only US$0.08/kWh from IEC.

3.11 The Nablus municipality facilities are similar to those of other municipalities in the OT and include:

- 2 stepdown 33/6.6 kV, 5 MVA substations
- 127 distribution transformers totaling 42 MVA
- 39 km of 33 kV and 6.6 kV underground cables
- 53 km of 33 kV and 6.6 kV overhead feeders
- 550 km of low tension network

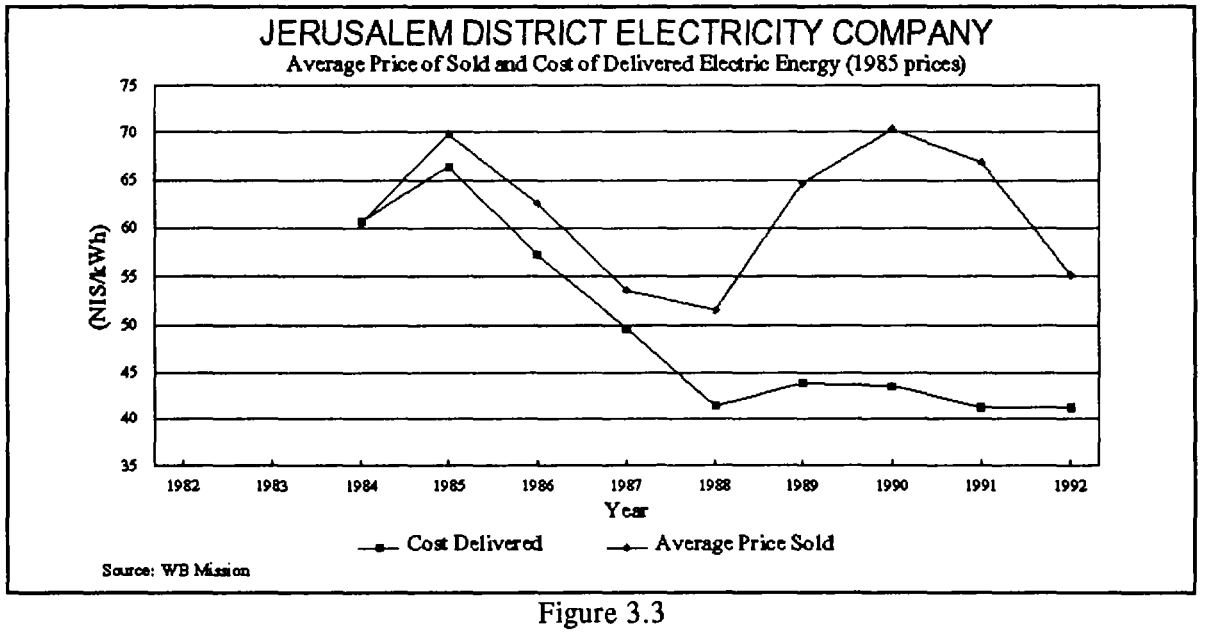


Figure 3.3

3.12 The Nablus electricity supply covers an area about 25 km east-west and 20 km north-south and extends to the town of Anabta and to 15 villages. The Israeli authorities do not allow the use of any radios on security grounds; this results in lengthy outages during switching on long feeders because operators must drive to verify switch positions that normally are reported by radio. Because of this, as well as maintenance and equipment failures, consumers typically experience 10 interruptions per month. The power factor is low at 80 percent because there are no static capacitors on the system for power factor improvement.

3.13 The Nablus distribution system requires complete rebuilding to increase the number of 33 kV input points; to convert the voltage on all 6.6 kV feeders to 11 kV or 33 kV; to increase the conductor sizes on feeders and on low tension lines and cables; to increase the size of distribution transformers; to install capacitors for power factor correction; and to supply parts and materials to improve operations, including radios (when they are allowed) and vehicles.

3.14 The distribution systems in the other municipalities in the north region reportedly have similar problems. The mission visited the town of Salfit, which has a population of 8,000. It serves as the commercial center for 25 villages, but it only has 18 hours per day of electric service from three high-speed diesels, totaling about 500 kW of capacity, that are in terrible condition. Only single-phase supply is available, so no industries are attracted to the town. The cost of electricity from the diesels is about US$0.20/kWh, but the average revenue received by the municipalities is only about US$0.15/kWh; the municipality is, therefore, operating the electric service at a loss. Only 4 km of 33 kV feeder and 6 transformers costing about US$0.3 million are required to connect the town to an IEC 33 kV feeder in the area, according to the Salfit municipality.

Central Sub-System

3.15 The Central sub-system essentially covers the territory now operated by JDECO, which has its headquarters in East Jerusalem. Its concession area extends from East Jerusalem east to Jericho and the Jordan Valley, north to Ramallah, and south beyond Bethlehem. The peak load typically is 70 MW, but it reached 80 MW during the 1991/92 winter storm. JDECO was started as a small private power company in 1914 under Ottoman rule, and the company was given a 60-year concession in 1928 when the area was under the British mandate. The company initially supplied all its load from a diesel plant at Shuafat in Jerusalem. All Palestinian villages in the JDECO territory have been electrified from the grid, and in the early 1980s there were 77 Israeli settlements receiving electric service from JDECO. IEC then started a program of building IEC 33 kV feeders to the settlements and gradually took over this load.

3.16 In 1982 JDECO made a major investment in about 17 MW of new diesel generator capacity at Shuafat, with the approval of the CA and with Jordanian financing. Before the installation was completed, however, JDECO was informed that operation of the diesels would not be permitted on the grounds of air emissions and noise pollution. So today, JDECO power is all supplied by the IEC on 33 kV feeders connected to JDECO receiving stations. JDECO operates its own 33 kV feeder system to form a ring system from Shuafat to Ramallah, Beitrin Central, Sinjal and Der Jreer in the north, and a second ring to Bethlehem and Bethsahur in the south. The JDECO facilities can be summarized as follows:

- 240 km of 33 kV feeders
- 370 km of 6.6/11 kV feeders
- 1000 km of low tension lines
- 146 MVA of distribution transformers

3.17 The 6.6 kV primary lines are over 50 years old, and must be converted to 11 kV. The conductors are too small on both the 11 kV primary lines and the low tension lines and cables. The system losses are 18 percent and are estimated to be costing JDECO US$6 million annually. The suppressed demand on the JDECO system is estimated by its staff to be at least 34 MW. To permit unsuppressed electric service, the JDECO system requires additional IEC 33 kV input points, the expansion of the JDECO 33 kV feeder system, the upgrading of 6.6 kV feeders to 11 kV service, additional distribution transformer capacity, the installation of capacitors for voltage improvements and 11 kV primary and low-tension network improvements.

3.18 There is an excellent example in the Central Region of the economic loss of not providing central grid supply to industrial loads. South of Bethsahur, at the limit of JDECO territory, there is an area that is famous for its high quality white stone, which has been used for building construction throughout the area, including as far away as Jordan. There is no central electricity supply in the area, and 120 stone quarries each have their own generators, typically 300 kVA in size and fueled with expensive gas oil. Because of the intermittent but severe sawing duty, generators costing US$100,000 last only 5 years and motors fail quite frequently. In this one area, there is a load of probably 20 MW that could be added to the JDECO load. To date, JDECO has not been allowed by the CA to extend one or more 33 kV feeders to the area. This industrial area has the potential, between the stone industries and the associated communities, to add about 25 percent to the JDECO load.

Southern Sub-System

3.19 This sub-system covers the cities of Hebron and Halhoul and some 45 villages; 17 of these villages have been connected to IEC 33 kV feeders. The cities are supplied by two IEC 33 kV feeders, but the input has been limited to 15 MVA total, at which level breakers open. Therefore, the Hebron municipality has to resort to about one hour of load shedding each day to limit the peak. The municipality wishes to obtain an additional IEC feeder input, but IEC wants to transfer the two existing feeders to supply Israeli settlements, which would require the municipality to build a total of three 33 kV feeders. In fairness to IEC, the municipality owes about US$6 million for past electricity purchases, which probably accounts for IEC reluctance to increase the amount of power delivered to Hebron municipality. The cost of three new 33 kV feeders and associated stations might be US$2 million, so the municipality cannot expand its supply without external assistance.

3.20 The financial squeeze experienced by Hebron municipality is typical of the problem faced by all the municipalities in the OT in dealing with electric service operations. Most are one or more months in arrears to IEC for bulk electricity; consumer non-payments are at least 10 percent; system losses account for another 20 percent; and retail tariffs are fixed by the CA and are inadequate to cover costs, particularly with the high non-payments and losses.

Gaza Sub-System

3.21 The electricity supply system in this sub-system is probably the worst in all the OT due to severe overloading. Electrification is 98 percent; the only homes without electricity are subnormal dwellings, such as the makeshift homes of the few Bedouin families. The Gaza Strip is supplied from 9 IEC 22 kV feeders, and there are 16 cities, villages and refugee camps squeezed into a small area having a population of 800,000. The very high 77 percent load factor reflects load shedding at evening peak time, necessary to keep within the tripping limits set on the 22 kV input feeders.

3.22 The municipalities are about three months in arrears to IEC so they have been unable to get permission from the CA to improve distribution lines, or even to add transformers. The system power factor is only 85 percent, and losses are 20 percent.

3.23 Tariffs in Gaza are typical of all four regions in the OT. The bulk price from IEC, including a 17 percent value-added tax, is about US$0.07/kWh, which is the same as the tariff for large consumers in Israel. The typical Gaza consumer pays about US$0.11/kWh.

B. Summary of Power Sector Problems

3.24 Although most households in the OT have access to electricity, except for some villages, the quality and quantity of electricity is below what one would expect for an economy of similar per capita income. The underlying cause is the institutional framework arising from military occupation and the poor financial condition of all the electricity undertakings in the OT. Municipal electricity suppliers are generally not strong due to their status as a department of the local government which is, itself, over-regulated and perceived by the population as lacking legitimacy.

3.25 The inadequacies of electricity supply reflect inadequate investment at all levels of the supply system, from the bulk supply points at IEC substations to the distribution lines feeding the final consumer. There are several reasons for this lack of investment.

(a) The regulatory system imposed by the Israeli authorities is cumbersome, lacks transparency and is perceived by the Palestinian entities as operating to curtail, rather than facilitate, economic investment.

(b) Utilities have been starved of financial resources because:

  (i) The limited external funds that are available (e.g., from the CA or donors) are highly unpredictable and do not allow effective investment planning.

  (ii) Municipalities have taken resources from the utilities they control to finance municipal services.

  (iii) Despite tariff levels that are reasonably high, the surplus available to finance investment has been reduced by high costs, which are largely due to inadequate investment in

distribution leading to high network losses and defaulted payments by consumers since the Intifada.

(iv) The lack of a capital market or government guarantor has eliminated debt financing.

(c) Many municipal-owned utilities are too small to achieve economies of scale or to have a sufficiently large pool of technical and management expertise. Moreover, the utilities lack autonomy and a clear commercial mandate.

3.26 The Israeli settlements in the OT are integrated into the IEC system. As a result, the sub-transmission systems of IEC and the Palestinian utilities overlap to some extent. Although the Israeli authorities have tried to give IEC responsibility for sub-transmission in the OT, this has not been fully accepted by the Palestinian utilities. There is no common organization, or even professional group, under which the electricity supply entities in the OT can discuss plans or exchange technical information. Direct contacts between IEC and the Palestinian utilities are limited to commercial and operational matters with the IEC district office, since the CA acts as both regulator and intermediary on major issues. Given the tiny magnitude of the Palestinian loads from the IEC perspective, it is not surprising that the Palestinian utilities find the large IEC system unresponsive to their needs. Furthermore, the Israeli transmission system consists of a "spine" along the Israeli coastal plain with spurs running into the West Bank and Gaza. It is likely that the reliability of supply to the Palestinian utilities, and perhaps the IEC system, would be improved by stronger north-south transmission links in the West Bank/Jordan Valley; these are included in IEC long term plans. There is a clear need for a regional institution in the OT to plan and operate a unified transmission system serving all OT consumers, both Arab and Israeli. In addition, the opportunities for connecting Palestinian villages to transmission lines erected to supply Israeli settlements need to be fully exploited. However, a unified transmission system for both West Bank and Gaza would require dedicated transmission links between the West Bank and Gaza. The resolution of this issue and the Israeli settlement question are fundamental to determining the future OT power sector structure and long-term power system arrangements.

C. Strategy for Developing the OT Power Sector

Essential Elements

3.27 The foregoing analysis suggests that a strategy for the efficient development of the power sector in the OT should consist of the following:

(a) The reorganization of the institutions in the sector to ensure that the organizational structure is appropriate to meet the challenges of the future and that utilities are autonomous, accountable to their owners and customers and commercially oriented.

(b) Short-term investment to improve the efficiency of networks and to improve the quality of supply from existing facilities, which would, *inter alia*, improve the financial viability of the utilities.

(c) The promotion of energy and electricity end-use efficiency through the provision of information and demonstration projects.

(d) The preparation of medium- to long-term corporate strategies that would cover investment, financing, pricing, organization and human resources development for the new utilities.

(e) Based on these strategies, investments in interconnections with Israel, Jordan, and Egypt, fuel supply, electricity generation and local transmission and distribution to meet the demand for electricity arising from accelerated economic development in the OT after a peace agreement.

(f) Financial resources mobilized from the local and regional capital market (e.g., public utility bonds) and private equity investors.

The organizational investment aspects of this strategy are discussed below, and the immediate technical assistance needs are identified.

D. Organizational Structure of the Electric Power Sector

3.28 While a case can be made for restructuring the institutions involved in supplying electricity to the OT, the appropriate organizational structure depends on a number of external factors:

(a) **The future electricity supply:** While some professional staff in the existing utilities would like to sever supplies from Israel and become self-sufficient in electricity generation, this would be a highly expensive option. Any restructuring should be based upon retaining and utilizing the benefits offered from the neighboring Israeli system, which include economies of scale from large unit sizes, access to supply from low-cost coal-fired units and connection to a large system for frequency and voltage control. Further regional supply options exist involving interconnection with Jordan and Egypt (see para. 3.33). Should generation in the OT be economically viable (para. 3.31), the lack of experience in large scale generation in the OT and financial constraints might favor private sector options.

(b) **The outcome of the peace process:** The responsibility for the management of regional infrastructure and the future of Israeli settlements, and the arrangements for supplying services to them, have a large political dimension and are matters for the bilateral talks. Similarly, interim arrangements on the role of local government may influence options for the management of local infrastructure. Dedicated transmission lines between Gaza and the West Bank -- perhaps as part of a regional interconnection -- would make a single power utility covering all the OT a more feasible option. Agreements on how these issues would be resolved have a bearing on the organizational structure and ownership arrangements for regional infrastructure.

(c) **The future organization and ownership of IEC:** We understand that the Israeli Government is considering a number of options for reorganizing and possibly privatizing IEC when its concession expires on May 5, 1996. An Israeli transmission company, perhaps privately owned, would be less unequal in size with the Palestinian utilities. Possibilities for joint ventures or a regional transmission company. with Israeli and/or Jordanian participation, are options worth exploring.

(d) **Private sector investing:** The nature of possible investments by the private sector in electricity supply facilities in the region after a peace settlement is unknown, but the structure of the sector could be altered if major investments were taken by private investors.

3.29 There are three main options for organizing the power sector, and these have numerous sub-options:

(a) A vertically integrated utility covering generation, transmission and distribution similar to IEC, Egypt, France, Portugal, Italy and Ireland. A sub-option would be separate regional utilities for Gaza and the West Bank, if formal infrastructure connections do not result from the peace settlement.

(b) A company responsible for all transmission and new generation (see paras. 3.30-3.33), with separate regional distribution companies that would purchase bulk power from the generation/transmission company. This structure is similar to ones in Jordan, Austria, New Zealand and the former UK system.

(c) Decentralized combined generation and distribution companies with interconnections so all companies operate within a "power pool," but the small system size does not make this option too practical.[3/]

3.30 We tend towards recommending option (b) for the West Bank, i.e., local distribution companies purchasing power from a regional generation and transmission company. This recommendation is based on the following: (a) distribution companies already exist; (b) the potential constraints on regional institutions during the transitional period immediately following a peace agreement; (c) there are limited possibilities for power generation in the OT, and there is a serious lack of experienced power station operators; (d) immediate attention needs to be given to the rehabilitation of networks and customer management; (e) the growing international consensus is that decentralized organizational structures are more efficient; and (f) the need for an institutional focus for system planning, international connections and coordinated operations in a transmission/generation company. In addition to the regional transmission company,at least three distribution companies might be considered: a company in the northern region centered on Nablus; in the central region (the present JDECO); and in the southern region, centered on Hebron. In view of its small physical area and relatively smaller population, a separate transmission company might not make sense in Gaza, particularly if the peace settlement includes a dedicated

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3/ For further discussion on organization structure options for the power sector and for an example of how to evaluate them see the UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP), "Poland - Energy Sector Restructuring Program, Volume 4: The Electricity and Lignite Sectors", Report No. 153/93 (January 1993).

transmission connection with the West Bank. The appropriate organization for Gaza might be a single generation/transmission utility, with a power station, which would probably be part of a regional system (see para. 3.27), owned by a separate company. Since the reorganization of a power sector is inherently complex, and in view of uncertain external factors (discussed in para. 3.27), it is recommended that an institutional study be carried out when the basis of a peace agreement is known.

Future Electricity Supply to the OT

3.31 Although some power sector staff in the OT have outlined a plan to cut all supplies from Israel and build an independent power system, such a strategy would be extremely costly. The West Bank, which lacks energy resources and cooling water, is one of the least promising places in the world to generate electricity efficiently, because of the lack of indigenous fuel. While a Gaza power station would be more promising if a coastal site were available, especially if Egyptian natural gas could be imported, the small potential load in Gaza would mean that such a gas-based power station should serve a regional market, which could include Israel, the West Bank and North Sinai (Egypt). Unless natural gas becomes available, coal-based electricity from Israeli 550 MW units is likely to be the lowest cost source of electricity to the OT.

3.32 It is likely that strengthening the North-South transmission links in the West Bank would be a high priority to improve the quality of supply and enable supply to be increased. Such transmission lines could also improve the reliability of Jordanian and Israeli power systems under suitable interconnection arrangements. There are also reliability and other benefits from interconnection with neighboring systems (e.g., arising from different daily load consumption patterns and holidays) that are often justified without significant net power transfers. The Israeli and probably Jordanian and Egyptian power systems could benefit from such international connections and more closely coordinated operation. Studies on power system interconnection and investment, if justified, should proceed as soon as political conditions permit.

3.33 Palestinians are concerned about being totally dependent on external sources of electricity supply. An option for addressing these concerns would be to locate large gas turbine power stations (of at least 100 MW size) in the West Bank/Jordan Valley and Gaza, which would provide peaking and emergency standby capacity to a regionally interconnected system (Israel, Jordan, Egypt and the OT). In the event of an interruption in imports to the OT, these gas turbines could meet most of the local demand for electricity, albeit at a much higher cost for fuel.

3.34 Plans are underway for an ultimate Arab-Turkish regional power system involving Egypt, Iraq, Jordan, Syria and Turkey. A major first-stage project involving the interconnection of Egypt and Jordan is at the bidding stage. This project consists of a submarine cable from Aqaba (Jordan) to Taba (Egypt) and a transmission line across Sinai. Unfortunately, this ongoing interconnection project will be more costly than a possible alternative with a peace settlement, interconnecting Jordan and Egypt via the OT and Israel. The regional interconnection program should be reconsidered as a peace settlement progresses.

E. Technical Assistance to the OT Power Sector

3.35 There are a number of studies and technical assistance activities that should be undertaken to plan the future power sector of the OT and to prepare Palestinian staff in the existing power entities and elsewhere to manage, operate, and maintain the OT power utilities that should be established after a political settlement. These activities and order-of-magnitude estimates of their costs are given below. There are some activities, such as training, that could start immediately. Some studies on improving distribution will require the resolution of such issues as the Israeli settlements. Major studies on future generation and transmission arrangements will require some indication of the probable results of a peace settlement.

3.36 The total estimated cost for immediate studies and assistance is US$7.0 million consisting of:

(a) A *training study* to prepare staff development requirements in all areas of the electric utilities and to develop appropriate training programs. Estimated cost: US$0.4 million.

(b) *Training programs* at foreign utilities to provide Palestinian staff with upgrading in (i) professional fields such as system planning, MIS equipment, power system engineering, power system operations, interconnection pools, finance and accounting; and (ii) special skills such as cable splicing, high voltage equipment maintenance, transmission line construction and maintenance, etc. Estimated cost: US$1.5 million.

(c) *Commercial systems study* to review existing billing, accounting, MIS, stores, and other commercial activities in the OT and to recommend appropriate systems for future organizations in the power sector. Estimated cost: US$0.6 million.

(d) *Organizational study* to analyze the various options for the future structuring of the power sector and to recommend the form and role of power organizations. This study will require input from both management consultants and utility experts that are familiar with the political situation and the utility problems in the Middle East. Estimated cost: US$0.8 million.

(e) *Diesel capacity study* to review the unit-by-unit status of dozens of diesels throughout the OT (totaling about 50 MW) to determine their status; define possible roles they could play; recommend the scrapping or sale of diesels as appropriate; and, finally, determine possible uses for the plant buildings, if the diesels are found to be unprofitable. Estimated cost: US$0.2 million.

(f) *Energy conservation and load management studies* to develop methods to reduce energy wastage and manage load to minimize capacity requirement. Estimated cost: US$0.4 million.

(g) *Loss reduction study* to reduce the present 20 percent losses by eliminating nontechnical losses and reducing technical losses to a more reasonable 8 percent level. Estimated cost: US$1.0 million.

(h) *Distribution studies* to be made for each of the four sub-systems to assess present status, rehabilitation requirements, voltage control means, expansion plans through the year 2000, and related needs for staff, buildings, support equipment, vehicles, supplies, communication, etc. Estimated cost: US$1.0 million.

(i) *System interconnection study* to link Palestinian distribution companies in the West Bank: estimated cost: US$1.0 million

3.37 The planning of the future bulk power generation and transmission system can only be undertaken during an interim period when the probable outcome of the peace negotiations is known because matters such as the regional interconnection options are crucial to planning an integrated OT system. These interim period studies are estimated to cost US$7.0 million.

(a) A *power market survey* is required, including a political and economic analysis of what is likely to occur in the OT under various peace settlement scenarios and their impact on future bulk system and distribution expansion. Estimated cost: US$0.7 million.

(b) A *gas importing study* to be undertaken as a basis for system planning activity; to document the results of recent gas finds in Egypt; to determine, through discussions with the Egyptians, the possibility of Egypt exporting gas; and to estimate the cost of a gas pipeline and Gaza delivery gas prices. Estimated cost: US$0.3 million.

(c) *Project Preparation Studies*. As soon as the peace settlement permits, feasibility studies and design work must be undertaken on gas turbine peaking capacity, a combined cycle plant and a system operating center. Estimated cost: US$5 million.

(d) A *system expansion study* that covers the next 10 to 15 years is required to lay the foundation for the future bulk power system, including transmission in the OT, based on output from all the above studies. Near-term options include continued imports from Israel; interconnection with Jordan; the installation of distillate-fueled gas turbines as peaking capacity, as part of a regional system; and the installation of gas-fueled combined-cycle units or coal/oil-fired steam units at Gaza. Estimated cost: US$1.0 million.

3.38 The total cost of all the above technical assistance, training and planning studies to build an adequate institutional structure and technical expertise in the OT power organizations is estimated at US$17.0 million.

F. Immediate/Interim Period Investment for the OT Power Sector

3.39 As soon as the peace settlement discussions have progressed to the point that there is some form of interim Palestinian self-government in position, or a joint Israeli-Palestinian administration, there are a number of measures and investments that can be undertaken to lay the foundation for a stronger Palestinian power sector in the OT. These investments will have to be reviewed and plans finalized by some of the studies recommended above. These distribution investments will have to be limited to improving existing systems without installing ties between regions or interconnections with the Israeli

settlement supply systems, because the final resolution of these issues presumably will not be known. The following list gives some preliminary projects and order-of-magnitude estimates.

(a) **The Northern Sub-System.** There is an immediate need identified by the Nablus municipality staff for 12 km of 11 kV underground cable; 10 km of overhead 11 kV line; a 20 MVA 11/6.6 kV substation; 5 MVAR of capacitors; the conversion of 6.6 kV lines to 11 kV; 15 new, low-voltage substations; meters; and general materials to rehabilitate the existing system. The estimated cost just for this rehabilitation work is US$10 million. In addition, there is a need to expand the regional system in all municipalities and to increase system capacity to meet a load level of about 80 MW by the year 2000. The estimated cost for all Nablus investment is US$45 million.

(b) **The Central** sub-system. Consultant Kennedy Donkin (U.K.) completed a study in 1992 for the JDECO system to determine the need to rehabilitate and expand the system through the year 2000 at a load level of about 120 MW, which assumed the system would still be restricted on supply input. The recommendations will have to be reviewed in the context of a future Palestinian bulk power utility because the study assumes continued Israeli 33 kV input; however, the study does provide an initial basis for investment requirements. The program includes increasing 33 kV input from the Atarot substation to 62 MVA; adding 33 kV line capacity between Atarot and Ramallah, and between other existing JDECO stations; strengthening 11 kV lines; replacing undersize cables and overhead conductors on the existing system; reducing system losses to 10 percent; adding 33/11 kV substation capacity; adding 11/0.4 kV transformer capacity; installing capacitors for power factor correction; expanding the low tension network; and improving communication, computer, metering and material stock. The report provides details and cost estimates totalling US$28 million for subcomponents so financial sources can select small projects for financing. If it is assumed the load will be unsuppressed and substantial growth occurs, the investment requirement will be much greater. The total estimated cost for the region is US$50 million.

(c) **The Southern sub-system** . Three 33 kV feeders and a new 15 MVA substation are required. Also required are the expansion of the 11 kV feeder system, the installation of 4 MVAR of capacitors, additional distribution capacity and the expansion of the low tension network. These are very minimum requirements for rehabilitation; system expansion is also required to meet suppressed demand. The total estimated cost is US$35 million.

(d) **The Gaza sub-system.** The complete system must be rebuilt and expanded to meet a load for the year 2000 of about 110 MW. No detailed studies have been made by the municipalities in the Gaza Strip, but an order-of-magnitude estimate is US$40 million.

(e) **System Interconnection.** North-South transmission (possibly 400 kV operated initially at a lower voltage) to link Palestinian distribution companies. It could be a part of regional interconnections and would enable trade with Jordan, Israel and Egypt if political agreements could be reached. About 300 km would be required and the portion in the OT would be implemented by the Palestinian transmission company. The transmission line would cost about US$180 million.

3.40 From the above, the estimated cost of investments to strengthen and expand the transmission, sub-transmission and distribution system in the four regions is US$350 million. Of this, at least US$15 million could be committed immediately on the basis of engineering studies carried out by JDECO and municipalities. It must be emphasized that this estimate must be reviewed and the work program redefined when the results of the studies planned under paras. 3.36-3.37 are available.

G. Long Term Investment Requirements for the OT Power Sector

3.41 It is difficult to forecast with any certainty what the long term investment requirements will be for the OT because the results of the future peace settlement are unknown. However, if it is assumed a self-government will be established for the area and that transmission capability exists between the West Bank and the Gaza Strip, the following will be required.

(a) **Gas Turbine Peaking Capacity.** Some gas turbine capacity could be installed on the OT Palestinian system in the West Bank for peaking purposes to complement the base-load coal steam and mid-range oil steam capacity on the Israeli system. The details would be developed by the system development study, but for first-estimate purposes, this could be two 100 MW distillate-fueled gas turbines, one at or near Atarot substation and one possibly near Hebron, so they could be connected to the 161 kV system. Estimated cost: US$100 million.

(b) **Gas-Fueled Combined Cycle Plant.** Assuming Egypt could provide a gas supply via pipeline to the west side of the Gaza Strip, a gas-fueled 2 x 300 MW combined cycle plant could be constructed in Gaza to provide the electricity supply for the OT. Surplus output from such a plant could be sold to Jordan and Israel, if the gas price is low enough to make the Palestinian marginal cost lower than the Jordanian oil steam cost or the Israeli coal steam cost. Estimated cost: US$480 million.

(c) **System Operating Center.** A central system operation center should be established in the OT to serve as a dispatching and system switching control center for the Palestinian transmission utility and also as a "power pool" control point for the Egypt-OT-Israel-Jordan-Syria interconnection. In addition to communications, computers, buildings, support systems, etc., this center will require technical support from external utility advisors (possibly from Egypt and Jordan) with detailed large utility and interconnection experience to guide and train Palestinian system operators. Estimated cost: US$20 million.

3.42 The total cost of long-term investments is US$600 million. The total cost of the immediate, interim period and long-term requirements for the OT power sector is US$967 million, as summarized below.

The West Bank and Gaza Strip
Electric Power Sector
Summary of Financial Needs
(US$ million, constant 1993 prices)

Category	Immediate Term	Interim Period	Long Term
Physical Investments:			
North Sub-System		45.0	
Center Sub-System		50.0	
South Sub-System		35.0	
Gaza Sub-System		40.0	
400 kV Interconnection		180.0	
Gas Turbine Peaking Capacity			100.0
Gas-fueled Cycle Plant			480.0
System Operating Center			20.0
Sub-total		350.0	600.0
Studies:			
TA and Training	2.0		
Studies	5.0	7.0	0.0
Sub-total	7.0	7.0	0.0
Total	**7.0**	**357.0**	600.0

Notes: The above investment figures should only be construed as tentative. They are based on preliminary estimates. Figures shown are commitments within the period indicated. Disbursements would follow commitments with a lag of several months.

Source: Mission Estimates.

Annex 3.1

Electricity Supply in Israel

The Israel Electric Corporation

1. This Annex presents an overview of the power situation in Israel as background to the power supply picture in the OT. Almost all of Israel's electricity supply is provided by the Israel Electric Corporation (IEC), a government-owned utility that operates a country-wide power system that had a peak load of 5100 MW in early February 1993. Israel's GNP is growing at 6 percent p.a., and load is growing at 9 percent p.a., due partly to the many immigrants. The Government of Israel is considering privatizing the various divisions of IEC, so some future change in structure of the Israel power sector could affect the OT power sector.

2. IEC operates the generation, transmission, and distribution facilities throughout Israel, providing electric service to the final consumers. However, in the OT IEC sells bulk power to entities such as the Jerusalem District Electricity Co. (JDECO), municipalities, village councils, and cooperatives, which distribute to the final consumers. These bulk sales comprise less than 4 percent of IEC's total sales. The OT electricity supply also includes about 7MW of diesel output on the Nablus Municipality system and some other small systems, but these are small in comparison with the total OT input from IEC. So the overall power picture is 4900 MW load in Israel and about 200 MW in the OT.

3. The IEC power system is electrically strong with five coal and oil steam plants along the coast, three double-circuit 161 kV transmission lines running north-south connecting these base-load steam plants to load centers and to several peaking gas turbine plants. A double-circuit 400 kV transmission overlay has been started in the south to connect the 2 x 550 MW Rutenberg plant to the 161 kV transmission system. IEC system development plans include extending the 400 kV to the north and east, then down the West Bank, to form a 40 kV ring around the existing system. The 400 kV may also connect a prospective 4 x 200 MW pumped storage project at the Dead Sea, if that project proceeds.

4. The available IEC generating capacity is 5835 MW, comprising the following plants:

Plant	Fuel	MW
Haifa	Fuel oil	426
Reading	Fuel oil	528
Eshkol	Fuel oil	1,206
Maor David	Coal	1,400
Rutenberg	Coal	1,100
Gas turbines	Gas oil	1,175
Total		5,835

In 1950 the IEC capacities was only 95 MW; this increase to almost 6000 MW shows the rapid capacity growth over the past 43 years.

5. IEC is planning to install more coal steam plants for base load (2 x 550 MW at Maor David and 2 x 550 MW at Rutenberg), to use the existing oil steam plants for mid-range generation, and to install more gas turbines (8 x 100 MW) for peaking. IEC is concerned about air and water pollution problems with more coal stations, and would like to shift to gas-based combined cycle units if a gas supply becomes available. IEC is aware that a gas pipeline from Egypt has been discussed for a Palestinian 50 MW gas turbine plant located in the Gaza Strip.

6. IEC's 1991 fuel breakdown was 56 percent coal, 41 percent fuel oil, and 3 percent gas oil. Thermal unit availability typically is high at 82 percent for steam units and 90 percent for gas turbines. Thermal efficiencies are also high at 38 percent for coal units and 36 percent for the oil units, which are older. The system losses on the IEC system are low, with only 5 percent for station auxiliary use and 5 percent for transmission and distribution losses.

7. The average consumer outage time for planning purposes is 5 hours per year. However, the once-in-70-year snow storm of the winter of 1991-92 resulted in severe damage to the overhead distribution system, causing typical consumer outages of 16 hours per year. The following lists of transmission and distribution line and substation facilities for 1991 shows that the transmission and distribution system in Israel is very extensive, and is capable of providing reliable electricity to the final consumers on the main IEC system.

Transmission & Distribution Lines

kV	km
400	94
161	2271
110	302
Total transmission	2667[a]
33	2297
22	10059
6.3/12.6	995
Low voltage	9501
Total distribution	22852

[a] Includes double circuit lines; total circuit km = 3584

Transmission & Distribution Substations

High Tension kV	MVA	No. of Transformers	No. of Stations
400	2004	12	2
161	5738	179	76
110	818	47	19
Total Transmission	8560	238	97
33	475	1429	-
22	6295	17604	-
6.3/12.6	1118	1940	
Total distribution	7888	20973	-

8 IEC's 1991 electricity statistics show a population of 5,052,200 (which includes the OT), a consumer total of 1,584,000 (which includes only bulk consumers in the OT), and total consumption of 18,781 GWh. The sales breakdown and average tariffs are as follows (the actual tariffs use two-part time of day and seasonal tariffs):

Consumer Class	Percent	Ag.	US Cents
Residential	30	21.3	7.76
Industrial	30	18.3	6.64
Public & commercial	27	30.9	7.61
Water pumping	8	17.4	6.34
Agriculture	5	18.8	6.83
Total	100	19.8	7.22

9. The IEC annual peak load occurs in the winter months due to space heating, water heating and lighting. The summer peak load due to morning air conditioning load is about 10 percent lower, although in 1991 it was 20 percent lower due to a reduction in water pumping caused by water shortages. The annual IEC system load factor is about 55 percent and the annual plant factor is about 50 percent. All in all, the IEC is a well designed and operated system, as evident by the fact that only New Zealand, South Africa, Canada and Australia have lower average tariffs, according to IEC statistics.

IV
WATER SUPPLY AND SANITATION

4.1 Almost all people in the urban areas and about 70 percent of the rural population have access to piped drinking water; however, the quality of service is far from satisfactory. In the West Bank most municipalities face a shortage of water. Losses in the distribution systems are high. In Gaza, and in several municipalities in the West Bank, water quality problems exist. Wastewater collection and disposal systems are very deficient. Management problems are apparent almost everywhere.

4.2 While most of the urban population has access to piped drinking water through house connections, the service levels are quite low. The average water delivered to consumers of about 50 liters per capita per day is very low in comparison to countries with similar income levels. Reasons for the low consumption are the limited access to water sources, deficient distribution systems with high losses (40 to 60 percent in most municipalities which includes water unaccounted for), insufficient reservoirs and inadequate water pressure. The lack of water and the deficient systems force several water departments to rotate water supplies to parts of their networks. The intermittent supply to the consumers leads to the contamination of water delivered from intrusion of polluted water into the networks.

A. Existing Situation

4.3 Most water supply networks are in urgent need of rehabilitation. System extensions have generally been built in a haphazard manner, connecting groups of houses where needed, but often without regard to a rational plan. Wells, the main sources of water, need rehabilitation; and many supply mains and distribution lines have to be replaced to reduce leakages and assure adequate service levels. The municipalities and villages, however, are only able to raise very limited funds for such works and operate under regulatory constraints administered by the CA (paras. 4.12-4.14). Water charges differ substantially from municipality to municipality and high delinquency rates, especially at the start of the Intifada, have reduced the income of the water departments. Nevertheless, there are several municipalities that are able to collect sufficient money to cover all operating costs and even raise some additional funds for other purposes by charging relatively high water rates.

4.4 In the rural areas of the West Bank, half of the villages have access to piped drinking water,[1/] and water quality is often inadequate. Often villages have been built around springs, the main sources of water for the population. Septic tanks, the usual wastewater disposal system, from houses located above the spring sometimes affect the water quality. Also, chlorination is often lacking; water may be contaminated through fluctuating pressure in the distribution pipes; and the transport of water from standpipes to houses may produce some contamination.

1/ Israeli data show that in 1992, 72.4 percent of the rural households in the West Bank had water connections (9.8 percent in 1974), while the Palestinians maintain that 50 percent of all villages have no piped water systems.

4.5 Septic tanks are widely used to dispose of wastewater, even in urban areas. Some municipalities, e.g., Bethlehem including Beit Jal'laa, Beit Sachur and the Deheishe refugee camp), have recently started to build a sewage collection system, but few of the municipalities have satisfactory wastewater collection and treatment system. Generally, wastewater from municipalities and settlements is discharged into seasonal streams or wadis. Where wastewater treatment plants exist, they appear to be poorly designed and operated. Consequently, the pollution caused by the inadequate disposal of wastewater is creating serious problems, especially where farmers use untreated wastewater to irrigate their fields.

B. Institutional Arrangements

Legal Basis

4.6 The municipalities and village councils in the West Bank and Gaza have the responsibility of providing water and sewerage services. The legal basis is very complex since laws and regulations from the Ottoman empire, the British mandate, the Jordanian Government and the Israeli occupation all appear to play a significant role. Although the Civil Administration (CA) imposed strict rules on the exploitation of water, it left the traditional ownership system intact. In contrast to the Israeli system, water rights can be held by individuals and municipalities. Therefore, wells in the West Bank and Gaza are usually owned by private individuals, municipalities or villages, while in Israel the Government owns all the water.

4.7 The rules and regulations applied by the CA are based on the Israeli Water Law of 1959, which authorizes the Ministry of Agriculture to execute the law. Within Israel the Water Commissioner, reporting to the Minister of Agriculture and the National Water Council, is responsible for implementing the law. In the early 1970s, the Ministry of Health was given the responsibility for regulating and supervising the drinking water quality and wastewater use. Water resources planning is being carried out by TAHAL, the official planning agency; the water management and distribution is the responsibility of Mekoroth, the Israeli Water Company through which about 65 percent of all the water in Israel is sold. Design and construction of water works are carried out by TAHAL and private firms. In the OT, the CA has legal responsibility for water supply and implements its mandate in cooperation with the Israeli institutions listed above.

Water Agencies

4.8 In the West Bank, there are several major water companies and/or municipal water departments:

(a) The Jerusalem Water Undertaking, Ramallah District, supplying water to the municipalities of Ramallah, El Bireh, and neighboring villages, as well as to a large part of East Jerusalem

(b) The Bethlehem Water Authority, which provides water to Bethlehem, Beit Jala and neighboring villages

(c) The Nablus Municipality Water Department, supplying water to Nablus and neighboring villages and refugee camps

(d) The Hebron Municipality Water Department, providing water to Hebron and neighboring villages and refugee camps

(e) The CA water department which executes projects outside of municipal jurisdictions.

The water companies usually use their own water sources and buy some water from Mekoroth. In Gaza, the municipalities and village councils supply water from their own wells. Residents of the refugee camps receive water from wells administered by UNRWA.

4.9 In addition to the water companies and village councils and the CA, several Palestinian non-government organizations (NGOs) are involved in executing water supply and sewerage projects. They include the Palestinian Hydrology Group, the Land and Water Institute, the Agricultural Engineers Association and the Association of Engineers in Gaza. There are also a number of engineering firms dealing with water projects. Water quality analyses are being carried out at the Universities of Beir Zeit and Al-Najah.

Institutional Issues

4.10 The institutional capacity of the municipal water departments and water companies is generally very weak. This is due, firstly, to the organizational structure of the sector and, secondly, to human resource constraints. With one notable exception, water supply is the responsibility of municipal departments, rather than commercially oriented utilities. This form of organization weakens management incentives for efficiency and financial performance, and has not worked well either in other countries. In addition, most municipal water departments are quite small. Some merging of these departments within a region might enable greater management effectiveness and economies from subregional projects, particularly for wastewater treatment. The main institutional issues facing the OT infrastructure sector are the overly complex legal base, the use of municipal departments as the organizations responsible for service delivery, the lack of agencies dealing with the planning and coordination of activities in water supply and sewerage, inadequate managerial capacity, bureaucratic constraints and the difficulty in raising funds for investments and rehabilitation works.

4.11 Shortages of professional and technical skills are a constraint to the performance of the sector. Most of the technical staff employed by the water departments and water companies are civil or mechanical engineers, and they represent only a very small proportion of the total staff. Reportedly there are only six to eight water supply and sanitary engineers with a BS degree, or higher, in the West Bank and Gaza. The municipalities and water companies are, thus, generally unable to design and implement water supply and sewerage projects, and they have difficulties in operating and maintaining the existing facilities. The capacity in the accounting and financial management fields is also very weak. The universities do not offer specialized training in water supply and sewerage. The staff of the municipal water departments and water companies have, therefore, little opportunity to improve their skills in the fields of appropriate and modern technologies and managerial practices. A CA water department with Palestinian technical staff provides some assistance to municipalities and might have a similar role under self government arrangements.

Other Issues

4.12 The most important regulatory constraint administered by the CA is the control of the volume of water available to the Palestinians. This control is perceived as particularly unfair by the Palestinians since they have seen the use of water by Israeli settlers, and by Israelis outside of the OT, increase substantially during the past decades. The bureaucratic constraints cited by the Palestinian utilities include, furthermore, delays in the approval of urgently needed water supply and sewerage projects or no response to requests for the approval of such projects. Bureaucratic constraints also include the lack of access to essential water data, which is needed for planning and managing water sector projects. On the other hand, the CA maintains that it encourages sewerage projects, and constraints on municipal water supply projects are now relaxed and allow adequate supplies, although irrigation water use is strictly controlled.

4.13 The lack of a planning and coordination agency may not seem to be of great importance since the CA could be expected to assume this responsibility. However, the CA is seen as applying the policies and regulations of the relevant Israeli government agencies, which are often in conflict with the interests of the Palestinian population[2/]. This situation has produced a demoralizing effect among the Palestinian employees in the municipal water departments and water companies. Although they usually try their best to keep their installations running, they have neither the possibility to develop plans for a region beyond their area of responsibility nor the opportunity to link up with the staff of the other water departments and water companies. The result is haphazard construction, day-to-day decision-making in isolation, without the benefit of the synergy that can be generated by pooling the resources of the various agencies. Therefore, it is strongly recommended that local water companies create an association, which would deal with the planning and coordination of the sector at the regional level. This association could also prepare the guidelines and policies for the interim period following a peace agreement and leading to greater autonomy in the West Bank and Gaza.

4.14 The Palestinian water utilities have also, generally, been unable to raise funds for water investments. They have no access to bank loans and receive only limited contributions from the CA for water investments. Furthermore, some municipalities have used the cash surplus of their utility departments to fund other municipal services (see Table 4.6). Consequently, most investment in the sector has been financed out of the limited internal resources generated from operations, although the CA is encouraging donor financing in the sector. These internal resources have been further constrained by tariff levels that do not cover costs in several municipalities, and operating costs that are high due to network losses and other inefficiencies, which in turn are often related to insufficient investment.

C. Supply and Demand

Water Supply

4.15 The water supply situation in the West Bank and in Gaza differs considerably. Although both regions depend mainly on groundwater, the aquifers suppling the West Bank and Israel are much richer than the Gaza aquifer. The aquifers under the West Bank are also of a much better quality, but two of

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2/ The CA has formal responsibility for water affairs and states that it does not necessarily have to follow the policies of Israeli agencies.

the aquifers extend from the mountainous area into Israel and are, therefore a common resource, claimed by both Palestinians and Israelis.

4.16 The annually available water from the aquifers supplying the West Bank and Israel is estimated by various authors indicating figures between 580 and 830 million cubic meters,[3/] while for Gaza most authors indicate an annual recharge of about 50 to 70 million cubic meters (Table 4.1). This is the total annual volume of rainwater from which the evaporation losses are deducted. The wide variation in data has to be seen in view of the climatic variations and the variability of rainfall. The drought in the 1980s and the high rainfall during the past two winters have shown how much actual data may differ from long range averages. Unfortunately, most of the reports available for this paper do not indicate the reference period for which they are representative. Therefore, ranges are given as quoted by different authors, instead of trying to estimate the long-term average.

4.17 The available water appears as groundwater or as run-off in rivers and streams. Since most of the water is infiltrating into the soil and, therefore, available as groundwater, some publications refer only to the annual available groundwater. The structure of the aquifers in the area of the West Bank and Gaza is very complex. Three main aquifers affect the West Bank: the western, eastern and northern aquifers. The richest aquifer is the western aquifer, which extends to the Mediterranean coast. Its annually renewable recharge is usually estimated at about 335 million cubic meters, while the eastern aquifer, draining towards the Jordan river, has an annual recharge of about 105 to 125 million cubic meters and the northern aquifer, about 140 million cubic meters. While the aquifer supplying the West Bank and Israel consists of limestone, dolomite, conglomerates, marl, sands and gravel, the Gaza aquifer is composed of sand, sandstone and gravel.

4.18 The quality of the groundwater in the West Bank is generally very good, although there are some areas where sewage infiltration causes considerable pollution. In Gaza the groundwater quality is rather poor because of over-exploitation over several decades, which has led to seawater intrusion, and because of the infiltration of sewage and agricultural chemicals. The quality of the ground water in Gaza has been declining steadily. According to a recent EC report quoting Israeli data, only in two relatively small areas in the northern and southern parts of Gaza, is the chloride content of the water below 200 mg/l, the maximum level established by the EC for drinking water. While the chloride levels vary between 200 and 1,000 mg/l in most parts of Gaza, levels of over 1,000 mg/l have been recorded in the eastern section. Nitrates levels are also very high. Values of up to 90 mg/l have been found near the most populated areas. The average levels are reportedly 45 mg/l, very close to the 50 mg/l maximum established by the EC for drinking water. According to a recent report of the American Near East Refugee Aid (ANERA), 34 percent of the wells used by city dwellers contained more than 400 mg/l of chlorides and samples with more than 50 mg/l of nitrates reached 77 percent while those with more than 100 mg/l of nitrates reached 44 percent. However, with the commencement of operations at the newly constructed Dil el Balah brackish water desalination facility, the situation will improve in this part of Gaza. The facility will provide 400,000 cubic meters of water per year or 20 percent of the safe drinking water supply of the city. The facility is the first of its kind and if the new system is successful, similar facilities could be constructed in the Gaza area.

3/ Israeli data indicate an annual safe yield of 600 million cubic meters, while Palestinian sources quote generally higher figures

4.19 While there are many small ephemeral streams, the only perennial river in the West Bank is the Jordan river. There have been many attempts to reach agreements on how the flow of the river could be shared between the riparian countries, but no international agreement has been signed. Currently, Palestinians have no access to water from the Jordan River. According to the Johnston Plan, an annual supply of 150 million cubic meters to the West Bank was envisaged from the Jordan river via siphons from the East Ghor Canal on the East Bank.

4.20 Traditionally, wells have been the main source of water for all purposes of water use. They produce about two thirds of all the water used. Springs supply about 27 percent of the water; and surface water runoff, wadi flows, and water collected in cisterns and purchased from Mekoroth, the Israeli water utility, provide the remaining 7 percent.

4.21 Recent estimates indicate that the Palestinian population in the West Bank and Gaza uses about 215 to 228 million cubic meters of water annually (Table 4.2). Israeli settlers use about 45 million cubic meters. For the West Bank, estimates of the volume of water used by the Palestinians varies between 110 and 133 million cubic meters, or about 15 to 20 percent of the annual available water originating in the area. The rest is used by Israeli settlers and in Israel. As the western and eastern aquifers extend through their natural flow, from the West Bank to Israel, groundwater from these aquifers has been extracted in the Israeli coastal plains for avery long time. Groundwater use by Israel has gradually increased, until it has reached the limit of all the water available. Currently, many of the water sources are overexploited. The information on the use by the Palestinians in the West Bank differs substantially, depending on the various sources, while the data on the water use in Gaza shows broad agreement (Table 4.3). Palestinian sources show only a moderate increase of water use, while Israeli sources indicate a large increase from 1967 to 1991. However, the Israeli data for 1967 probably refer to the post-war situation when the irrigation water use dropped drastically due to the reduction of the irrigated area from 100,000 to 57,000 donum (see Agricultural Sector, Table XII).

Table 4.1: Annually Renewable Water
(Million m^3/Year)

	WBDP	UN	Haddad	ESCWA	Society for Austro-Arab Relations	Jad Isaac
West Bank						
Northern Aquifer	140	140				140
Western Aquifer	335	335				135
Eastern Aquifer	105	125				125
Total	580	600	720	700	830	600
				(easily available from a total of 835)		
Gaza Aquifer	50-60	50-80 (various sources quoted)	57-72	60	50-60	70
Jordan River		120 (currently used by Israel)		320 (estimated Palest. share)		

Sources:
WBDP: The West Bank Data Base Project, The Jerusalem Post/West View Press, 1987
UN: Water Resources of the Occupied Palestinian Territory, United Nations, New York, 1992
ESCWA: Land and Water Resources in the Occupied Palestinian Territory, The Center for Engineering and Planning, Report for ESCWA, 1992.
Society for Austro-Arab Relations: Development Perspectives for Agriculture in the Occupied Palestinian Territories, Jerusalem-Vienna, 1992 Jad Isaac:Impact of the Prolonged Israeli Occupation on Water and Environment in the Palestinian Occupied Territories, The Hague, Holland, 1992

4.22 In Gaza, the situation is very precarious because the annually renewable recharge of the groundwater is only about 60 million cubic meters while a considerably larger amount, about 85 million cubic meters, is currently withdrawn every year. Here, the Palestinians use the bulk of the water, while the share of water used by Israeli settlers is relatively small, amounting to about 3 to 6 million cubic meters, which is compensated for by water supplied from Mekoroth. The large overexploitation of the aquifer has produced falling groundwater levels and a deterioration of the groundwater quality. Measures to restore the aquifer have been initiated by the CA. They have reduced the water use (Figure 4.2 and Table 4.3), but even more drastic measures need to be taken to reestablish the aquifer to its original state.

Water Demand

4.23 Domestic water supplied (including network leakage and unaccounted for water) in the West Bank and Gaza is only about 93 liters per capita per day (lcd), while it is reportedly 142 lcd in Jordan and 280 lcd in Israel (Table 4.4). The actual water delivered to urban consumers in the West Bank is only 40 to 60 lcd (Table 4.5), indicating a substantial unsatisfied demand. Data for a number of countries, showing their domestic water use relative to their GDP, indicate the low ranking of the OT (figure 4.1). The water departments and regional water undertakings have serious problems in maintaining their systems, reducing leakages, maintaining adequate pressure and in supplying the available water to customers. Several water departments can only supply water in rotation in certain urban areas, sometimes only for a few hours once or twice a week. This endangers the quality of the water as contaminated water can infiltrate into supply pipes when the water pressure drops drastically.

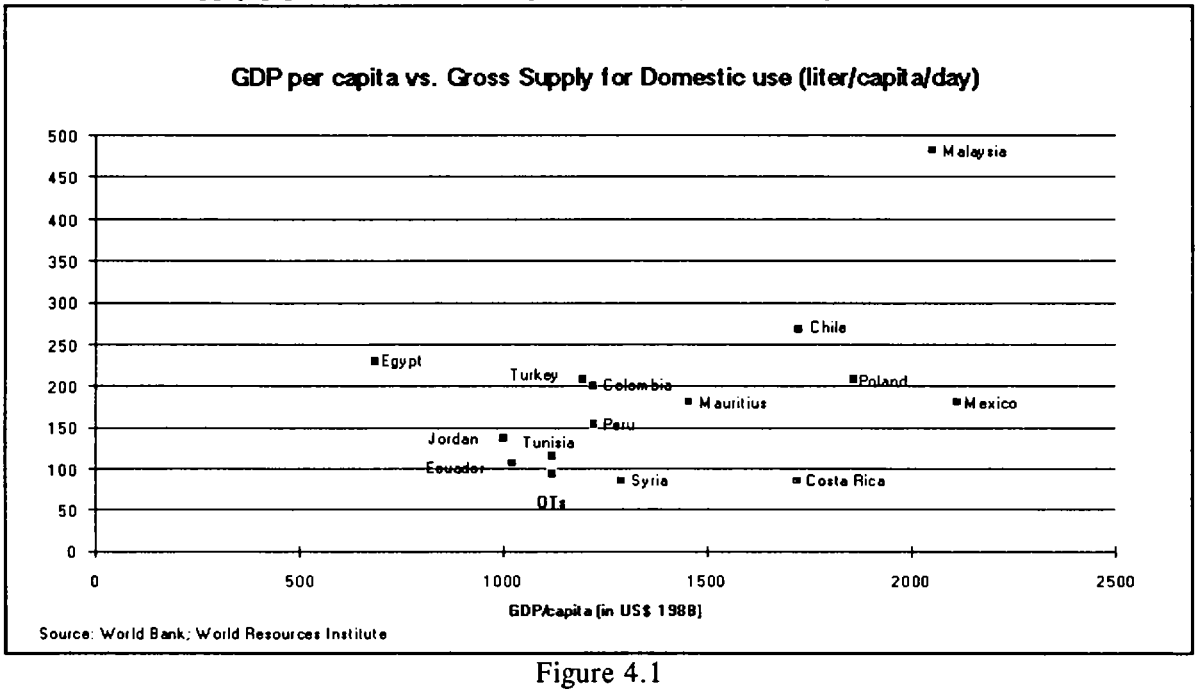

Figure 4.1

4.24 The situation in the rural areas is even more unsatisfactory. Only about half of the villages have access to safe drinking water; the others depend on unprotected water sources. The high rate of dysentery, in 1991 a case rate of 246/100,000 was reported for the West Bank, indicates problems due to poor water quality.

Table 4.2: Current Water Use by Sector
(Million m^3/y)

Reference Year	Naff 1985	Awartani 1990	UN mid 1980s	ESCWA 1990	CIVAD 1991	TAHAL 1991	Ranges Min. Max.
West Bank							
Water for domestic, industr. use	30	34	30	38	32	35	30 38
Water for irrigated agriculture	80	84	95	95	100	80	80 100
Total	110	118	125	133	132	115	110 133
					Settlers:43 Water transfers from Isr:10		
Gaza							
Water for domestic, industr. use	20	29	23	27	35	24	20 35
Water for irrigated agriculture	70	68	80	65	55	65	55 80
Total	90	97	103	92	90	89	89 103
					Settlers: 2.5 From Isr: 2.5		

Sources:
Naff: The Middle East Imperative, 1987
Awartani: A Projection of the Demand for Water in the West Bank and Gaza Strip 1992-2005, 1992
UN: Israeli Land and Water Practices in the Occupied Palestinian and Other Arab Territories, United Nations, 1991
ESCWA: Land and Water Resources in the Occupied Territory, The Center for Engineering and Planning, Report for ESCWA, 1992
CIVAD: Data obtained from the Civil Administration, 1993
TAHAL: Israel Water Study, Draft Working Paper, Tahal Consulting Engineers, 1993

Table 4.3: Water Use 1967-1991
(Million m^3/y)

	1967			1972	1981	1985		1990	1991
	WBDP	HZ/JI	Israeli Sources	Israeli Sources	HZ/JI	WBDP	Israeli Sources	ESCWA	Israeli Sources
West Bank									
Agricultural	75-95	74-94	35		90-100	90-110		95	100
Domestic/Industrial	6.5		7.2			20-25		38	32
Total	80-100	80-100	42.2		113	110-115		133	32
Gaza									
Agricultural			110	85			67	65	55
Domestic/Industrial			10	18			23	27	35
Total	100		120	103			90	92	90

Sources:
WBDP: The West Bank Data Base Project, The Jerusalem Post/West View Press, 1987
IZ/JI: The Water Crisis in the Occupied Territories, Hisham Zarour & Jad Isaac, VII World Congress on Water, Rabat 1991.
ESCWA: Land and Water Resources in the Occupied Palestinian Territory, The Center for Engineering and Planning, Report for ESCWA, 1992.
Israeli Sources: Data Obtained from Civil Administration, Mekoroth and Tahal in 1993. See comment in para. 4.21.

4.25 The effective demand for water by the Palestinians, given their per capita income level, is probably higher than current low usage levels indicate, because of past quantitative restrictions implemented by the CA especially on irrigation water use and shortages of finance for investments. The real demand, at economic prices, is not possible to establish precisely due to the above restrictions, intermittent supply, and current pricing practices which do not have any particular relationship to economic costs. As indicated above, the West Bank Palestinian population uses only about 15 to 20 percent of the water available from the aquifer; the remaining water is used by Israeli settlers and in Israel itself. In Gaza, the Palestinian population uses more water per capita than in the West Bank, but the warmer climate and the greater need for irrigation requires a larger volume of water. Nevertheless, the measures adopted by the Israeli authorities during the past several years have led to a significant reduction of the water use in Gaza (Figure 4.2). It has to be recognized that a reduction in the overexploitation of the Gaza aquifer is necessary to prevent permanent damage to this resource. The extent to which the Palestinian and Israeli population should share the reduction in water use still needs to be determined.

Table 4.4: Water Use, 1990
(million cubic meter)

	West Bank	Gaza	Total OT	Israel	Jordan
Total Water*)	118	97	215	1,890	879
Agriculture	84	68	152	1,300	657
Domestic	29	27	56	480	179
Industry	5	2	7	110	43
Population	937	730	1666	4,690	3,453
General Use (m^3/capita/year)	126	133	129	403	255
Domestic Use (m^3/capita/year)	31	37	34	102	52
Domestic Use ltr/capita/day	85	101	93	280	142

Source:
ESCWA: Land and Water Resources in the Occupied Palestinian Territory, The Center for Engineering and Planning, Report for ESCWA, 1990
UN: Water Resources of the Occupied Palestinian Territory, United Nations, New York, 1992
WBDP: The West Bank Data Base Project, The Jerusalem Post/West View Press, 1987
Society for Austro-Arab Relations: Development Perspectives in the Occupied Territories, Jerusalem-Vienna, 1992
Jad Isaac: Environment in the Palestinian Occupied Territories, The Hague, Holland, 1992
*) See Table 4.2, presenting various sources for OT data. Data for Israel vary considerably depending on reference years and sources as they include fresh water (the annual fresh water potential is estimated at 1,600 million cubic meters), brackish water and treated waste water. Data quoted are estimates for the late 1980s. Since then, water use has been curtailed

Table 4.5: Characteristics of Urban Water Supply Systems

	Population Served -Total Number-	Average Water Supply	Leakage	Water Supplied by Customers	Water Demand Estimated by Municipality
	(%)	(m3/day)	(%)	(l/cap/day)	(l/cap/day)
Jerusalem/Ramallah	179,000 (100%)	12,590	26	52.0	
Nablus	140,000 (100%)	15,840	50	56.6	
Hebron	220,000 (100%)	12,000	60	43.6	
[Refugee Camp]	[55,000]	[2,000]	[50?]	[18.2]	
Tulkarm	60,000 (100%)	6,000 (+ 90 in summer)	40	60.0 (60.9)	
Bethlehem	80,000 (100%)	5,880 (+ 6,000 from Mekoroth in summer)	45 (UAF)	40.4 (81.7)	140

Sources: Mission Interviews

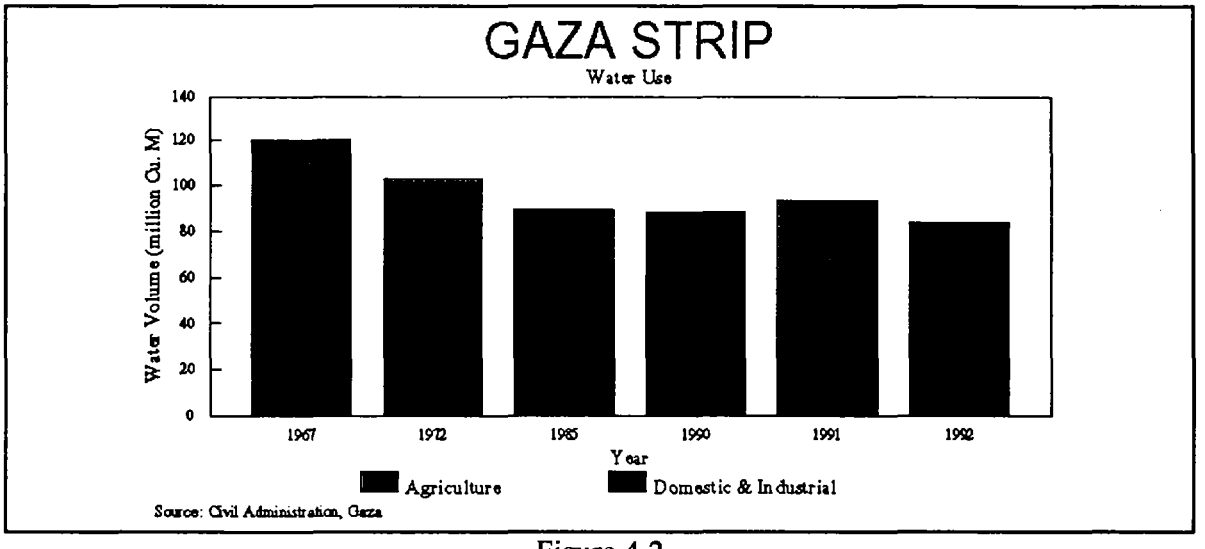

Figure 4.2

D. Financial Situation

4.26 The fragmented nature of the water supply sector, combined with restrictive practices imposed on the local municipalities, variations in the topography of both the supply locations and the demand centers, as well as the physical conditions of the distribution networks, all contribute to considerable differences in the cost of water in different localities. For example, the average rate for water paid by consumers in Nablus in 1990 was US$0.676/m^3, covering approximately 40 percent of the operations and maintenance (O & M) cost of delivered water. In Ramallah, consumers paid an average of US$1.13/m^3, or 158 percent of the O & M cost of delivered water. While municipal water authority in Nablus is unable to cover its costs through adequate water charges, the Jerusalem Water Undertaking, Ramallah District (JWURD), a semi-autonomous regional utility, is able to do so. In Gaza, where all municipal supplied water is from wells, the average cost to consumers for drinking water was US$0.37/m^3 in 1990 (with a range of US$0.22/m^3 in Beit Hanon to US$0.52/m^3 in Rafah). Mekoroth water charges to the municipalities in Israel for domestic use were US$0.26/m^3 [4/], while Israeli consumers pay between NIS 1.70 and 4.10 per cubic meter.

4.27 Several water companies and/or water departments in municipalities in the West Bank are obliged to purchase a large percentage of their water from Mekoroth, the Israeli Water Company, to supplement the water production from their own wells. The average cost of producing their own water is typically 40-50 percent less than the cost of purchasing water from Mekoroth (US$0.65/m^3). Figure 4.3 illustrates the evolution of the water volumes produced and purchased over the last 17 years for one of the largest water companies in the West Bank: The Jerusalem Water Undertaking, Ramallah District (JWURD), where the ratio of water purchased to that produced from wells increased 19-fold from 0.1 in 1974 to 2.1 in 1990.

4/ J. Schwarz, Israel Water Sector Review. Report Prepared for the World Bank (Tel Aviv, 1990)

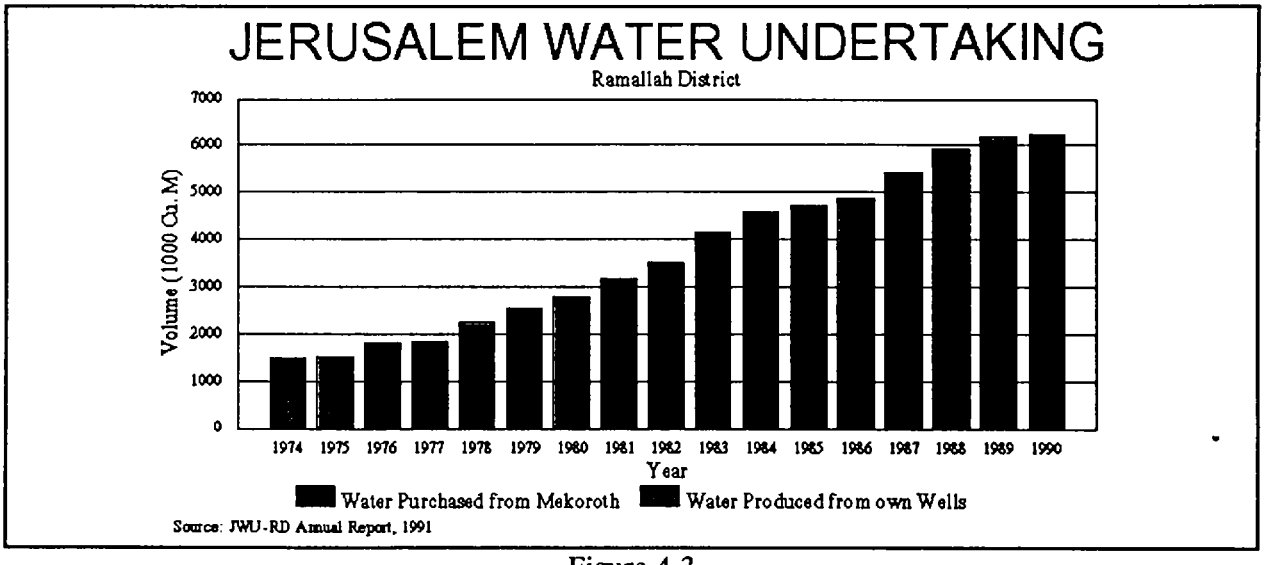

Figure 4.3

4.28 Municipalities depend on the their own income and earnings for financing recurring operations and maintenance costs, and on external concessional financing or grants from international donors to finance sizable capital investments, however, funds from external sources are typically small and unpredictable. Therefore, the pricing policies for water, although varying considerably among different municipalities, take into account primarily the costs of purchasing water and other recurring, associated direct and indirect expenses. This pricing policy cannot produce sustainable investment in this sector, as suggested by Table 4.6, where the income generated does not cover the total investment (capital and recurring expenses). The situation is more evident in the West Bank than in Gaza, especially in sanitation, where there are no direct sewerage charges, only connection fees. According to 1987/88 data, Gaza's municipalities faced fewer problems of cost recovery than did those in the West Bank, where it appears that revenues generated exceeded expenditures for potable water and for recurrent costs of sanitation systems. Annex 4.1 illustrates different water tariff structures for various municipalities; it indicates some price differentials within block tariffs and generally progressive rates with increasing consumption. The extent of the effectiveness of these price differentials, where they exist, is uncertain since demand is not fully met (para. 4.23).

Table 4.6: Income Generation, Capital Investment and Current O & M Costs by Municipalities in the West Bank and Gaza Strip: Potable Water and Sanitation, 1987/1988 (in 1000 NIS)

Area	Potable Water					
	Income Generated	Current O & M Cost	Capital Investment	Total Expenditure	Revenue as percentage of	
					Current O & M Cost	Total Expenditure
West Bank	8,295	8,660	2,281	10,941	96	76
Gaza Strip	4,330	2,662	1,237	3,899	163	111
Total	12,625	11,322	3,518	14,840	-	-
	Sanitation					
West Bank	614	1,631	574	2,204	38	28
Gaza Strip	321	149	518	668	215	48
Total	935	1,780	1,092	2,872	-	-

Source: Data derived from: the Government of Israel. Judea, Sameria and Gaza Area Statistics, Vol. XVIII, No. 2, Jerusalem: Central Bureau of Statistics; 1988, pp. 196-222; and Haddad, M. Potable Water and Sanitation in the West Bank and Gaza Strip. Report Prepared for Policy Research Incorporated, Clarksville, MD; 1992.

4.29 During the prevailing social and political conditions of the Intifada over the past several years, many municipalities built up arrears in their accounts receivables and increased delinquency rates among customers (ranging from 60 percent in Bethlehem to about 10 percent in Tulkarm). However, the situation has been improving, and certain municipalities are resorting to strict measures in order to reduce delinquency and to prevent any further deterioration in their financial positions. Moreover, water entities that exhibit a degree of independence in their set up, as JWURD, are in a relatively financially sounder position.

4.30 In conclusion, the sector suffers from a general institutional weakness. This weakness is exacerbated by the limited access to funds to finance improvements and rehabilitation works, notwithstanding the occasional grant funds from international donors. The establishment of autonomous water and waste water utilities with clear commercial and service objectives (para. 4.38 a.) would be a major step to address the existing problems. The large rehabilitation program which is needed, requires an appropriate institutional structure for the water agencies and agreements on the basic principles for project selection, preparation and implementation.

E. Recommendations and Proposed Strategy

4.31 Because of its scarcity-- even under optimistic scenarios of its availability to the Palestinian population-- and high costs of extraction and distribution, water is an economic commodity rather than a social entitlement. Consequently, policies are needed to ensure that this scarce commodity is allocated and used efficiently. This will require pricing policies that not only cover financial costs, but also encourage efficient use, as well as carefully chosen investments that are operated effectively. Nevertheless, adequate supplies should be affordable for drinking, cooking and personal hygiene by low income households, possibly through a lower price for the first block of consumption. The high cost of investments and the various phases of the peace process make it mandatory to distinguish between short-, medium- and long-term actions. Relevant strategies and actions are outlined below.

Short-Term Strategy and Actions

4.32 In the short term, i.e., until an agreement on an interim self-governing arrangements is initialled, the most urgent needs in water supply and sewerage should be addressed. This includes the preparation of improvements of the most deficient water supply and sewerage services in the West Bank and Gaza, the establishment of an institutional base for water planning and management and the preparation of phase 2 activities.

4.33 The most urgently needed improvements in water supply are:

(a) Improvement in the quality of the drinking water in Gaza because of the deteriorating water quality of large parts of the Gaza aquifer. Solutions to consider include the improvement of the water treatment processes, the transfer of water to Gaza from outside the Gaza Strip and a reallocation of the water available in Gaza through an extended use of the northern aquifer for the drinking water supply because it is of much better quality than the central and southern aquifer. In exchange, water from the central aquifer may be used as irrigation water in the northern part of the Gaza Strip.

(b) Those priority rehabilitation works on water supply systems in the West Bank, which include the rehabilitation of wells whose yield has been reduced substantially, the reduction of the worst leaks in the urban water supply systems and the provision of additional water to improve the supply.

(c) The construction of wastewater treatment facilities where sewage is discharged into streams without any treatment and threatens the health of the rural population, especially farmers who use the untreated wastewater to irrigate their crops.

4.34 The organization of the sector is imperative as a large number of municipal departments, and the nonexistence of a Palestinian water agency dealing with water monitoring, planning, regulations and management, contributes to the current problems and inefficiencies. Therefore, the following steps are recommended to address the main issues:

(a) In view of the large present and potential unmet demand for water and sanitation services and the weak existing water departments, there is an urgent need to reorganize the sector

to enable it to meet the challenges of the future. We recommend that financially autonomous, commercially orientated water utilities be established. The organization of a limited number of regional water utilities appears to be advantageous and should be seriously considered. One of several possibilities for detailed analysis would be an organization of three utilities for the West Bank - for the northern, central and southern part and one utility for Gaza.

(b) The Palestinians should be encouraged and assisted in establishing an association of water utilities and professionals dealing with water issues to coordinate and facilitate the water and wastewater sector development. This association should prepare proposals for institutional arrangements in the water sector, define organizational arrangements and determine technical assistance needs. The association should also take the first steps in developing plans for improvements in the water sector.

(c) The Palestinians should be given free access to the hydrological data collected in the West Bank and Gaza and monitor water resources (precipitation, surface and groundwater), together with Israeli hydrologists. Practical arrangements for this hydrological work should be determined soonest.

(d) Technical assistance for organizational improvements and training should be made available to the water departments in the West Bank and Gaza and to the water association, as soon as it is established that it can address institutional and planning issues.

4.35 The preparation of phase 2 activities should include the following:

(a) A systematic assessment of the investment needs and the priority investments in water supply and sewerage

(b) The detailed preparation of the most urgently needed projects including, the mobilization of the necessary funds

(c) A systematic and comprehensive review of the existing surface and groundwater pollution (subsequently, a permanent monitoring system of surface and groundwater pollution)

(d) The most urgently needed measures to reduce water pollution and a list of priority actions

Medium-Term Strategy and Actions

4.36 In the medium term, i.e., the period between the agreement on interim arrangements and the final agreement on the status of the OT, the main tasks should be the detailed preparation of an institutional framework for the water supply and sanitation sector, the preparation of a comprehensive development strategy and the implementation of the investments prepared during phase 1.

4.37 The preparation of the institutional framework would include:

(a) The establishment of regional utilities and a coordinating organization dealing with water supply and sanitation as well as the possible establishment of a water authority for the OT, as envisaged by the Palestinians

(b) The determination or formulation of the necessary laws, rules and regulations for the sector activities

(c) The training of staff in the water departments and agencies to upgrade their skills and to prepare them for their increased responsibilities

4.38 While the priority investments will be implemented in phase 2, the major investments in the rehabilitation and expansion of water supply and sewerage works, required to deliver adequate services, will have to be prepared within the framework of a comprehensive development plan. As stated above, the preparation of projects should be based on technical and economic criteria, recognizing water as an economic and social good. At the same time, collaborative arrangements in the water sector with neighboring countries need to be prepared. The ongoing negotiations are expected to focus, among other things, on these issues. The necessary arrangements have to deal, among other items, with the utilization of water resources, access to water, water management issues and the disposal of wastewater.

Long-Term Strategy and Actions

4.39 Following the final agreement on the status of the OT, all governments in the region should agree on the joint planning and managing of water resources, assuring all parties a fair share of the water resources and not causing appreciable harm to any riparian, according to generally agreed international principles. The main activities would be the establishment of the institutional arrangements, including the establishment of an entity for comprehensive development planning, and the implementation of the investments to be prepared during phase 2.

4.40 Until now, the main concern of the various parties has been a quantitative reallocation of existing water resources. While Israel is interested in maintaining the volume of water it uses currently, the Palestinians demand a much larger share of the water than what is accessible to them at present. As most of the water resources, surface and groundwater, should be considered as common resources, the most attractive solution appears to be a joint management of these resources. While a joint-management system might not be acceptable in the near future, it is recommended that its feasibility and the conditions under which it could be implemented at a later stage be explored. Such joint management would include joint planing, decision-making and agreed rules on the operation of distribution systems. A joint management would also facilitate the provision of water to the most economic uses and assure, through appropriate pricing, that the necessary, minimum supply of water would be available to the lowest income groups at an affordable cost.

F. Investment Needs

4.41 Even a casual inspection of the urban water supply and sewerage systems shows the need for substantial improvements and extensions to the systems. During the past 25 years, the systems have not been rehabilitated systematically, and extensions have been built in a haphazard manner. Leakages are very high; reservoirs are often insufficient; and adequate water pressure cannot be maintained. In the rural areas, about half of the villages do not have access to safe drinking water.

4.42 A systematic survey and assessment of investment needs does not exist, but most urban water departments have prepared some plans and projects addressing their most urgent needs (Annex 4.2). A preliminary investment plan for the water sector has been prepared by a Palestinian engineering firm which is included in a report submitted to ESCWA (1992). The plan calls for investments totalling $310 million of which $160 million would be needed for upgrading and extending water supply networks. Based on the data obtained from the water departments in Ramallah, Hebron and Nablus (Annex 4.2), about US$30 million will be needed to rehabilitate and extend these water supply systems. Comparing the data from the three water departments, it appears that the investment estimates from Hebron and Nablus, calculated in $/capita, are considerably lower than the investment needs estimated by the Ramallah water department which is recognized as the best run water utility in the OT. Therefore, it appears justified to take the Ramallah per capita investment as a reasonable basis and assume that it represents the minimum needed in the urban areas. As about 1.35 million people currently live in urban areas and refugee camps, the total investment for water supply would assuming a cost of US$120 per capita for urban water supply rehabilitation and expansion works, amount to about $162 million and to about $270 million on the basis of the population projection for the year 2005. In addition, investments in rural water supply systems would require about $25 million (assuming that a typical system for a village with 2,000 inhabitants would cost about $100,000).

4.43 The investment needs in sewage collection and treatment systems are even more difficult to assess because there is less information available than for water supply investments. Usually, the cost of complete and properly functioning sewerage systems is equal or higher than the cost of water supply systems. This would result in at least doubling the cost of the investments for this sector, which does not appear to be reasonable for the following reasons: in some municipalities sewage collection systems have already been built or are under construction (e.g., in Bethlehem); traditionally, septic tanks have been built in urban and rural areas which would only gradually be abandoned as sewage collection systems are expanded. This expansion can be phased over a longer period. The need for complete sewerage systems should be determined in view of the local pollution problems, which are quite different in the various parts of the OT. The construction of sewerage systems thus appears to lend itself to a phased approached, according to which some of the investments could be deferred and implemented after the necessary investments in water supply systems. The investment cost of the sewerage systems has been estimated tentatively at 75 percent of the cost of the water supply systems.

4.44 In conclusion, the level of justifiable investment in water supply and sewerage is likely to be on the order of several hundred million dollars. Neither the exact amount nor the appropriate sequencing is well established. There is an urgent need, therefore, to begin quickly to develop the data needed, an analytic capacity, and a mechanism to assess potential investments and establish priorities among them. For now, the best we can do is provide a tentative, suggestive estimate of investment needs during the

various terms defined under the study. The schedule assumes the preparation of urgently needed works beginning in the immediate term. Investments would begin in the intermediate term. This is shown in the table below.

The West Bank and Gaza Strip
Water Supply & Sanitation Sector
Summary of Financial Needs
(US$ million, constant 1993 prices)

Category	Immediate Term	Intermediate Term	Long Term
Physical Investments:			
Water Supply Systems		180.0	100.0
Sewerage & Waste Water Treatment		100.0	100.0
Sub-total		280.0	200.0
Studies:			
General Project Preparation Work, Studies and Preparation of Priority Investments	2.5	3.0	
Detailed Preparation of Water Supply and Sewerage & Waste Water Investments	4.0	5.0	
Technical Assistance:			
Institutional Arrangements & Development of Sector Plan (TA for Water Departments & Agencies)	1.5	2.0	
Sub-total	8.0	10.0	0.0
Total	**8.0**	**290.0**	**200.0**

Notes: These investment figures should only be construed as tentative. They are based on preliminary estimates indicating that about US$500-600 million would be needed to provide adequate water and sanitation service. Figures shown are commitments within the period indicated. Disbursements would follow commitments with a lag of several months. The figures do not include specific investments to address environmental degradation, e.g. aquifer rehabilitation works.

Annex 4.1

Tariff Structures for Various Municipalities in the OT

Municipality	Water Charges		Unaccounted for water/Leakage (%)
Bethlehem	Private customers Government Institutions Government (military camps)	NIS 3.00/Cu. M NIS 2.40/Cu. M NIS 2.20/Cu. M	45
Hebron	Private customers: 0 - 5 Cu. M per month 5 -15 Cu. M per month over 15 Cu. M per month Industries:	 NIS 2.62/Cu. M NIS 2.75/Cu. M NIS 2.85/Cu. M NIS 2.62/Cu. M	50
Nablus	For all customers: 0 - 5 Cu. M per month 6 -10 Cu. M per month over 11 Cu. M per month	 JD 0.600/Cu. M JD 0.750/Cu. M JD 1.000/Cu. M	50
Gaza City	Domestic use: 1 - 10 Cu. M per month 11 - 20 Cu. M per month 21 - 30 Cu. M per month over 30 Cu. M per month Industrial use: 1 - 10 Cu. M per month 11 - 20 Cu. M per month 21 - 30 Cu. M per month over 30 Cu. M per month	 NIS 4.50 NIS 0.40/Cu. M NIS 0.45/Cu. M NIS 0.60/Cu. M NIS 4.50 NIS 0.40/Cu. M NIS 0.45/Cu. M NIS 0.60/Cu. M	10 (questionable)
Tulkarm	All customers: 0 - 5 Cu. M per month over 5 Cu. M per month	 NIS 10.00 NIS 1.00/Cu. M	40
Ramallah	Individual consumers: - A fixed charge for up to 10 Cu. M per month every two months. - A whole sale price for municipalities, villages and population centers (at 20% discount to above) - A fixed meter reading charge every two months for all customers.	 NA NA NA	26

Source: World Bank Mission, 1993

Annex 4.2

WEST BANK AND GAZA
ESTIMATES OF REHABILITATION COSTS

Urban Areas		Water Supply US$	Sanitation US$	Total US$
Nablus (140,000)	New well incl. equipment	960,000		
	Replacement of old distribution system	760,000		
	New tank lines	1,000,000		
	Booster pumps	500,000		
	Additional wells	5,000,000		
		8,220,000 (58.7/cap.)		
	Sewerage system and waste water treatment plant		(100.7/cap.)	14,100,000
	Sub-total			22,320,000
Hebron (110,000)	Improvement of water supply system	3,712,590 (33.8/cap.)	N.A.	3,712,590
Jerusalem/ Ramallah Water Undertaking (179,000)	New wells (4)	7,920,000		
	Rehabilitation of distribution networks	6,858,564		
	Now parallel lines	1,000,000		
	Water laboratory	20,000		
	New meters and water maintenance	230,000		
	Leak detection equipment	80,000		
	office equipment, etc.	125,000		
	New building	850,000		
		17,083,564 (94.9/cap.)	N.A.	17,083,564
Total (430,000)		**29,016,154** (67.5/cap.)	**14,100,000**	**43,116,154**
Rural Areas				
Villages (200)	Construction of typical waste supply system (2000 inhab.) 200 x 110,000 ($55.00/cap.)	22,000,000		22,000,000
OVERALL TOTAL		**51,016,154**		**65,116,154**

Source: Data Obtained from Water Agencies, World Bank Mission, 1993

Annex 4.3

Water Use in the Occupied Territories(****)
(Million cubic meters)

	West Bank		Gaza Strip	
	1967	1991	1967	1991
Arab Sector:				
Agriculture	35.0	100.0	110.0	55.0
Domestic Use	* 7.2	32.0	10.0	35.0
Total	42.2	132.0	120.0	90.0
Israeli Sector:				
Agriculture		35.0		2.0
Domestic		8.0		0.3
Total		43.0		2.3
Grand Total	42.2	** 175.0	120.0	*** 92.3

*Partial estimate.
**10 million cu. m. per annum are transferred to West bank from sources in Israel.
***Water use by Israeli settlers is now completely compensated by supply of 6-6.5 million cubic meters from Israel to Gaza through the new Kissufim Pipeline.
****The table presents data on water use within the OT. The water availability (annually renewable surface and groundwater) is given in Table 4.1. The Palestinians point out that about 450 million cubic meters from West Bank aquifers are used in Israel. See also para. 4.25.

Source: Mekoroth, 1993.

V
TRANSPORTATION

5.1 The existing transportation facilities in the OT are inadequate to provide a cost-effective service to the region and to support future Palestinian economic development. The conditions and the coverage of the basic transport infrastructure and services are well below the level and the quality that would be expected to prevail in a region with similar income levels. Even though there have been some positive developments in the sector under the Israeli administration of the OT, these developments have not been adequate and resources were directed towards meeting the needs of Israeli settlers rather than by the economic and social development needs of the Palestinians. Since 1967, investments in transport infrastructure have been primarily designed to: (i) increase Israeli security; and (ii) incorporate the Israeli settlements in the OT with the Israeli economic and social structure. These policy objectives have resulted in the construction of modern and high standard roads linking the settlements with major centers in Israel, often bypassing the Palestinian cities, towns and villages. On the other hand, the road networks serving solely the Arab population have been largely neglected. As a result, two weakly connected road networks have emerged serving two sets of distinct transport demands. Even though the roads linking the settlements can also be used by all, those used exclusively by the Palestinians have been largely neglected and are inadequate to meet the needs of the OT's economic development efforts. Moreover, there have been no significant developments, since the occupation, in other modes of transport. The currently existing basic transport infrastructure needs to be improved immediately if it is to support future programs designed to bring about a sustained economic development in the region. Moreover, various regulations, controls and limitations imposed by the Israeli authorities on enterprises, coupled with high taxes, have hindered the development of strong transport service industries. The privately owned and operated bus companies providing both inter-city and urban transportation are in serious financial difficulties, although CA has provided some grants for replacement of old buses. The bus fleets have been reduced in size due to insufficient revenues, lack of financing, high cost of new buses and heavy customs duties. Existing bus fleets are in extremely poor condition leading to an unduly high rate of accidents and breakages. The trucking firms are also operating under similar conditions and face similar problems. Above all else, however, Israeli administration of the OT since 1967 has inhibited the development of a Palestinian institutional structure and administrative machinery capable of making sound investment and policy decisions and carrying out technical and analytical work. The Palestinians employed by the Transportation Office in the CA could assist in determining investment priorities in the sector during the initial stages of interim self-governing arrangements.

A. Present Conditions of the Transport Network

5.2 There is, therefore, an urgent need to launch a comprehensive program to develop institutional capability in the OT through extensive technical assistance to enable Palestinians to formulate rational policies and prioritize and administer investment decisions. In the intermediate term transport infrastructure, particularly urban and inter-city roads, needs extensive maintenance and rehabilitation works to prevent further deterioration and the eventual loss of the existing facilities. In addition, programs need to be initiated to assist, through credit facilities and technical assistance, the privately owned and operated transport enterprises. In the long-term, the region provides extensive potential for major infrastructural developments on both the regional and international level. In the following sections these recommendations are discussed for each mode of transport.

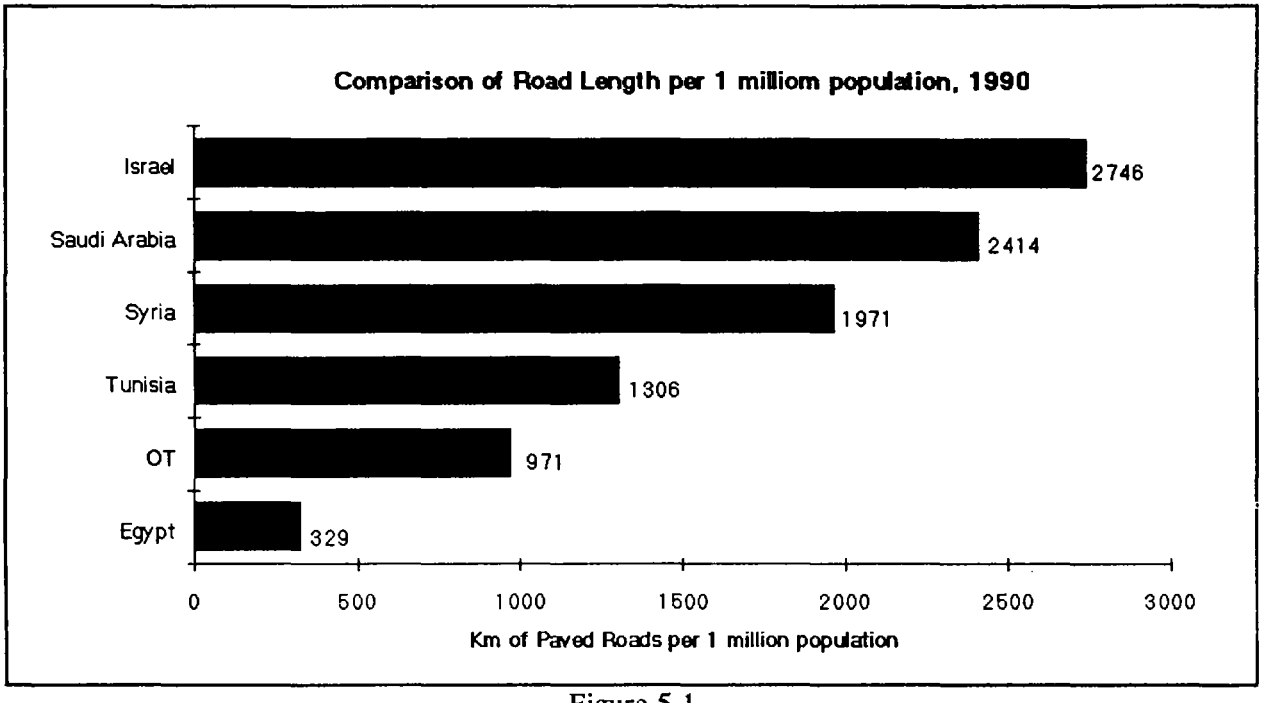

Figure 5.1

Source: For Israel: Statistical Abstract of Israel, 1991. Central Bureau of Statistics, Table 1816; for the Occupied Territories: Abu-eisheh, SA. Transportation and Communications in the West Bank and Gaza Strip. Nablus: Al-Najah University; 1992; for all other countries: Queiroz, C. and Gautam, S. Road Infrastructure and Economic Development: Some diagnostic Indicators. Washington, D.C.: World Bank; 1992, Annex 1.

Road Transport Network

5.3 The total lengths of the existing road network in the West Bank and the Gaza Strip are 2000 km and 168 km, respectively. The network consists of main, regional and local roads. The main road network, largely constructed before 1967, is about 700 km in total length serving major population centers. It consists of two main north-south corridors: (i) the Jenin-Hebron Road, a distance of about 140 km; and (ii) the Jordan Valley-Dead Sea Road. The main road network also includes four major east-west corridors: (i) Damiya Bridge-Nablus, which forks to Tulkarm and Qalqilia; (ii) the Allenby Bridge-Jericho-Ramallah-Beit Sira Road; (iii) the Jericho-Jerusalem Road; and (iv) the Trans-Judea Road (Maps in Annex show the main road network). The regional network, about 500 km in total length, is also oriented to the north-south and east-west axes. The local road links smaller communities and villages and provides access to the main and secondary network. The total length of the local road network is about 800 km and accounts for 45 percent of the total road network. In addition, an 880-km agricultural road network serves the West Bank farming communities moving farm machinery and their products to the market places and consumption centers. No reliable data is available on the length and the state of the agricultural roads in the Gaza Strip.

5.4 Since 1967, a period of 25 years, there has been only a minor increase in the OT's paved road network. In the terms of the ratio of the road length to population (a standard comparative indicator for road access), the OT have less road access than any other country in the region, with the exception of Egypt (see Figure 5.1). For example, in 1990 Israel had nearly three times the road network of the OT per 1 million population (2,746 km compared to 971 km). The additions to the paved network, funded from the Israeli budget, have been primarily designed to increase security and to link Israeli settlements in the OT with major centers in Israel. The Israeli authorities have prepared a statutory plan for improvement of the road network on the West Bank but this has not been accepted by the Palestinian community. Road facilities outside the municipal boundaries which serve only Arab towns and villages are generally funded by Palestinian resources but wholly administered by the CA. A major section of these is in a poor condition due to lack of maintenance and repair. Poorly maintained roads generally lead to Arab towns while modern and well-maintained roads serve the Israeli settlements.

5.5 Although there are no up-to-date and reliable traffic counts to determine the current capacity requirements on the main road network, the indications are that certain sections of the system are already experiencing congestion. According to the statistical information provided by the Israeli authorities both in the Gaza Strip and the West Bank, vehicle ownership has been increasing at an average rate of about 10 percent annually since the occupation years (See Figures 5.2 and 5.3). For example private car ownership in the West Bank, primarily financed through earnings abroad, reached about 55,000 and about 18,000 in the Gaza Strip. The total number of vehicles now stands at about 83,000 in the West

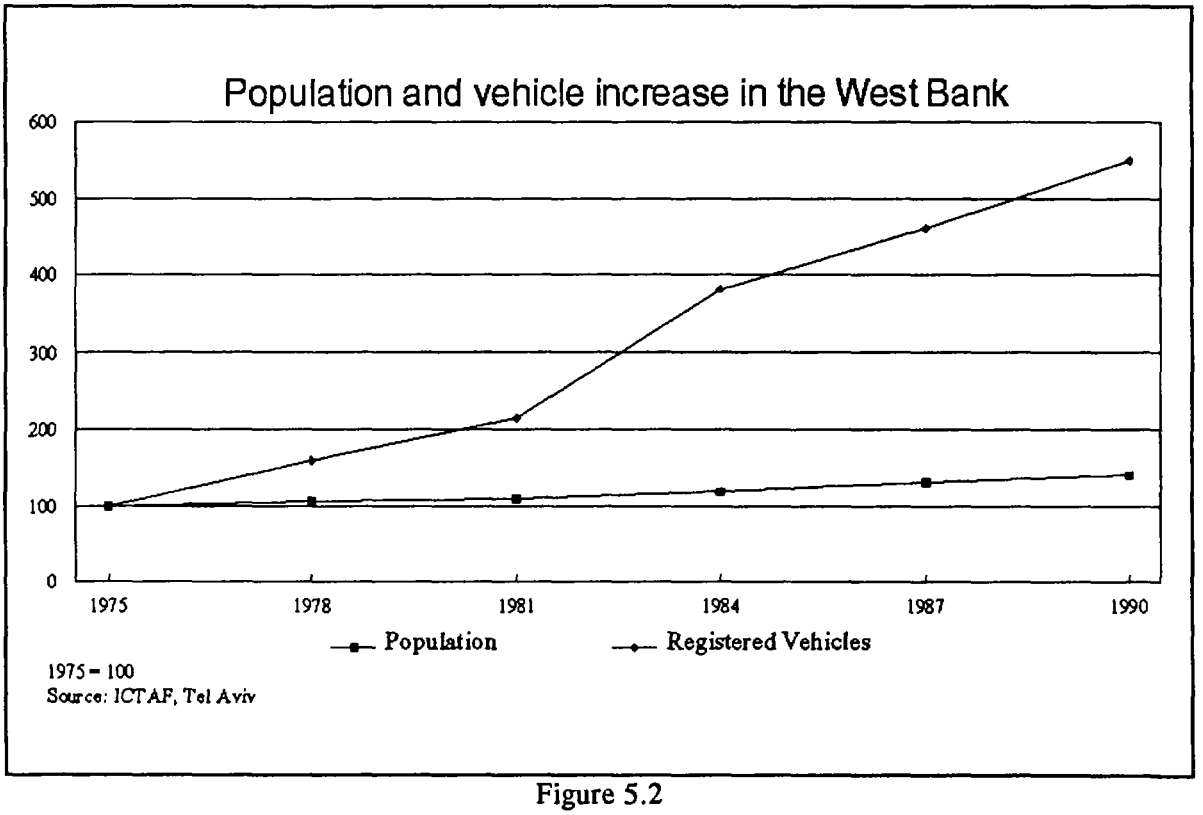

Figure 5.2

Bank and about 25,000 in the Gaza Strip. Figure 5.4 compares the number of persons per car in the OT with those in countries of similar income levels. The traffic volume estimates carried out by the Department of Public Works in 1987 indicated that certain parts of the system were already being utilized to capacity. For example, the average daily traffic (ADT) on the road between Jerusalem and Bethlehem had reached 12,300 vehicles in 1987; it is certain that the volume is much higher today. On the Gaza Strip the 1987 ADT volume on the link between Gaza-Beit Hanoun was 13,500. With political normalization in the OT, it is expected that economic activity and, therefore, the demand for transport will experience a rapid growth. As a result, there will be a need for capacity expansions on certain links in the main road network. In addition to the links noted above, the road sections between Ramallah-Jerusalem and Nablus-Ramallah may also need expansion in the near future and, therefore, require feasibility studies.

5.6 Although selective capacity expansion in the main road networks in the OT need to be addressed in the near future, the more urgent requirement of the road subsector is the rehabilitation of the system through strengthening pavement, improving vertical and horizontal alignments and eliminating the backlog of maintenance needs. About 40 percent (760 km) of the West Bank road network is in a poor state and requires immediate attention if the system is not to be lost. Unless many sections of the network are rehabilitated, these will also soon deteriorate further and become unusable in the near future. Furthermore, about 11 percent of the network (about 210 km) requires repair work and periodic maintenance. In addition, in order to avoid an additional buildup of maintenance works in the future, it is essential to initiate routine maintenance programs in all parts of the network.

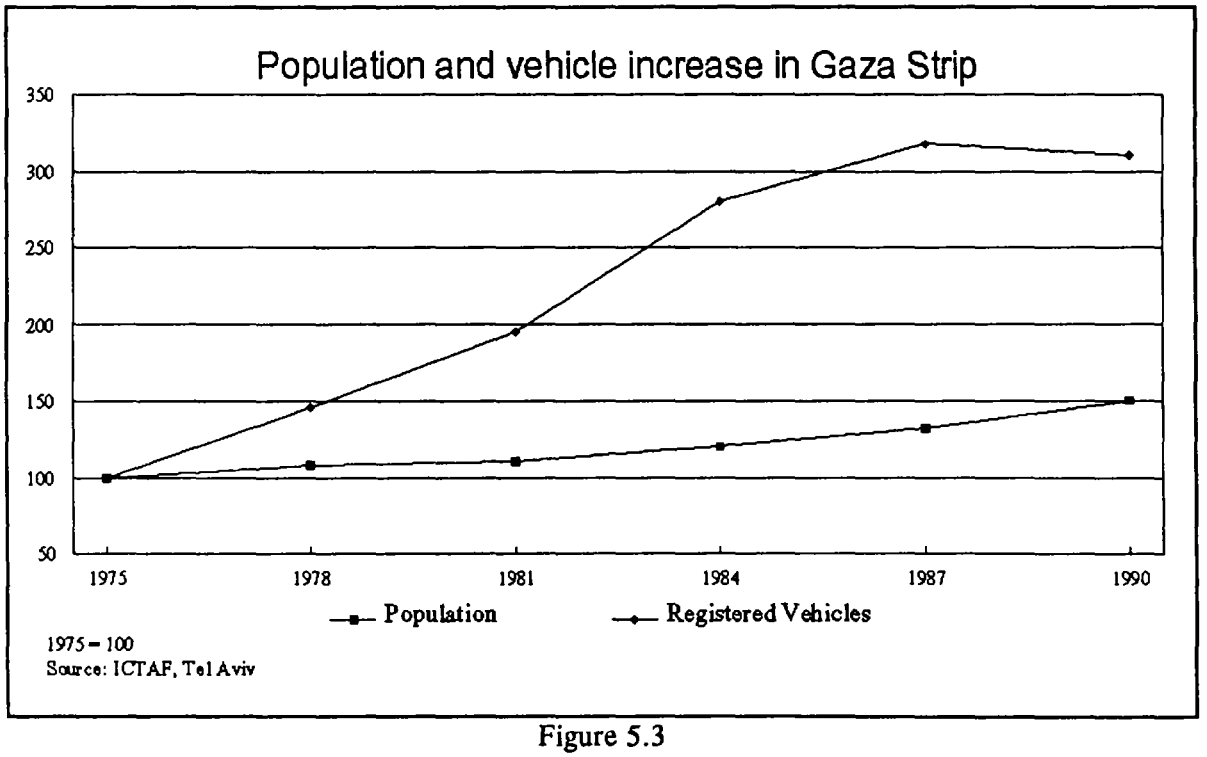

Figure 5.3

Urban Road Networks

5.7 The weakening of local government that has occurred since 1967 (see Chapter 2) has meant that the road networks within the municipalities have deteriorated. Although the municipalities collect various taxes and other fees imposed on road users (primarily the tax on gasoline), in all cases only a small fraction of the revenues collected has been available to the municipalities for urban road development.[5/] In many cases, urban networks within municipality boundaries are in very poor condition and require immediate attention. It is estimated that all urban road networks need rehabilitation, traffic engineering, road markings and signs to facilitate traffic movement. In many major municipalities, traffic is extremely slow, often at a standstill during rush hours. In Nablus city center, for example, the main street carries over 1,200 vehicles per hour during the peak period over a two-lane facility. Given that most vehicles are extremely old (50 percent of the fleet is at least 10 years), the poor condition of the urban roads is also leading to serious local air pollution problems.

Agriculture Roads

5.8 The existing network of agricultural roads, about 900 km, facilitates farmer access to markets. Only a fraction of the network is paved; the rest consists of gravel and dirt roads. During the last decade, there has been increased construction of agricultural roads, primarily financed by international donor institutions. The network is, in general, adequate to meet the current demand although certain parts of the network need to be improved, in some cases paved, to provide all-year-round service, and expanded to areas which are not currently served.

Transport Industries: Passenger Services

5.9 Road transport is the only mode available for urban, inter-city and rural passenger services. The industry is completely in the hands of private operators and consists of bus companies and shared taxis, which have been rapidly increasing in recent years. In addition, unlicensed private cars, mini-vans and pickups provide services in remote rural areas and densely populated centers as buses and licensed taxis cannot meet the demand adequately or provide satisfactory service. The bus fleet, numbering about 780, is owned and operated by some 100 enterprises; about 70 of these operate only a single bus. There are larger enterprises owning and operating about 30 buses. Only about 150 buses are allocated to inter-urban services while the remaining 630 buses operate within urban centers. Jerusalem and Nablus are the two main hubs for intercity bus services from which the routes radiate and cover most of the West Bank (See Figure 5.5). In Gaza the bus services cover all parts of the coastal regions. In addition to the Palestinian bus companies, the Israeli bus lines provide services primarily to link the settlements with major centers in Israel (See Figure 5.6). Therefore, currently, two partially overlapping bus systems exist in the OT without any coordination in services.

5/ This is apparently based on pre-existing Jordanian law where a portion of the fuel tax is earmarked for municipal finance.

5.10 Since 1967, the bus companies have been operating under extremely difficult conditions. Despite the fact that the CA has provided some grants for the replacement of old buses, over 50 percent of the fleet is more than 10 years old. Because of the shortage and high price of spare parts, many buses experience long down times, further reducing the availability of services. All bus companies, particularly smaller enterprises operating one or two buses are facing severe financial problems as often services are halted or restricted due to security concerns of the Israeli Authorities or intercepted by strikes. During such periods buses are left idle earning no revenue to meet the fixed costs of the companies. Another serious concern of the industry is the unavailability of financing. The enterprises often cannot raise funds needed to purchase new buses to provide an adequate level of service. The competition from private cars providing unlicensed private passenger services is an additional difficulty facing the bus services. Unless speedy remedial actions are introduced, many companies, particularly those that are small and operate only one or two buses, will be forced to leave the industry, creating a large vacuum in public passenger services.

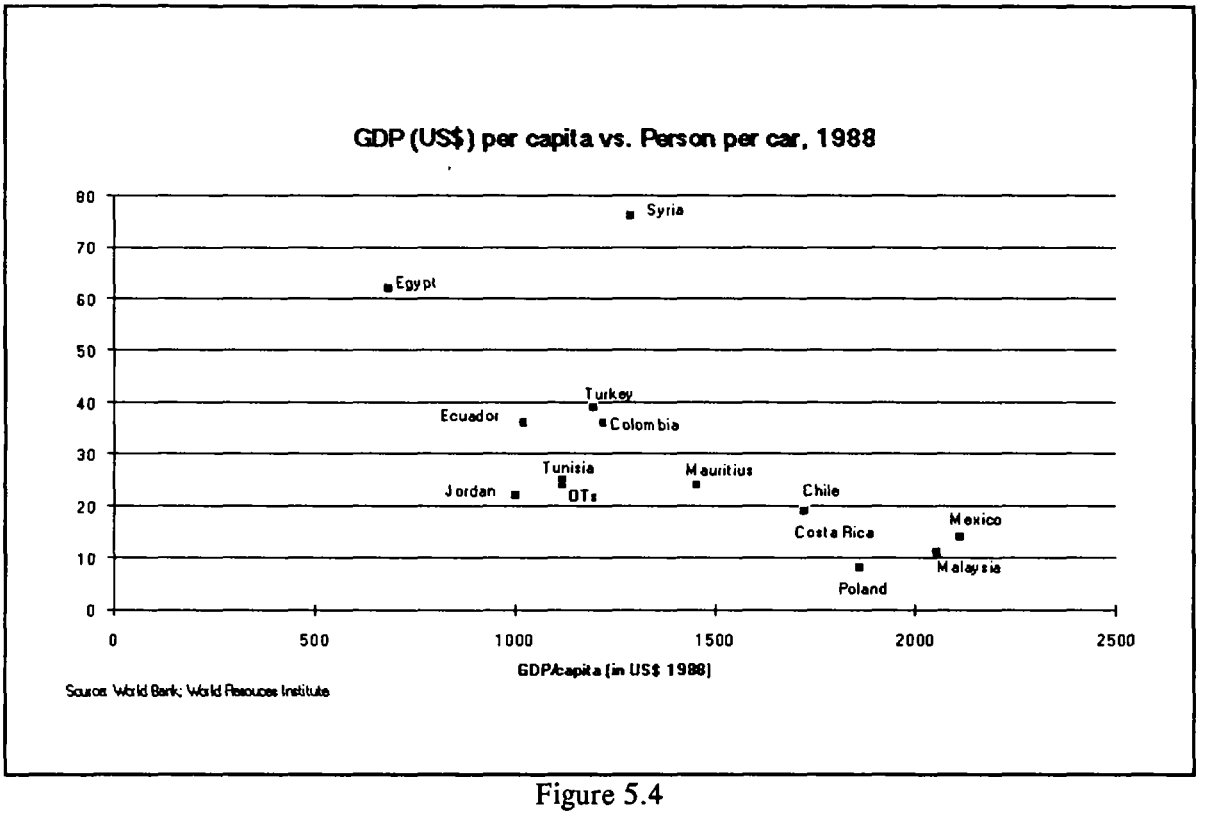

Figure 5.4

Transport Industries: Freight Transport

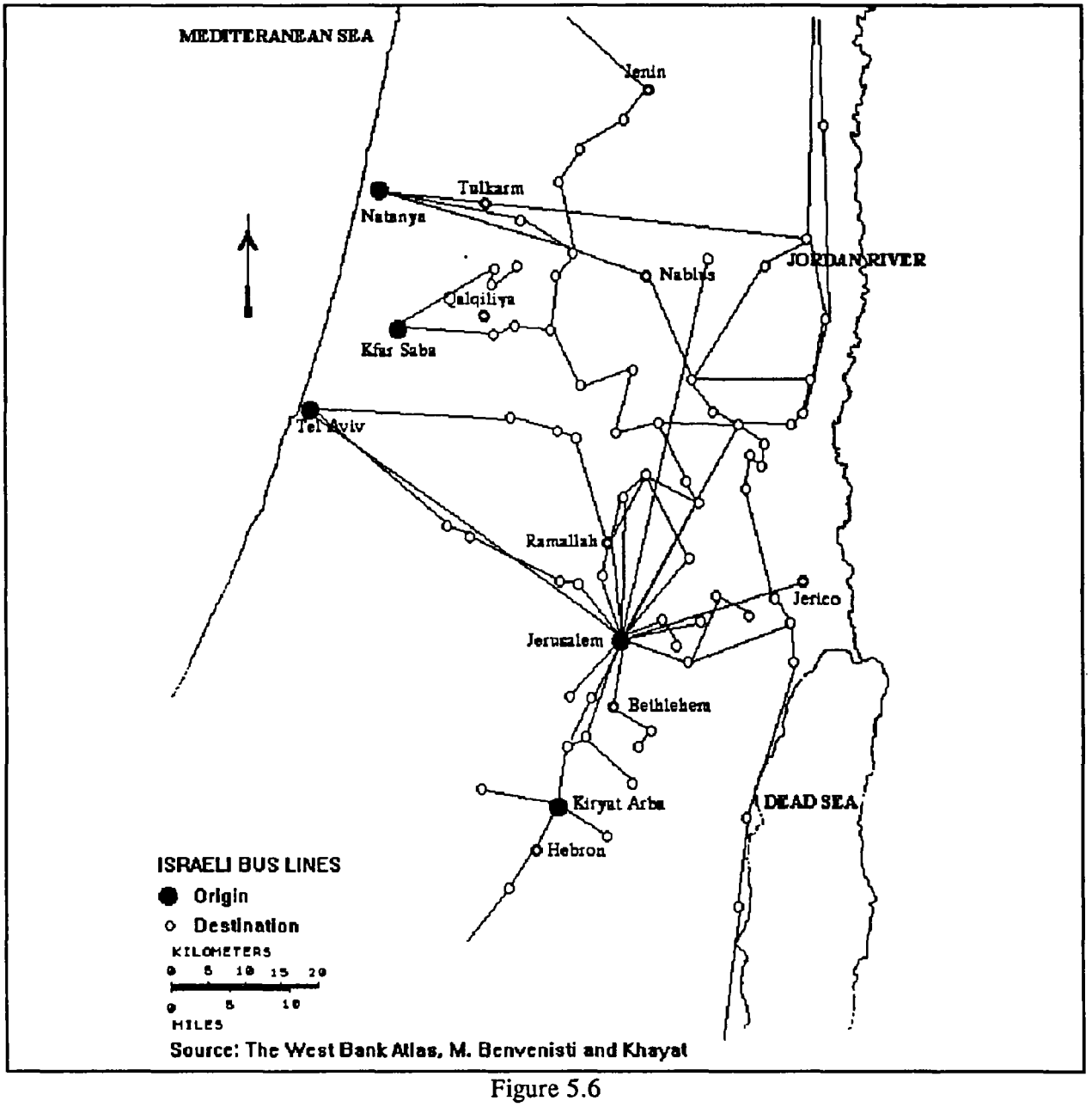

Figure 5.6

5.11 All internal and external freight movements in the OT are carried out by privately owned trucking companies. It is estimated that about 20,000 trucks of various sizes are in operation. However, due to problems similar to those facing the bus companies (high taxes, over priced spare parts, the high cost of new vehicles and the unavailability of financing), the trucking companies are also facing an uncertain

future. Most of the trucking fleet is old and obsolete. The industry is not well organized and lacks modern terminal facilities, particularly refrigerated storage for agricultural products. In addition, delays caused by the security concerns of the Israeli Authorities, e.g. at checkpoints and borders, add to the financial burdens of the trucking companies. Because road transport is the backbone of the system, an efficient road freight transport industry is essential for achieving a sustained regional growth in the OT. Therefore, the trucking industry needs to be supported, and the many problems facing the enterprises need to be addressed in the near future. As elaborated in the section on private sector development, financial reforms should be introduced to provide credit facilities for the trucking enterprises to renew their fleet. In addition, adequate foreign exchange should be allocated for imports of spare parts. Some technical assistance will be needed to monitor the development of freight and passenger services, regulate

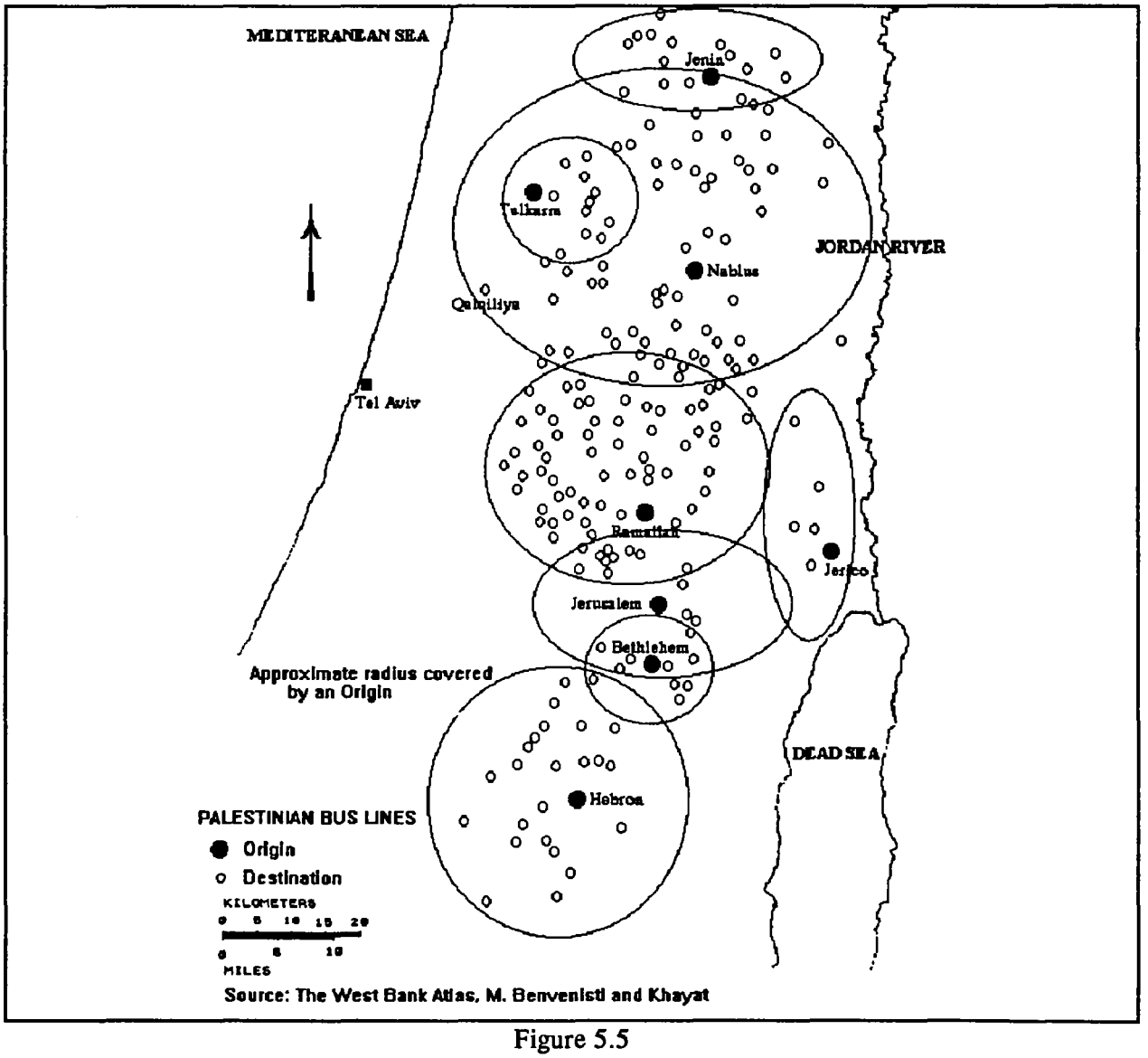

Figure 5.5

areas such as safety and to design policies that enable the private sector to play a major role in providing transport services.

Other Modes: Railways

5.12 The first railway facility in Palestine linked Jerusalem with Jaffa. Over the years this line was extended to Haifa and later other major cities in southern Syria. Under the British mandate, several new lines were constructed linking Palestine with the neighboring countries. By the late 1930s the railroad development activities in Palestine ceased for security reasons. After the establishment of Israel in 1948, the railroad tracks located in the West Bank and the Gaza Strip were closed to operation and finally abandoned. At present, there is no active railway facility providing service in the OT.

Other Modes: Ports

5.13 At the turn of the century, Palestine was served by three small ports (Acre, Jaffa and Gaza) on the Mediterranean coast. These ports handled only small boats. With the British mandate, the volume of traffic--both military and commercial--increased beyond the capabilities of these small ports. As a result, there was the need for a modern port facility capable of handling larger ships. Haifa was chosen for this purpose and the new port facilities started to operate in 1929. As a result, the role of the other three small ports became marginal. After 1948, the small port at Gaza became the only port facility in the OT that provided sea communication with the outside world, but is handled only small ships and fishing boats. The opening of a rail link between Haifa and Jerusalem started the decline of the port of Gaza; the events in 1948 sealed its demise. As Gaza was deprived its access to the hinterland, it had little or no prospect for maintaining its earlier position. The subsequent decline of the local fishing industry under Israeli occupation has eliminated the need for maintaining even the most basic port infrastructure. Today, the only sign of the port is a crumbling jetty extending a few meters into the sea. The region is presently served by modern facilities in the existing Israeli ports on the Mediterranean coast and the Port of Eilat and Jordanian Port of Aqaba in the Gulf of Aqaba. Therefore, the economic viability of a new port at Gaza will need to be assessed in the regional context. However, the Palestinians, consider this port an essential element of the future transport system of the OT and a Gaza Sea Port Authority has been proposed in the draft agreement being negotiated between Israel and the Palestinians.

Other Modes: Air Transport

5.14 Before 1967, the only airport in the OT was located in Qalandia (north of Jerusalem). The airport was opened to air traffic in 1952. However, international services from Qalandia were discontinued after 1967. The Israeli authorities have been using this facility primarily for local services. The airport consists of one runway of medium length and a single terminal building. At present, the airport serves local traffic and can handle all types of aircraft with the exception of Jumbo jets.

B. A Strategy for Future Development

5.15 The transportation sector in the OT needs urgent improvements in all respects to bring it to a level at which it can support the accelerated economic and social development expected to follow a peace settlement. The essential features of a transport sector development strategy, in terms of their importance and sequencing are:

(a) In the immediate term, mobilization of adequate funds to carry out the urgently needed rehabilitation and selective capacity expansion of municipal road network;

(b) The development of an effective institutional framework capable of planning, coordinating and implementing efficient sectoral policies and investment decisions; and.

(c) The training of a cadre of experts and professionals capable of monitoring sector development, formulating coordinated and efficient sector policies and investment and expenditure programs.

This strategy calls for the creation of a Palestinian transport planning capability, rather than the formulation of a transport plan. There is likely to be considerable uncertainty regarding the demand for transport services, political conditions and international transport links, which will mean that any plan will become quickly outdated. Consequently, a planning capability is needed that can be used to formulate appropriate investment and sector policies, in response to changing conditions.

5.16 The aftermath of a peace settlement is most likely to be accompanied by an increase in demand for transport services. Given that the existing facilities, both within the boundaries of the municipalities and those serving inter-city transport have generally suffered from years of neglect, their rehabilitation will have to be assigned high priority to prevent further deterioration of the system and to avoid permanent destruction of the capital stock. The poor state of the transport facilities is also a factor causing high vehicle operating costs, which puts an additional burden on both producers and consumers. In addition, capacity shortages in certain links of the network are already leading to unduly high transport costs. Unless these shortcomings of the sector are adequately addressed, future development efforts in the OT are likely to be seriously hampered.

5.17 Historically, because of the geographical position of the OT and the state of Israel, this region has been a bridge between Europe, Africa and Asia. For centuries, the ports such as Gaza and Jaffa have served as landing points for pilgrims, crusaders and traders. During the 19th century, the railway facilities linked this region with Syria, Turkey and Egypt. At the present time, there is also a growing interest among the Middle Eastern countries to link their infrastructure systems, including transport facilities. The recent agreement among Turkey, Syria, Jordan and Egypt to build a regional power grid is a good example of this type of coordination. It can be expected that with the normalization of the political situation, ventures that provide international transport linkages designed to increase economic interdependence in the region and to contribute to the development of the local economies will receive added impetus. In the long term, some parts of the transport system, particularly the main road networks, in the OT and Israel will need to be expanded to accommodate the growing international traffic in the region.

5.18 The long years of Israeli administration and the resulting limited Palestinian participation in the decision-making process have, for practical purposes, eliminated whatever institutional capacity that existed in the OT. At present, a set of institutions recognized as legitimate by the governed, and capable of exercising the normal government functions, are totally lacking. There is no Palestinian structure or administrative machinery that can formulate rational policies, determine sound investment and expenditure priorities or implement policy and investment decisions. This lack of institutional capacity, above all else needs to be addressed to bring about a well-coordinated and efficient transport sector.

5.19 The specific elements of the strategy proposed above, and the recommendations for improving the transport infrastructure and services, are grouped under three time horizons. These roughly correspond to the expected staging of the peace process and its aftermath.

(a) Short-term measures that can be implemented immediately that are not dependent upon the conclusions of the peace process, but which may require the agreement, or at least acquiescence, of the Israeli authorities in some cases.

(b) Medium-term measures covering the end of the first phase and the completion of interim political arrangements regarding the OT.

(c) The long-term period after the final political settlement.

Immediate-Term Measures

5.20 In the immediate term **particular attention should be given to training activities** to begin the process of institutional building. In particular, a technical group should be formed and trained in the use of analytical techniques to determine priorities in the sector and prepare a plan of action to begin the rehabilitation of the transport infrastructure, particularly the road network, as soon as the political situation allows. This core staff should also be trained to enable them to initiate, carry out, and/or supervise feasibility studies of urgently needed capacity-expansion works in the context of an integrated transport investment strategy. These training programs should be carried out in the OT through the technical assistance to be provided by consulting firms, official bodies of the donor countries, international agencies and also by the Palestinian experts who are presently performing this kind of work both in the OT and in a number of foreign countries. It is roughly estimated that these training and technical assistance programs would require a funding of about US$1.5 million. It is also estimated that an additional amount of US$4.5 million is needed to commence with feasibility studies for road rehabilitation and expansion projects to be implemented in the interim period.

Interim Period Measures

5.21 In this phase, a major effort should be launched to **rehabilitate the inter-city road network.** About 50 percent of the road system (1,084 km) needs to be rehabilitated (primarily pavement strengthening) without delay. The financial requirement for this program is broadly estimated to be US$175 million (based on the latest cost figures estimated for Jordan of US$160,000 per km of road rehabilitation). In addition, the efforts to rehabilitate and repair municipal road networks will require an

additional funding of US$65 million. Therefore, the total estimated amount needed for road rehabilitation program for this time period is about US$240 million.

5.22 Other medium term priorities include the connection of villages close to existing roads with paved roads, paved connections between villages close together and investments in road markings, signs, barriers, lighting, etc., to improve road safety. Some strengthening of agricultural roads also is needed depending on budgetary resources. Total cost is tentatively estimated at US$90.0 million of which, US$60.0 million for new roads, US$20.0 million for rural and US$10.0 million for road safety measures.

5.23 **Transport Services.** Wholly owned and operated by the private sector, the enterprises that provide inter-city road freight and passenger services have been functioning under a highly restrictive regime. It is assumed that the existing tax system and the non-safety related regulations and controls, which have been the primary source of the problems encountered by these enterprises, will likely be eliminated after a peace agreement. However, the adverse efforts of the long occupation years will remain and continue to impede the efficient functioning of the road transport industry. Because of their weak financial position and because of the unavailability of financing for the procurement of new buses and trucks, many enterprises have been forced to operate with reduced fleets. The existing fleet consists mainly of over-aged vehicles, leading to frequent breakdowns and high operating costs. The establishment of a transparent legal structure, for licensing new financial institutions and eliminating entry restrictions to the financial system, is needed to support and stimulate the road transport industry. In addition, incentives, such as reducing or eliminating import duties for the procurement of new vehicles and spare parts may be introduced to rejuvenate these enterprises.

5.24 **Feasibility Studies.** During this time frame, feasibility studies should be initiated to determine economic and financial viabilities of major transport projects and to assess their environmental impact. Among such projects, the expansion and rehabilitation of the Qalandia Airport deserves special attention. In all likelihood, an airport facility adequate to serve international traffic would be required once self-governing arrangements are in place. Qalandia enjoys a highly suitable location. About 20 percent of the total Palestinian population lives within a 15 km radius of the airport. In addition, it is accessible by most of the major highways. Nablus in the north and Hebron in the south are only about a 40-minute drive from the airport. There is also potential international traffic from the population of metropolitan Jerusalem following from an Israeli-Palestinian agreement. The existing facilities can already accommodate all types of aircraft, except the long-range jumbo jets. Because Qalandia airport is in the area of East Jerusalem annexed by Israel after the 1967 war, the feasibility of using this airport will be dependent on the outcome of the bilateral talks. However, irrespective of the territorial status of the airport, there are examples elsewhere of airports with dual immigration and customs facilities serving two countries, e.g., the Swiss/French Basel-Mulhouse airport. A feasibility study is needed to determine the extent and timing of the rehabilitation of the Qalandia Airport facilities and to assess their economic and financial viability. However, the feasibility of implementing the conclusions of the study would depend on bilateral negotiations.

5.25 Following a comprehensive regional settlement in the area, it can be expected that both passenger and freight traffic in the OT will grow, requiring additional road capacity. In order to determine the exact timing, phasing and the location of the needed capacity expansions for a highway development strategy needs to be formulated based on extensive feasibility studies. The existing traffic configurations in the OT suggests that the future highway system will primarily consist of three major routes running in a north-south direction. The main north-south route will link Jenin in the far north to Al Dahiriyah

in the south passing through important population centers such as Nablus, Ramallah, Jerusalem and Bethlehem. The exact alignment of this highway link will need to be determined depending on the outcome of the negotiation between the Israelis and Palestinians. An alternative route by passing the highly populated area extending from Ramallah to Hebron may also be economically viable. This route would serve demand for transport access to the West Bank and the Gaza Strip connecting the West Bank with Jordan in the east and the Gaza Strip and Egypt in the west. A second north-south highway linkage along the Jordan Valley may also be economically justified in the future and deserves a careful feasibility study. A third alternative north-south route that may be justified is the link between Tulkarm and Beit Sira. In order to meet the future transport demand, it may also be necessary to improve and expand the highway network along east-west directions. The three alternative routes need to be studied to determine their economic viabilities and optimal timing. The first alternative is the route linking Tulkarm, Jenin and northern Jordan through Al Maleh Bridge. The second alignment links Tulkarm, Qalqilia, Nablus and Amman through the Damiah Bridge. The third route that may require capacity expansion is the road linking Beit Sira with Jericho and Jordan. During the interim period, it can be expected that only a modest start could be made in implementing the road capacity expansions that are economically viable.

5.26 It is tentatively estimated that about US$60.0 million is needed for this purpose. The major developments in the main road networks should commence only after the completion of a comprehensive transport plan and detailed feasibility studies. It can be expected that the future highway network of the OT may become integral parts of international road networks that are being considered to link the Middle East with Europe in the north and North Africa in the west and the Gulf of Aqaba in the south. These possibilities should be explored in formulating long-term highway development plans.

5.27 The Palestinian technical committees and some donor countries have also shown an interest in reviving the Port of Gaza. Although the Palestinian interest in the port is largely based on employment generation and nationalistic reasons, the advocates of the port also claim that it would make economic sense as it could be a major outlet to the Mediterranean for Jordan and beyond. It is also argued that Aqaba and Gaza could operate as sister ports, allowing the region to take advantage of its enviable geographical location. The planned agricultural developments in Sinai financed and supported by the Egyptian Government could also provide an additional justification for reviving the port of Gaza. However, there may be unused capacities in the existing Israeli, Jordanian and Egyptian ports adequate to meet future regional and Palestinian demands. The construction of a modern, deep-water port at Gaza is a major undertaking (the initial cost estimates range from US$200 million to US$400 million). Before committing such substantial resources to the project, it is highly desirable to carry out a pre-feasibility study to determine whether a port facility in Gaza makes sense on technical, economic and financial grounds; such an analysis should be carried out from a regional, as well as a Palestinian, perspective. It is estimated that about US$7.5 million will be needed for the feasibility studies during the interim period.

5.28 In the intermediate term, efforts to build an adequate institutional structure need to be continued to improve Palestinian capability in sectoral planning, coordination, project preparation and implementation. Technical assistance and training programs initiated under the short-term time horizon need to be continued. An estimated amount of US$4.5 million is required. However, the exact content and extent of these programs needs to be determined after an evaluation of the efforts made in the short run.

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5.24 **Feasibility Studies.** During this time frame, feasibility studies should be initiated to determine economic and financial viabilities of major transport projects and to assess their environmental impact. Among such projects, the expansion and rehabilitation of the Qalandia Airport deserves special attention. In all likelihood, an airport facility adequate to serve international traffic would be required once self-governing arrangements are in place. Qalandia enjoys a highly suitable location. About 20 percent of the total Palestinian population lives within a 15 km radius of the airport. In addition, it is accessible by most of the major highways. Nablus in the north and Hebron in the south are only about a 40-minute drive from the airport. There is also potential international traffic from the population of metropolitan Jerusalem following from an Israeli-Palestinian agreement. The existing facilities can already accommodate all types of aircraft, except the long-range jumbo jets. Because Qalandia airport is in the area of East Jerusalem annexed by Israel after the 1967 war, the feasibility of using this airport will be dependent on the outcome of the bilateral talks. However, irrespective of the territorial status of the airport, there are examples elsewhere of airports with dual immigration and customs facilities serving two countries, e.g., the Swiss/French Basel-Mulhouse airport. A feasibility study is needed to determine the extent and timing of the rehabilitation of the Qalandia Airport facilities and to assess their economic and financial viability. However, the feasibility of implementing the conclusions of the study would depend on bilateral negotiations.

5.25 Following a comprehensive regional settlement in the area, it can be expected that both passenger and freight traffic in the OT will grow, requiring additional road capacity. In order to determine the exact timing, phasing and the location of the needed capacity expansions for a highway development strategy needs to be formulated based on extensive feasibility studies. The existing traffic configurations in the OT suggests that the future highway system will primarily consist of three major routes running in a north-south direction. The main north-south route will link Jenin in the far north to Al Dahiriyah

in the south passing through important population centers such as Nablus, Ramallah, Jerusalem and Bethlehem. The exact alignment of this highway link will need to be determined depending on the outcome of the negotiation between the Israelis and Palestinians. An alternative route by passing the highly populated area extending from Ramallah to Hebron may also be economically viable. This route would serve demand for transport access to the West Bank and the Gaza Strip connecting the West Bank with Jordan in the east and the Gaza Strip and Egypt in the west. A second north-south highway linkage along the Jordan Valley may also be economically justified in the future and deserves a careful feasibility study. A third alternative north-south route that may be justified is the link between Tulkarm and Beit Sira. In order to meet the future transport demand, it may also be necessary to improve and expand the highway network along east-west directions. The three alternative routes need to be studied to determine their economic viabilities and optimal timing. The first alternative is the route linking Tulkarm, Jenin and northern Jordan through Al Maleh Bridge. The second alignment links Tulkarm, Qalqilia, Nablus and Amman through the Damiah Bridge. The third route that may require capacity expansion is the road linking Beit Sira with Jericho and Jordan. During the interim period, it can be expected that only a modest start could be made in implementing the road capacity expansions that are economically viable.

5.26 It is tentatively estimated that about US$60.0 million is needed for this purpose. The major developments in the main road networks should commence only after the completion of a comprehensive transport plan and detailed feasibility studies. It can be expected that the future highway network of the OT may become integral parts of international road networks that are being considered to link the Middle East with Europe in the north and North Africa in the west and the Gulf of Aqaba in the south. These possibilities should be explored in formulating long-term highway development plans.

5.27 The Palestinian technical committees and some donor countries have also shown an interest in reviving the Port of Gaza. Although the Palestinian interest in the port is largely based on employment generation and nationalistic reasons, the advocates of the port also claim that it would make economic sense as it could be a major outlet to the Mediterranean for Jordan and beyond. It is also argued that Aqaba and Gaza could operate as sister ports, allowing the region to take advantage of its enviable geographical location. The planned agricultural developments in Sinai financed and supported by the Egyptian Government could also provide an additional justification for reviving the port of Gaza. However, there may be unused capacities in the existing Israeli, Jordanian and Egyptian ports adequate to meet future regional and Palestinian demands. The construction of a modern, deep-water port at Gaza is a major undertaking (the initial cost estimates range from US$200 million to US$400 million). Before committing such substantial resources to the project, it is highly desirable to carry out a pre-feasibility study to determine whether a port facility in Gaza makes sense on technical, economic and financial grounds; such an analysis should be carried out from a regional, as well as a Palestinian, perspective. It is estimated that about US$7.5 million will be needed for the feasibility studies during the interim period.

5.28 In the intermediate term, efforts to build an adequate institutional structure need to be continued to improve Palestinian capability in sectoral planning, coordination, project preparation and implementation. Technical assistance and training programs initiated under the short-term time horizon need to be continued. An estimated amount of US$4.5 million is required. However, the exact content and extent of these programs needs to be determined after an evaluation of the efforts made in the short run.

Long-Term Measures

5.29 The specific requirements of the sector in the long run cannot be determined at this stage. The major capacity expansion needs of the sector and their optimal timing will depend on the findings of the feasibility studies recommended above. In addition, the Government of Israel, as noted above in para. 5.26, has already developed plans to construct immediately some of the key links of regional highway networks which will serve international traffic. The availability of such facilities will clearly affect the economic and financial viability of future projects. Therefore, it is not possible to estimate, with some degree of confidence, the long-term funding requirements of transport networks that will serve international traffic. In the following table a notional amount of US$100 million is included to indicate that it is feasible that certain sections of an international highway facility serving the region may be located within the OT boundaries. However, there will definitely be a need for capacity expansions in selected portions of the main and regional networks requiring about US$160 million. In addition, the institutional building activities may need to be continued, depending on the progress made in these areas. A notional amount of US$250.0 million is included for the development of Qalandia Airport. The implementation of this project will depend on the outcome of the bilateral negotiations.

5.30 Below is a table showing the funding requirements of rehabilitation and expansion in the transport sector of the OT:

Summary of Financial Needs 1/
Transport Sector
The West Bank and Gaza Strip
(US$ million, constant 1993 prices)

Category	Immediate Term	Intermediate Term	Long Term
Physical Investments:			
Road Rehabilitation		240.0	
Rural Roads		20.0	
New Roads		60.0	150.0
Road Safety		10.0	
Qalandia Airport 2/			250.0
Regional Road Develpment 3/			100.0
Sub-total		330.0	500.0
Studies:			
TA and Training	1.5	3.5	
Feasibility Studies	4.5	8.5	
Sub-total	6.0	12.0	0.0
Total	**6.0**	**342.0**	**500.0**

Notes: 1/ The above investment figures should only be construed as tentative. They are based on preliminary estimates. Figures shown are commitments within the period indicated. Disbursements would follow commitments with a lag of several months.

2/ Since Qalandia airport is in Israeli annexed East Jersualem, the feasibility of implementing this project will depend on the outcome of bilateral negotiations.

3/ The estimated cost figure refers only to those sections of a future international highway facility in the region that may be located within the West Bank and Gaza Strip boundaries.

Source: Mission estimates.

VI
SOLID WASTE SERVICES

6.1 Both observation and anecdotal evidence indicate that delivery of solid waste services in the occupied territories (OT) is not adequate. Neither the initial "collection" or final "disposal" stages.[1/] appears to function well in the OT. While no data were available to the mission, visible uncollected refuse is evidence that collection does not meet needs of residents. There are no modern sanitary landfills in the OT. Refuse is simply dumped outside municipal[2/] boundaries, and often burned to reduce volume.

6.2 Inadequate collection and disposal of solid waste does not contribute to the quality of life in the OT. Household wastes and rusting automobile bodies are part of the landscape. Beyond aesthetics, implications of inadequate service delivery are serious. There are both health and environmental concerns associated with inadequate systems for collection and disposal of solid waste. Uncollected waste can serve as vectors for disease. Disposal sites which are not correctly prepared can lead to groundwater contamination. Open burning of refuse contributes to air pollution -- which in turn can aggravate health problems.

6.3 Absence of adequately delineated arrangements for accountability and resource authority contributes to the current inadequate levels of solid waste service delivery. Conditions in this sector are similar to those surrounding delivery of other local services in the OT. Local government, generally, is characterized by limited accountability and constrained authority over resources.[3/]

A. Current Arrangements

6.4 Delivery of solid waste services are the responsibility of municipalities in the OT. Delivery of services, however, seems to be uneven at best. Appropriate disposal is virtually non-existent because, as noted above, there are no sanitary landfills available to municipalities. Even if sanitary landfills were available, it is not clear that solid waste services would be adequate. There are significant problems with the delivery system at the collection stage: there seems to be an absence of effective accountability. Local governments that fail to deliver services face no visible sanctions -- and residents do not seem to facilitate collection of refuse. For example, there have been some instances where new dumpsters were set on fire by local residents and destroyed as soon as they are placed at collection sites.

6.5 Thus, while local governments are nominally responsible for of solid waste services, they do not appear to be accountable for delivery of these services. Further, it is not even clear that municipalities have the financial means necessary to deliver such services. From the data available, it is not possible to identify levels of either capital or recurrent expenditure on solid waste services. It is known that

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1/ Transfer of wastes between local collector vehicles and larger long-haul vehicles can also be a feature of a solid waste service system. For ease of discussion in this note, transfer facilities are categorized as part of the disposal -- as distinct from collection -- activity.

2/ Consistent with the usage in Chapter 2, all local jurisdictions are referred to as 'municipalities' in this chapter. See Annex 2.1 for greater detail.

3/ See chapter 2.

recently capital investments have been made in collection dumpsters and trucks -- but not in modern sanitary disposal sites.

6.6 In Gaza, no local fees are levied for the delivery of solid waste services, while a combined fee for sewerage and solid waste services is levied in the West Bank. Municipal rates for solid waste, as with other fees, are controlled by the Civil Administration (CA), and are maintained at relatively low levels. It is not possible, using available data, to determine the relation between fee receipts and current costs of service delivery. Discussion with the mission seemed to indicate, however, that solid waste collection is one of the few services actually delivered from the local level. Given this, it is reasonable to assume that solid waste services-related expenditures constitute a non-negligible share of total municipal expenditures.

6.7 It is clear, as reflected in Table 6.1, that revenues generated from solid waste fees represent only a small proportion of total municipal revenue. Thus, it appears highly likely that insufficient revenues are generated by solid waste service fees to cover the costs of delivering the current level of services.

TABLE 6.1: Municipal Collections for Solid Waste Service in the West Bank

	1988/89	1989/90
Sewerage & Garbage Fee Collection ('000 NIS)	1,673	1,184
As a percent of Ordinary Revenue	9.38%	5.56%
As a percent of Total Revenue	3.38%	1.86%

This apparent gap between fee receipts and service delivery costs would undoubtedly be even greater if adequate services were being delivered. Furthermore, the absence of sanitary landfills presently relieves municipalities of costs associated with delivery of adequate services.[4/]

6.8 Possible alternative arrangements for delivering solid waste services in the OT are discussed below.[5/] Rough estimates of the magnitude of investment required to build sanitary disposal facilities are also given. The analysis is indicative only, as detailed and thorough analysis--or, at a minimum, quick reconnaissance study--of service delivery needs and alternatives should be completed before further investments are made in solid waste disposal systems in the OT.[6/]

4/ This is not insignificant. In a modern solid waste service system, disposal (as opposed to collection) costs typically represent approximately 35 percent of solid waste service costs.

5/ The assumption is made that accountability between municipalities and service consumers (i.e. residents) and between jurisdictions will develop as a consequence of strengthening local governments.

6/ This work has apparently begun, with Italian assistance.

6.9 It is imperative that feasible environmentally-sensitive options be highlighted in evaluating alternative arrangements for delivery of solid waste services. Thus, activities complementary to collection and disposal (i.e. demand management options) warrant investigation. For example, one issue worth attention is whether an activity such as the Alexandria (Egypt) Pilot Composting Project is replicable in the OT. Compost is an excellent soil conditioner, and should have a local market. Similar investigation should be made into recycling of inorganic materials. Any arrangement finally chosen for delivery of solid waste services should be identified using environmental and recurrent cost recovery concerns as primary criteria.

B. Alternative Arrangements

6.10 Solid waste services are comprised of both collection and disposal activities. Transfer and disposal of solid wastes are characterized by relatively high initial capital requirements, relative to collection activities. Given this, and the fact that there are currently no modern sanitary landfills available in the OT, the bulk of this note focuses on investment alternatives in disposal activities.

6.11 **Collection**: The main issues on the collection side in the OT are: (a) who will produce the service; and (b) who will pay for the service? Collection activities themselves are usually most effectively handled at the municipal (or even sub-municipal) level. There is room for private sector participation in this sector, as solid waste collection are services often successfully contracted-out. For this reason, no estimates of investments in collection capacity are included here.

6.12 Both user charges and benefit taxes[7/] are reasonable means of covering costs of delivering these services. In the OT, benefit taxes are likely to be the most practical means of paying for the service. The technology required to implement actual user charges for collection services is likely -- at this stage -- to be prohibitively expensive and cumbersome to manage. At least in the West Bank, the means of charging users for solid waste services are already in place in the form of the garbage fees. The delivery system is not working particularly effectively at this time, but this probably has more to do with the overall status of local governments than it does with solid waste services *per se*. Thus, success of any charge applied for solid waste services will be at least partially dependent upon both local governments' ability to control revenues and users' perception of increased responsiveness by local governments.[8/]

6.13 **Disposal**: Given the spatial limits and configuration of the OT, it appears as if between one and four landfills would suffice to meet solid waste disposal needs. Installation of one large landfill in a relatively isolated location, combined with a system of approximately six waste transfer stations, is one option. Another option is to handle waste disposal on a regional basis within the OT, which would require installation of approximately four landfills -- but no transfer facilities. Possible characteristics

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7/ A 'user charge' reflects an identifiable relation between service consumed and cost paid. User charges can be applied in those instances where 'users' are clearly identifiable (i.e. metered house water connection). A 'benefit tax' is applicable in those cases where (1) it is more difficult to identify consumption patterns of individual users and/or (2) there are significant externality effects. A property tax surcharge for street lighting is an example of a benefit tax.

8/ See note on local government for expansion of this point.

of each of these options are briefly discussed below. Included in each discussion are rough estimates of respective investment costs.

6.14 Feasibility of the *single landfill and transfer system* option is largely a function of: the availability of a sufficiently large and isolated site not subject to serious groundwater contamination concerns; and the opportunity to use long-haul transfer in the OT. If this arrangement is chosen, sites should be selected carefully, with due consideration to both overall transfer costs and environmental implications. This latter is a key issue in the OT, given concerns of groundwater contamination.

6.15 Under such a system, local governments -- or their designated agents (i.e. private firms) -- would be responsible for primary collection of solid wastes. This service would likely be most effectively financed by a locally-controlled and levied benefit tax -- whether collected by local government or its agent. Given the regional nature of a larger transfer and disposal system, this portion of service delivery would be most effectively handled by a regional disposal authority. Any such authority should be established as financially autonomous, to which individual localities would subscribe. Standard tipping fees would be levied throughout the system.

6.16 Estimated costs -- investment and recurrent -- of such a system capable of meeting OT solid waste disposal needs for a ten-year period are presented below.

Table 6.2: Estimated Solid Waste Disposal Cost in OT: Single Landfill and Six Transfer Stations

	Required Capacity (tons/yr)	Landfill Investment Cost (US$ mil)	Landfill O&M/YR (US$ mil)	Transfer Investment Cost (US$ mil)	Transfer O&M/YR (US$ mil)
GAZA					
Low Estimate	122,275	12.23	1.83	6.11	0.61
High Estimate	220,095	22.01	3.30	11.00	1.10
WEST BANK					
Low Estimate	182,500	18.25	2.74	9.13	0.91
High Estimate	328,500	32.85	4.93	16.43	1.64
TOTAL INVESTMENT NEED					
Low Estimate		30.48		15.24	
High Estimate		54.86		27.43	

Assumptions behind these calculations are detailed in Annex 6.1. Total investment costs for both landfill and transfer facilities for the OT range between US$45.7 million and US$82.3 million. Breadth of the range is attributable to uncertainty regarding actual volumes of solid waste generated in the OT.

6.17 Nominal costs for the full useful life of these facilities would actually be much higher: US$106.7 million using the low estimate of waste volume; and US$192.0 million using the high estimate of waste generated. These useful-life costs reflect the fact that initial capital investment represents a relatively small proportion (approximately 40 percent) of solid waste service costs.

6.18 Another possible configuration for a solid waste service system in the OT is *multiple sanitary landfills*. Given the population and extent of the OT, it is estimated that up to four landfills would be required to provide adequate disposal without requiring long-haul transfer of solid wastes. Similar to the option discussed above, under a system of multiple landfills, each municipality would be responsible for primary collection of wastes. This service could be a self-produced or contracted-out.

6.19 Each sanitary landfill would serve multiple municipalities. Operation of each landfill could be handled independently, or alternately, the system of landfills could be managed collectively. In either case, management could be by autonomous public agency or private entity. Whether management were vested in a public agency or private entity, it would be important to monitor and/or manage a system of uniform tipping fees. There are two reasons for this. Fees need to be set at levels so that users do not have incentive to seek alternate means of disposal (e.g. random dumping). At the same time, fees need to be managed within a range so that there are not incentives for over-utilization of some sites and under-utilization of others. Either strategy would be likely to yield environmentally inappropriate and unsustainable outcomes.

6.20 An indicative estimate of costs for multiple disposal sites is presented below in Table 6.3. Again, a ten-year useful life is assumed, and a range of estimated costs is given.

Table 6.3: Estimated Solid Waste Disposal Costs in OT: Multiple Landfills and No Transfer Facilities

	REQUIRED CAPACITY (tons/yr)	INVESTMENT COST (US$ mil)	OPERATION & MAINTENANCE (US$ mil/yr)
GAZA			
Low Estimate	122,275	9.17	0.92
High Estimate	220,095	16.51	1.65
WEST BANK			
Low Estimate	182,500	13.69	1.37
High Estimate	328,500	24.64	2.46
TOTAL INVESTMENT NEED			
Low Estimate		22.86	
High Estimate		41.14	

Total capital investment needs in this sector are estimated to range between US$22.9 and US$41.1 million. Investment costs for these facilities are lower than those for a one-landfill with transfer facilities system, partially because small landfills could be built to lower initial standards than one large-capacity site. Full useful-life nominal costs of multiple landfills, without transfer facilities, are estimated to be between US$45.7 and US$82.3 million. Within the range of US$23 million to US$82 million to construction new disposal facilities, if we assume an actual cost of US$70 million an additional cost, estimated at US$30

million, for closing existing facilities may be required. Thus the total capital cost for solid waste disposal is estimated at US$100 million. These overall estimates, however, reflect neither premiums for building landfills in areas with potentially serious groundwater contamination problems or intangible costs of community reaction which may be associated with siting smaller landfills.

Evaluation of Alternate Arrangements

6.21 It is not possible, without more extensive data, to make an informed recommendation between the alternative arrangements discussed here. The indicative cost estimates given above are not directly comparable: they reflect disposal costs only. Evaluation of available options, however, must be based on overall service delivery -- including collection -- costs.

6.22 While it appears, from the estimates presented in Tables 6.2 and 6.3, that costs of the one landfill with transfer facilities option exceed those of the multiple landfill without transfer facilities system, this may not be the case. Use of transfer facilities can contribute to greatly reducing solid waste collection costs. Trucks used only for short-haul collection in a system that includes transfer stations are substantially smaller -- and less expensive -- than trucks required for a system without transfer facilities. Thus, it may be that installation of one sanitary landfill and associated transfer facilities comprises part of an overall least-cost arrangement for delivering solid waste services. Steps to gather essential data for preparation of comparable overall delivery system cost estimates are noted in the next section.

C. Constraints on the Sector and Recommendations for Further Action

6.23 Several factors are currently constraining delivery of solid waste services in the OT. The primary factor appears to be absence of clearly accountable service providers. Further, absence of adequate knowledge of specific solid waste generation patterns, inadequate investment and an absence of adequate local recurrent resources all contribute to sub-optimal service capacity and quality. Most of these constraints are not binding.

6.24 Changes will be needed to make suppliers of solid waste services accountable to users.[9/] Some of the steps necessary to achieve this end will only be practicable in the longer term, as efforts are made to integrate a network of service delivery within the OT. There are, however steps that can be taken in the near term to facilitate improvements in delivery of solid waste services in the OT. Three actions can be taken immediately.

6.25 First and foremost, the broad outlines of a solid waste disposal system for the OT should be agreed after consultation among relevant actors -- including representatives from each municipality as well as environmental experts. While final decisions on system configuration (i.e. multiple landfills, or one with complementary transfer facilities) should not be taken until relevant studies have been completed, discussion of such issues as inter-municipal cooperation, regional initiatives for demand management and landfill siting criteria, could begin immediately.

9/ See Chapter 2 for a more detailed discussion of the issue of improving arrangements for accountability in service delivery.

6.26 Other actions which can be taken immediately are:

- expansion of investment in collection capacity through purchase of collection vehicles;
- introduction of technical assistance and training activities to up-grade existing disposal practices; and
- initiation of studies to identify least-cost alternatives -- including location of landfills.

Investment in small collection vehicles will help improve the quality of life in the poorer municipalities. The technical assistance, training and studies which can be acted upon immediately are detailed below in Table 6.4. Briefly, the recommended technical assistance and training address on-going disposal problems. The studies are targeted to ensuring effective and environmentally sustainable investment in solid waste services for the Occupied Territories. Another US$0.5 million will be required to continue the training programs and technical assistance in the interim period.

6.27 It cannot be over-emphasized that construction of the landfill(s) should begin as soon as possible. Current disposal practices are not adequate and create serious environmental problems. Once modern sanitary disposal facilities are available, pre-existing dump sites will need to be cleaned up and closed. The longer these two steps are delayed, the more costly they are likely to be in environmental terms. Consequently, and because of possible objections by local residents to new disposal sites and to encourage public participation in maintaining clean cities, one of the short-term recommendations (see Table 6.4) is for introduction of a community-awareness program.

TABLE 6.4: Immediate Action Outline:
Technical Assistance, Training and Studies
for the Solid Waste Sector in the OT

Technical Assistance & Training to:

Up-grade existing dumping practices

Introduce Community Awareness Program

Train Sanitary Engineers

Total Cost — US$500,000

Studies on:[a/]

Services Demand Assessment
- Volume and composition of wastes generated
- User needs and willingness-to-pay

Disposal System Alternatives
- Technical, Financial and Economic Investment Analyses
- Operational Costs and Cost Recovery Options
- Landfill Siting (i.e. geological & environmental)
- Regional Cooperation Options
- Closing of existing sites

Recycling Feasibility and Markets (including pilot)

Composting Feasibility and Markets (including pilot)

Total Cost — US$1,500,000

a/ Options for private sector participation (PSP) in the sector are not explicitly included as a separate study item, as these issues should be incorporated in activity-specific analyses.

Annex 6.1

Assumptions used to arrive at indicative investment needs for delivery of solid waste disposal services are detailed below.

Population:

A future population for capacity design purposes of about 2.5 million. (Current population is abour 1.9 million.)

Volume Generated:

The volume of solid waste generated per capita is estimated to be between 500 grams (low estimate) and 900 grams (high estimate) per day.[a/]

Investment Costs:[b/]

For one high-standard modern sanitary landfill, investment costs are estimated at US$10 per [metric] ton capacity.

Transfer station investment costs are estimated at US$5 per [metric] ton capacity.

For lower-volume capacity modern sanitary landfills, investment costs are estimated at US$7.50 per [metric] ton capacity.

Recurrent Costs:[b/]

Based on international experience, initial site preparation represents, at most, about fifty percent of overall solid waste disposal costs.

For one large landfill, a unit cost of US$15 per [metric] ton is used to estimate recurrent costs.

For transfer facilities, a unit cost of US$5 per [metric] ton is used to estimate recurrent costs.

For lower-volume capacity modern sanitary landfills, investment costs are estimated at US$7.50 per [metric] ton.

[a/] Sandra Cointreau, (1984) p. 167.

[b/] Both relative percentages and approximate costs are drawn from: Sandra Cointreau-Levine, 1992.

VII
HOUSING

7.1 The OT are well positioned to develop a modern housing policy that can contribute directly to improving housing for all Palestinians and, indirectly, to developing of the economy. Housing policy is not simply a question of fixing a component of the social welfare system. The linkages between the housing sector and the macroeconomy are explored in this chapter, through the real, fiscal and financial circuits of the economy.

7.2 This chapter first presents a conceptual and analytical framework for understanding the housing sector in the OT and defines the broad characteristics of a well-functioning housing sector. The second section of this chapter describes the present status of the housing and urban land markets in the OT and compares it with 10 other economies[1/] of similar income levels. The third section of this chapter outlines the key elements of an enabling strategy, which is necessary in order to leverage scarce public resources and create a well-functioning housing sector. Seven key instruments of an enabling strategy are discussed--three to stimulate the demand for housing, three to facilitate housing supply and one to manage the sector in a manner that ensures that markets provide adequate and affordable housing for all. The fourth section suggests next steps for studies and technical assistance in the sector.

Housing and Urban Land Policy Reform

7.3 The objective of good policy for the sector aims at maximizing the contribution of the housing sector to the economic and social development of the OT. This requires that housing and land issues be set in a broad context, where not only obvious problems, such as low levels of new production and the high cost of shelter, are considered, but, where the linkages between housing and the broader goals of development are kept in focus. The OT are already substantially urbanized areas, and most economic strategies for their development are likely to lead to even further growth of the cities, towns and villages. As is the case with many thriving developing economies, the success of development objectives will depend on the functioning of urban areas, which in turn depends, in part, on how well the housing sector works.

7.4 The concept used to describe the objective of housing policy reform is referred to as the "well-functioning housing sector." This view has been articulated in the Bank's recent housing policy paper and is based on the workings of the housing sector from five distinct points of view: housing consumers, housing producers, housing finance institutions, local authorities and central governments. Each of these *actors* has distinct desires in respect to the housing sector, and good housing policy resolves these differences by making the trade-offs as explicit as possible and by suggesting an open and transparent decision-making process in the sector.

1/ The ten countries are Thailand, Tunisia, Jamaica, Turkey, Jordan, Chile, Poland, Mexico, Malaysia and Algeria. All comparative data is drawn from the *IBRD-Habitat: Housing Indicators Project*. Full details are available in Table 1.

A. Present Status of the Housing and Urban Land Sector

7.5 The housing and urban land sector in the OT exists in a policy vacuum where sector problems are compounded by the political environment. At present, there is no explicit policy toward housing per se. The Israeli Government for the OT, the Civil Administration (CA), has taken strong actions, such as prohibiting building outside the existing municipal boundaries, which severely affect the housing sector, but no overall policy has been articulated at present. On the Palestinian side, the organizations involved in housing operate on a purely welfare basis at this time.

7.6 The lack of explicit policy is further complicated by a complex set of governing laws. Ottoman law applied until 1917. The mandate imported many British rules and regulations, which applied from 1922 to 1948. At that point, Gaza came under Egyptian control and the West Bank became part of Jordan and subject to all Jordanian laws. Since 1967 the Israelis have applied a combination of laws from the three preceding regimes, modified by many military orders. Present debate focuses on the process of issuing and applying the military orders, as well as the content of the various legal frameworks in use. Overall, the present situation is one of extreme complexity, antiquated statutes and, as a result, much friction between the parties involved.

7.7 Much of the policy and institutional infrastructure found in most countries does not exist in the OT. There is no direct governmental activity in the sector, such as publicly built or owned housing. The fiscal system, as applied to taxation and service provision to the housing sector, is very weak. At present, there is also no formal financial system to serve builders, home buyers or those who might provide infrastructure.

7.8 Obtaining data on the housing sector is also a problem. Although the Israeli Government did collect statistics on the OT, their efforts have been largely stopped since the start of the Intifada in 1988. No Palestinian organization has picked up this function. The cash nature of the economy, the use of three different currencies and the considerable capital flows into the OT from outside all obscure the level and nature of economic activity in the sector. Conflict over political matters also provides incentives to conceal transactions and evade even the minimal existing regulations.

Demand for Housing

7.9 According to the Israeli CBS, the end 1992 population is estimated at 1.77 million, although other estimates by Palestinian and Israeli researchers would place the current population at some 10-12 percent higher, i.e. close to 2 million. However imprecise the current population estimates, the rate of increase for all of the OT is high by international standards. Only 8 out of 200 countries covered in the most recent World Bank Atlas report a higher growth rate. One result of such rapid population growth is the young age structure of the population. In the OT approximately 50 percent of the population is less than 15 years of age. Household formation is also proceeding at a rapid pace. According to recent studies, the annual rate of household formation during the past five years is 5.4 percent.

7.10 One of the key uncertainty concerning the future of the housing sector in the OT is the possibility of returning population. Recent UNRWA estimates are that there are about 3.5 million Palestinians outside the OT. The outside population is, therefore, approximately twice the number of people living in the OT. Some of the Palestinians living outside have maintained residency rights in the OT and are, in principle, free to return, while the return of others will be subject to negotiations between Israel and the Palestinians. How many Palestinians might actually return would also depend upon their perception of future economic opportunities in the OT. Although the number who might return is unknown, the implication for the housing sector is clear. Even a small share of the outside population returning would present a tremendous demand surge for both housing and urban land. This makes the benefits of having a responsive supply system even greater than they would be in a place with little or no immigration. The policy objective should be to have an environment that can adjust efficiently to such uncertainty; an environment where demand surges are reflected in increased output, rather than increased prices, to the extent possible.

7.11 There is already some evidence that Palestinians outside the OT are bringing back money to invest in real estate. Authorities should have some emergency plans to accommodate rapid inflows, should they occur. The main effort, however, should be to make the supply system work as responsively as possible; this involves fixing everything from the way municipal boundaries are set; how infrastructure is planned and financed (e.g., letting developers build and pay for their own infrastructure in order to permit them to use cheaper land and to avoid the long delays in the public supply of infrastructure), how permits are given; and how the building industry responds to consumers' desires in the context of policies and regulations.

Supply of Housing

7.12 The outcomes observed for urban housing in the OT are characteristic of strong demand in the context of a restrictive supply system. The result is high relative prices for *new* dwellings and high levels of crowding for those of modest income. Rather poor information on the relative price of *existing* housing makes it seem similar to comparators (Table 7.1), 3.4 times the annual incomes in the West Bank and 5.5, in Gaza. The median for 10 comparators is 5.0. However, there is reason to believe that the relative price of new units is much higher. The *least expensive* new units sell for about $45,000, which is approximately four times the estimated median household income. Median new house price to median income would be a multiple of about 7 to 8 times annual income, a level toward the upper end of the range for market economies.

7.13 Output of new housing units in the OT was only "average" in the late 1980s. According to data for 1987, the OT produced 4.9 units per one thousand people, 6.4 in the West Bank and 2.5 in Gaza. Production in the West Bank is the same as the median for the comparators while new construction in Gaza may have been kept low by the greater difficulty in obtaining serviced land. Gaza reporting may also be distorted due to the large share of residents in the refugee camps. Evidence is that the rate of production in the OT overall has grown since 1987, especially after the start of the peace talks.

7.14 The high prices are also reflected in the very large share of GDP required to deliver this average level of output. While typical output in an area with high levels of uncertainty, such as the OT, may seem indicative of good performance, the level of investment required to achieve it tells another story. Using data from the 1987 national income accounts, the ratio of investment in private building and

construction (which includes a small amount of commercial construction) to GDP is very high - 20.3 percent. Despite the rather modest number of units per capita, this ratio far exceeds similar comparator producers where the median level is only 7.4 percent of GDP. The result is a substantial use of economic resources for a modest output of new housing units in the OT.

7.15 According to the available statistics[2/] the average number of persons per room is 2.3, which is high for this income level. The distribution of occupancy shows a more accurate picture of the living conditions of the poor, where more than one third of households live with three or more persons per room. Although no income comparisons are available it is likely that the poor are disproportionately represented by those living in the refugee camps. In the West Bank about 7 percent of people live in 20 camps, all in urban areas. In Gaza the share of camp dwellers is higher, about 50 percent of the population. Although these camps have existed since 1948, in most cases the status of people living there is different than the poor outside the camps. No tenure security is formally recognized in the camps, but the fact that people build substantial housing units and that there is a rental market indicates that people believe they have some rights. The building code and the arrangements for local services in the camps are also different than in the rest of the OT. Much of the housing built has been on smaller lots than permitted outside, without rules such as set-back and lot coverage, creating much higher densities. However, the camps do not look like squatter settlements in that street right-of-ways have been kept clear, and the level of some services, such as solid waste collection, is often as high as in the neighboring communities. In part, this reflects the UNRWA provision of these services and the existence of many NGOs in the camps.

7.16 Rental accommodation is in short supply[3/] because, with present rent controls, the construction of rental units is unattractive. Rent levels are very low, about 5 percent of income, which reflects the tightly enforced rent control regulation. Typical rents in the 10 comparator cities are much higher, with 20.5 percent of median share of income spent on rent. Interestingly, the present "fixed for all time" rent control in the West Bank is derived from Jordanian law during the 1948-1967, period which has been abandoned in Jordan but not in the West Bank. Although there is no direct information available on the supply of rental accommodation, discussions with the mission indicate that finding a rental unit is very difficult, and one must often resort to relatives and friends to secure rental housing. The proportion of owner-occupied housing is higher than expected[4/], both in towns of the West Bank and in Gaza, reinforcing the conclusion that rent control has suppressed the supply of rental units. While the average monthly rental for a typical 135m^2 apartment in the West Bank is about NIS 100 (see Table 7.4), new rentals amount to about NIS 400.

2/ Data from Construction and Housing in the West Bank and Gaza, West Bank Data Base Project, Jerusalem, 1989. There is some partial data from Palestinian sources suggesting that the average number of persons per room is even higher at around 3.

3/ There is no data on rental accommodation in the OT. Discussions with the mission indicate that there are practically no landlords with multiple units for rent. Rental accommodation is viewed less as an investment or business than as a means of financing a dwelling or retaining ownership of the land.

4/ Owner occupancy is estimated at 69 percent in the West Bank, and 98 percent in Gaza, versus 63 percent in the 10 comparators.

7.17 This long-term picture of the imbalance between the supply and demand for rental units has probably been made worse by the high inflation of recent years. In these circumstances, the nominally fixed regulated rents will pose an even greater risk to landlords. For commercial properties, this risk is being offset by requiring large "key money" deposits at the outset of the lease. Both commercial and residential rents are now often denominated in US dollars to hedge against changes in value of the Israeli shekel and the Jordanian dinar. Although there may be factors that encourage the production of rental units, such as the practice of extended families living in close proximity and the need to finance housing by renting out parts of buildings, it is clear that the rent control is a binding constraint at present.

7.18 Housing should be thought of as a bundle of services rather than simply the dwelling unit itself. The quality of and access to urban services greatly influence the actual and perceived utility that a family derives from the housing unit. This report includes separate chapters on water, sanitation, electricity, roads, and some other urban services. The coverage of services in the major urban areas is fairly high, but that the quality of service is often low and variable. While improving those services is not a housing problem *per se*, it is worth noting that more and better services will indirectly contribute to better housing conditions. The most obvious indirect linkage, however, is that better infrastructure and service provision may be the critical factor that determines the expansion of buildable urban land. If the regulatory environment that influences urban infrastructure and service provision is not conducive to responsive and efficient expansion, then land prices will be higher than necessary and housing conditions worse.

7.19 The high relative prices for new housing in the OT are a result of distortions in the input markets for both housing construction and serviced urban land. Construction costs at $300 per sq m, are very high for an economy of this income level (the median for the 10 comparators is only $157). The value of serviced urban land at $60 per sq m[5/] is, however, about the typical median price of $66 in 10 comparator cities.

7.20 The cost of new construction in the OT is high at present, in part, because the standards are high. All new units are of masonry construction with high levels of finish. These high standards may be less the product of inappropriate regulation and more the result of limited access to new dwellings by moderate and lower income classes because no financing is available. Building materials such as stone, aggregates and some manufactured items are produced in the OT, but other items and raw materials come from Israel, where many items are priced well above levels in neighboring countries. In addition, the very restrictive regulatory environment, which only confers permits on about half of the new construction and which makes constructing a new dwelling take as long as 18 months, pushes up the costs per unit of housing. High costs per sq m translate into high prices per house because units are large (the average floor area of a new unit in 1992 was 140 sq m) and are built on large lots (minimum of 500 sq m). In the 10 comparators, the median unit size[6/] was 61 sq m and the median minimum lot size was only 96 sq m.

5/ This number is almost double the price of land in Jordan, however.

6/ The data reports this as the median size of the entire housing stock, but our estimate is that the new units would only be about one third larger, making the estimated median for new units 81 sq m at most.

The Land Market

7.21 The supply of serviced urban land suffers from similar cost-increasing distortions even though the typical price per sq m is only about the median level of the comparators. Land area per housing unit in the West Bank may be about five times the comparators' median, however, because of the very high minimum lot size requirements. While the minimum lot size in Gaza is similar to the West Bank, this is not strongly enforced. The overall supply of urban land is determined by zoning. In aggregate, municipal boundaries in the OT have not been expanded significantly since 1967[7/]. The population living in these jurisdictions has approximately doubled since that time. Furthermore, there is similar pressure on land in villages, where a substantial part of the population lives. In addition, the lack of fully documented titles and the absence of an efficient and complete land registration system have further reduced the quantity of buildable land. It is estimated that as much as 50 percent of the land within municipal boundaries where housing can not be legally constructed has title and registration problems. Even on land where it should be possible to obtain a permit, a very restrictive practice of tying building permit issuance to compliance with other regulations, such as the payment of taxes, has limited the supply of permits for building or changes in land use. It is also virtually impossible to build outside municipal boundaries, a practice that eliminates that escape valve on the demand for urban land. These are all artificial restrictions. There are no natural limitations to urban expansion in the OT, and potentially buildable land is plentiful.

7.22 Even on the land zoned for residential use, the supply of infrastructure has been quite limited due to the weak fiscal position of local governments. In most cases, they are barely able to cover their recurrent costs, leaving virtually nothing for the expansion or maintenance of their physical facilities. The development budget of the CA has not been applied to distribution systems and local infrastructure within the municipalities to any great extent. Thus, the shortage of infrastructure has served to increase the price of the available serviced urban land.

7.23 An additional factor that has probably increased the price of land is the absence of a formal financial system. Since no financial assets are available to store wealth, and because the business environment has been uncertain and risky, the real estate sector has become the best investment for most people. A low or zero tax on holding vacant land, and no taxation on income derived from such transactions, have made land the most attractive refuge for many savers and investors. Although a formal financial system may have also stimulated additional demand and, thus, higher prices, the impression of the mission is that the considerable liquidity in the OT already permitted the purchase of land and housing by many and that the net effect of the lack of safe financial investments has actually increased the effective demand for land and served to raise prices higher than would otherwise be the case.

Land Use Planning

7.24 Urban planning is the most elemental building block in the regulatory system of cities. Clear physical plans and the associated implementation instruments and procedures can have an important

7/ See Annex 2 for details on selected municipalities.

impact on the efficiency and the equity of urban development. This important issue, as it relates to the OT, has been recently researched elsewhere[8/] and only a brief summary of the issues is presented here.

7.25 Urban planning broadly includes regional plans, outline plans for each community, detailed land use and zoning plans, subdivision regulations and building permit procedures. A well-functioning urban planning system needs common goals and a unified approach to harmonizing the various types of plans and regulations. The situation in the OT since 1967 has not been conducive to such a system. In fact, the already fragmented framework, which includes mandate planning, Jordanian law and subsequent Israeli military government modifications, has not been unified in any way. It has not been a question of technical difficulties but rather a question of how political responsibilities could be reflected in institutions and procedures. The institutional responsibility for reforming urban planning law and practice will be a component in each stage of the peace process.

7.26 The history of urban planning in the West Bank[9/] since 1967 has been to leave the old rules in place while significant modification have actually been taking place. Ten Israeli military orders, which refer to the previous Jordanian Planning Law #79 have been published since 1971. The effect of these changes, according to the noted recent study, has been to transfer powers to nominees of the Israeli Government and to give additional power to the High Planning Council (HPC). The HPC, which is staffed by Israelis at the top and which reports to the military commander of the OT can overrule all other bodies, including municipal planning councils. More importantly, the HPC must approve expansions of municipal boundaries and subdivision plans, the two most important acts for bringing new land onto the market. The record is one where the expansion of boundaries has been very limited; subdivision has been difficult and involves very long delays; and other development permits requiring HPC approval have been difficult to obtain. On the other hand, Israeli settlement has been administered under Israeli law and have been able to expand more freely.

8/ See Anthony Coon, Town Planning Under Military Occupation, Al-Haq, 1993.

9/ No information on the Gaza Strip was obtained.

Table 7.1: Data For the Occupied Territories and Ten Comparators

Variable (Units	Total OT	West Bank	Gaza	All Ten Mean	All Ten Median
1990 GNP/capita (US$)	2,008	2,200	1,300	1,671	1,780
Urban Pop. Growth				3.9%	3.9%
Household Formation	5.4%			3.1%	3.5%
House Price to Income		3.4	5.5	5.7	5.0
Rent to Income	4.4	5%	6%	20%	21%
Persons per room		2.1	2.4	1.8	1.8
Building Cost (US$ per sq.m)	300			212	157
Lowest Price New Unit (US$)	45,000			15,953	15,150
Serviced land cost (US$ per sq.m)		60		61	66
New Units per 1000	4.9	6.4	2.5	7.9	6.4
Investment (GDP)		20.3%	20.3%	7.2%	7.4
Owner Occupancy	84%	69%	98%	61%	64
Urbanization	50%				
Minimum Lot size (sq.m)	500	500	500	163	96
Construction Time (months)		18		14	12
Inflation 1980/90				23%	13%

B. Housing Sector Strategy

Issues

7.27 The overall objective of reform in the shelter sector is to make the housing market function better so that the housing needs of the present and future populations can be better met at lower prices. The existing policy and regulatory environment makes the supply system unresponsive and uses far too many resources for the outcomes achieved. The demand for housing is unpredictable in the OT because the

relationship between a political settlement, migration and financial flows are unknown. Nevertheless, the immediate objective of housing policy development and reform in the OT should be **to increase the responsiveness of the supply side** and to address demand only through (i) the development of a more appropriate property rights system; (ii) the incorporation of finance for housing as the overall financial system is put in place, and (iii) the design of a possible housing assistance safety net for the urban poor.

7.28 The **overall housing sector issues** for the OT are high prices; considerable crowding, especially in the refugee camps; inadequate and poor infrastructure; and inefficient use of resources invested in the sector. These broad characterizations of the housing sector can be reduced to more specific issues on both the supply and demand sides of the market.

7.29 The **main supply-side issue** is the regulation of land and housing development where every step in the process, from the conversion of non-residential land to housing use to the processing of permits and licenses and even to the building standards themselves, all work to restrict supply and increase prices. Those portions of the market most likely to serve the poor suffer from the most stringent regulations; best exemplified by the rent control regime in the West Bank. The supply of land and housing is also influenced negatively by present practices in the provision and maintenance of infrastructure. More direct public funding for infrastructure expansion and upgrading, as well as better channels for potential users to pay for it, are urgently needed.

7.30 The **issues on the demand-side** are also important. Present ambiguous property rights regulations serve to frustrate households' ability to realize their housing objectives. These regulatory complications on establishing ownership, making transfers and obtaining specific permissions not only limit demand due to insecurity, but are also a restriction on the supply of buildable land. These circumstances are magnified in the camps where tenure security and transaction rights are totally informal. The complete lack of formal housing finance is also a demand-side issue, which negatively affects the poorer and those without savings to a greater extent.

An Enabling Strategy for Housing in the OT

7.31 If the interests of all of the participants in the housing sector are to be served, and if the interests of the broader society are to be served, housing policies must be crafted in a way that draws on and uses knowledge about the way housing markets work, in a way that addresses the causes rather than the symptoms of policy failures. The most recent international comparisons suggest that the best way to exploit information on how markets work is through **enabling strategies**, which permit limited, but critical, public interventions in housing markets to leverage the activities of the private sector. Such strategies make particular sense for the OT because the public sector role can be designed with minimal reference to historical institutions and policies. This section takes up the key operational instruments that comprise an enabling strategy, and looks at how they can be applied in the OT.

7.32 The housing sector can be made to function well by focusing on seven **basic components of housing policy for the OT**: three to facilitate the process of housing supply; three to stimulate and strengthen housing demand by all income groups; and one to create an overall institutional framework for managing the housing sector and ensuring adequate access to housing by the poor. Each of these components has the capacity both to increase the efficiency of housing markets and directly improve housing outcomes for the poor in the OT.

Housing Supply

7.33 **Regulating Land and Housing Development.** The appropriate strategy for the OT, in view of the high land and housing costs, is to appropriately reform regulations, with the objective of making the supply system for residential land and housing more responsive. Such a change is necessary if demand for shelter is to be reflected in more housing units rather than higher prices. A more responsive supply system can be achieved by reforming the regulatory environment to provide an appropriate balance between the costs and the benefits of regulations that influence urban land and housing markets, especially land use and building. Regulations also need to be established in a way that benefits rather than, as is now often the case, penalizes the poor. The obvious priority areas for regulatory reform are the expansion of urban boundaries, the subdivision of plots, the granting of construction permits and the content of the building standards themselves. To accomplish the reform, audits are needed to identify key urban regulations; to establish their impacts on housing demand, supply, and prices; and to establish both priorities and details for regulatory reform.

7.34 **Infrastructure for Residential Land Development.** Approving the use of vacant land for housing construction will not directly lead to more and better housing if the basic infrastructure is not available. Therefore, immediate attention should be given to expanding and improving residential infrastructure in the OT. It is not known at this point how much residentially zoned vacant land is unserviced or where extension into new areas is needed. In terms of a strategy to maximize the impact of infrastructure investment on the housing sector the hierarchy should be: *first,* to complete services to areas within existing municipal boundaries where trunk infrastructure already exists and where other permissions will be easier to obtain; *second,* to extend infrastructure into areas immediately adjacent to presently developed areas where there is demand for residential land; and, *third,* to upgrade infrastructure in areas where present levels are deficient. The refugee camps are a special case where selective infrastructure improvements can have great payoffs in terms of the quality of life of the residents but where the impact on the total quantity of housing may be nil or even negative if people move out of the camps. Any strategy should pay attention to cost recovery mechanisms and maintenance. An important financing strategy will be to allow developers to pay for and to supply residential infrastructure themselves.

7.35 **The Building Industry.** Regulators should seek to remove constraints to the maturing of the construction sector, the growth of large-scale developers and the integration of house building with land development firms. The longer-term health of the industry will depend on how well and how fast the markets for critical inputs such as finance, labor, land, infrastructure and materials are integrated and allowed to grow and to foster competition. Although the building industry in the OT works fairly well at the present level of demand, the reforms to the regulations affecting this industry may be one of the key components for creating the capacity to respond to large-scale immigration in the future.

Housing Demand

7.36 **Property Rights.** Tenure insecurity and the risk of property rights disputes have made housing conditions in the OT worse than need be. In addition, land transactions are cumbersome, slow and inefficient, insulating the response of the market from demand. The strategy should be to gradually established a modern, comprehensive system of tradeable and enforceable property rights, clarifying ownership and the title to private and public lands. Although this is a high priority, the process needs

to be carefully structured and deliberate. Programs of land registration and the regularization of insecure tenure (such as in the refugee camps) should be undertaken in a phased manner. Whenever possible, programs for regularizing tenure should go hand-in-hand with infrastructure improvement, and the provision of long-term finance in those areas, and should seek to recover costs.

7.37 **A Safety Net for the Poor.** Helping those unable to take care of themselves is the most basic role of government in any sector. A basic policy choice for the OT is whether to adopt private sector oriented housing policies that enable housing markets as in Lebanon and Jordan, or whether to adopt a public sector role with heavy regulation of the private sector as in Israel and Egypt. We strongly recommend that housing subsidies for the poor in the OT should be seen as either transitional or as a last resort. This view is necessary to keep subsidies affordable and to keep attention on the broader reforms that will cumulatively have a much greater impact on the poor than direct subsidies. Initial policy reforms should first try other methods for improving access to housing, such as regularizing insecure tenure, reforming urban land-use planning, assuring access to market-rate housing finance as it becomes available, removing barriers to the production of rental housing and improving housing supply markets to reduce prices. If subsidies are necessary, they should be well-targeted, measurable and transparent, and should avoid distorting the housing market. Subsidies in the form of rent control, which have been shown to be inequitable and to distort markets and reduce housing supply, should be eliminated in the OT. One-time capital grants and housing allowances will usually be more appropriate than rent control or production subsidies.

7.38 **Mortgage Finance.** Development of mortgage lending must go hand in hand with overall financial sector development. Financial policies should permit private, as well as public, institutions to borrow and lend for housing at positive real interest rates and on equal terms with other sectors. Competition[10/] should be encouraged to improve efficiency. Mortgage instrument designs should permit the interests of both borrowers and lenders to be realized through appropriate terms, especially indexing provisions. Collateral security should be fostered by well-designed and enforced systems of titling and foreclosure. Lending for the provision of rental housing, where many of the poor will live, should be facilitated by the gradual removal of rent control regulations. The strategy should be to have those knowledgeable about the housing industry participate in financial sector development activities.

Overall Institutional Framework

7.39 A new institutional framework for managing the housing sector in the OT should make it possible for the public sector, with its limited resources, to manage that sector in a manner that provides adequate and affordable housing for all. A public agency with a mandate to build and manage housing directly is not desirable. International experience suggests that an indirect public sector role will be more effective. Instead, an institutional mechanism for overseeing the performance of the sector as a whole, and coordinating the major public agencies that influence housing sector performance, is needed. Institutional mechanisms should be devised to collect, analyze, interpret and publish data on the performance of the housing sector, particularly concerning the poor; provide an institutional linkage between housing and macroeconomic planning; generate long-term plans for housing sector development in conjunction with the central planning agency; provide a forum for participation of the private sector,

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10/ This point refers to the desirability of integrating housing finance within the financial sector rather than having a single housing bank, for example.

NGOs, community-based organizations and the general public in housing policy formulation at both the national and municipal level; review the effects of regulations on housing; initiate regulatory reforms; engage in housing policy research; and influence decision-makers in housing-related agencies and local counterpart institutions to improve housing sector performance.

7.40 In addition to the functions of policy formulation, coordination, and monitoring, other institutional responsibilities, which correspond to elements of an enabling strategy, must also be addressed by a variety of new housing institutions that should gradually come into being in the OT. The most pressing of these functions are: (i) establishing and overseeing the regulatory framework for delivering housing finance by the private sector, for developing effective instruments to direct mortgage lending to the poor and for providing an institutional context for mortgage lending; (ii) administering housing subsidies for the needy, focusing on beneficiaries rather than on dwelling units; (iii) establishing and broadening property rights, especially through regularizing tenure in refugee settlements; (iv) providing infrastructure for all communities; (v) bringing together infrastructure agencies to coordinate infrastructure provision, and thus create an adequate supply of serviced land; and (vi) reviewing the impact of various regulations on the performance of the housing sector and proposing new legislation to improve sector performance.

7.41 Recommendations concerning operational instruments which are necessary to enable housing markets to work effectively are summarized in the following table.

COMPONENTS OF HOUSING SECTOR DEVELOPMENT IN THE OT

OBJECTIVE	DO	DON'T
Develop A Better Property Rights Regime	✓ Reform land tenure ✓ Expand and clarify land ownership ✓ Reform property taxation	x Institute costly titling systems x Discourage land transactions
Develop A Mortgage Finance System	✓ Encourage private sector to lend ✓ Lend at positive/market rates ✓ Develop & enforce foreclosure laws ✓ Ensure prudential regulation	x Allow interest-rate subsidies x Discriminate against rental housing investment x Neglect resource mobilization x Allow high default rates
Design Efficient and Effective Assistance for the Poor	✓ Make any subsidies transparent ✓ Target subsidies to the poor ✓ Subsidize people, not houses ✓ Subject subsidies to review	x Build subsidized public housing x Allow for hidden subsidies x Let subsidies distort prices x Use rent control as a subsidy
Provide Infrastructure	✓ Coordinate land development ✓ Emphasize cost recovery ✓ Base provision on demand ✓ Improve camp infrastructure	x Allow bias against infra-structure investments x Use environmental concerns as reason for slum clearance
Improve the Regulation of Land & Housing Development	✓ Reduce regulatory complexity ✓ Assess costs of regulation ✓ Remove artificial shortages ✓ Allow urban expansion	x Impose unaffordable standards x Maintain unenforceable rules x Design project without link to regulatory/institutional reform
Strengthen the Building Industry	✓ Encourage growth of large developers ✓ Encourage small-firm entry ✓ Increase local materials production	x Allow long permit delays x Institute regulations inhibiting competition
Develop a Policy & Institutional Framework	✓ Balance public/private sector roles ✓ Create a forum for managing the housing sector as a whole ✓ Develop enabling strategies ✓ Monitor sector performance	x Engage in direct public housing delivery x Neglect role of local government

C. Next Steps to Improve Housing Sector Performance in the OT

7.42 The previous section has outlined the full range of components for housing policy in the OT. It is possible, however, to group these together and to suggest some timeframe or phasing for implementing them. In the following section, each package of reforms is discussed in terms of what could be done right now; what steps might be taken in the medium term when there might be interim political arrangements, especially for local government; and what actions must wait for the longer term when the permanent status of the OT has been agreed.

7.43 Regulatory reform should be highest on the list of actions to improve the housing and urban land markets. *During the interim period, a full land market assessment and audit of regulations in the housing sector should be undertaken.* This a complex process requiring considerable effort at both OT-wide and local levels. However, not all reforms need wait for the results of a comprehensive review. *In the short*

run, an audit of local regulatory problems pertaining to housing and land development could be undertaken in selected communities. Such an exercise should be voluntary on the part of local authorities and should be designed to essentially clear the backlog of pending regulatory issues, such as requests for subdivision, zoning and building permission. If such issues could be resolved at an early stage, it might provide considerable incentive for returning Palestinians to locate in the reforming communities. *In the longer term, regulatory reform encompassing all urban areas* needs to be designed, and the full apparatus for implementation put in place. The plan to do this will be the main product of the work during the interim period.

7.44 Undertaking land market assessments and regulatory audits will probably require the training of public sector staff. Since the interim period is likely to see more authority assigned to local governments, there will be a need to develop both procedures and expertise for local public service and infrastructure matters long neglected or previously carried out by the occupation government. Technical assistance required could be extensive due to the need to work with numerous local authorities.

7.45 **Providing infrastructure for housing** is the second area where public sector activity can *immediately contribute to better housing sector performance*. In the short run, local authorities need to make immediate plans to expand infrastructure within existing boundaries. Such expansion should first concentrate on servicing dwellings already existing or under construction, with appropriate fees and charges to reflect the costs of doing so. If external assistance were available, a fund could be established to provide either partial grant or loan funding for capital improvements to housing-related urban infrastructure. Since the possible demand for such funding is virtually unlimited, such a program would need to be designed to reward those communities that had systematically identified their shortages and prepared a regulatory reform program for implementation in their community. The specific cost-sharing arrangements would also serve as a rationing device. The opportunity to stimulate local private contributions to urban service provision, either from households or developers, should not be missed in the name of helping the poor. Subsidies to assist the needy should be handled separately not as a feature of how all infrastructure is financed. Although not narrowly a housing issue, in the medium term the role of local governments in providing local infrastructure needs to be made clear. For most types of infrastructure, there is little or no reason to involve higher levels of government. The exception may be in the capital financing of long-lived facilities where local governments will, at least initially, not have the ability to borrow funds for investment.

7.46 **Strengthening the building industry** is not an immediate priority. Broader regulatory reform in the sector needs to include an examination of constraints to expansion felt by existing builders and the establishment of a broader real estate development industry. The best way to do this may be to be sure that the industry is fully represented in the regulatory reform process.

7.47 **Property rights reform** will affect both the demand for and the supply of housing. There may be scope for an immediate adjudication exercise to resolve specific disputes where possible housing projects are being held up. Technical assistance could play a role in such a solution. Logically the longer-term work should commence with a review of existing laws and regulations. A reform program based upon principles of transparency and oriented toward facilitating transactions is necessary for the long term prosperity of the sector, but there are important preparatory steps to be taken. If local authorities are given jurisdiction over local recognition of property rights, they will need to develop a strategy for regulating and servicing urban land (to be ratified by a yet unknown central system). Although basic *ownership, titling and registration rules should be common to the entire OT*, local practice

will need to fit within the eventual framework, even before it is fully developed. This calls for some planning and coordinating work at the earliest stages although the central system will need to wait for a political settlement.

7.48 **Development of programs of assistance to the poor for housing.** General regulatory reforms will help the poor along with everyone else but there are still opportunities to assist the poor if funding were available in the short run. Donors might finance programs to innovate with less expense, new types of dwellings. Targeted lending for purchase by low-income households might also help. Assistance to reduce the risks of those providing suitable rental accommodation would also be interesting. However, most imaginable programs of direct assistance would not help the poor as much as broad-based reforms in the sector.

7.49 **Housing finance development** needs to be coordinated with the rebuilding of the banking and formal financial system. That process may start in the interim period but will only be complete when overall national policies are in place. Some of the legal and regulatory infrastructure, such as the recognition and registration of land ownership, are necessary preconditions for an efficient housing finance system. The development of the housing finance system necessitates that the views and needs of this sector are properly considered as the resuscitation of the financial system is planned. It would, therefore, be appropriate to train some Palestinians to participate in this process. There are no obvious immediate measures to be taken.

7.50 Developing a basic housing policy including the institutional framework for managing the sector, is the core task in this sector. Such an exercise needs to involve a broad spectrum of interested parties and needs to cover issues that range from articulating the most general objectives for policy to setting specific goals and procedures for the sector. The first step should be to establish basic policy objectives and to translate them into appropriate sector goals and targets. The second will be to take stock of the present policy environment and to sort out obvious conflicts and overlaps. Third, it will be necessary to examine alternative scenarios concerning the future of the OT so as to ascertain the most appropriate institutional structure to address the prospective economic and social circumstances. Fourth, it may be appropriate to specify some details concerning how important matters will be handled;, the future of the camps and the programs and policies to assist the poor are two prospective topics that have already been mentioned.

7.51 The development of a housing policy for the OT *does not require either a self-government or a political settlement, but it does need an institutional home*. If this can be identified, it would be possible to prepare and commence work on the development of a housing policy in the near future. Staff from some of the likely lead institutions (such as the Housing Council) would benefit from taining about the shelter situation in other developing economies. Training could be provided at a variety of institutions abroad. Such training would be helpful in preparing an action program, which would need to be phased over the medium to longer term.

7.52 A matrix for technical cooperation activities, training and possible capital investment projects is outlined below. There is not now sufficient information to estimate precisely the cost of this program but the importance of the issues would justify a substantial TA and training program. Tentatively, a total of US$2.5 million is included in the proposed TA program for this purpose.

Table 7.2: Matrix of Technical Cooperation Activities, Training and Capital Investment Projects

	TA	Training	Investment
Regulatory Reform			
a. Selected local regulatory audit	X		
b. Land Market Assessment	X		
c. Regulatory Audit		X	
d. Institution building	X	X	
Infrastructure			
e. Identify local Needs		X	
f. Provide in-fill infrastructure			X
g. Expand trunk infrastructure			X
h. Upgrade infrastructure			X
Property Rights Development			
i. Adjudicate present disputes		X	
j. Review and revise laws	X		
Assist the Poor			
k. Provide innovative assistance			X
Housing Finance Development			
l. Input to financial sector process		X	X
Policy Development			
m. Develop overall strategy	X		
n. Prepare staff for major institutions	X		

7.53 In summary, the challenges facing the Palestinian people in improving their housing are inextricably linked to the process of redefining political responsibility. In the short term, the first step is to expose senior Palestinians to the policies and practices governing housing and urban land management elsewhere by training them abroad. If funding is available, it would also be a high priority for local authorities to improve the operation and maintenance of urban services and to complete some modest key infrastructure links to serve the housing sector. The interim period will be the most active for this sector. The most important regulations for housing and urban land will most likely be overseen by local governments. There may be considerable scope for the reform of the multiple policy and regulatory frameworks. The analytical exercises to establish the new regime will need to be completed during the interim period. If local authorities are given some degree of fiscal autonomy, much of the additional new revenue will probably come from real estate. The policies and regulations need to be designed quickly enough to produce results during the interim period. The issues that stand out in the shortrun are to make more land available for housing through regulatory reform and infrastructure provision. These and all other reforms need to take place within a central framework for land and housing ownership, registration and trading. In such a small physical area, the importance of unified policies and regulations becomes even greater.

Table 7.3: Data on Housing and Urban Land in the OT

Variable	Units	Data for the Occupied Territories		
		Total OT	West Bank	Gaza
1990 GNP/Capita	US$	2,008	2,200	1,300
1993 Population	no.	1,854,074	1,108,674	745,400
1987 Population		1,433,700	868,100	565,600
Housing Production (1987	1987			
New dwelling units	no.	6,986	5,582	1,404
New res. area	sq.m	994,700	747,600	247,100
(a) in new dwellings		911,500	708,600	202,900
(b) in existing dwellings		83,200	39,000	44,200
Average size new dwelling	sq.m	130	127	145
New dwelling per thousand	no.	4.9	6.4	2.5
Housing Investment	1986 prices		for 1987	for 1990
Nat. Disp Income	NIS mil		2,836	1,081
GDP	NIS mil		1,703	637
Building & Construction	Private		345	129
Ratio of Investment to NDI			12.2%	11.9%
Ratio of Investment to GDP			20.3%	20.3%
House Price to Income	1990			
Disposable Income per capita			4,724	2,996
Average persons per HH			5.6	5.5
Disposal Income per HH	NIS		26,454	16,475
Median House Price	NIS		90,000	90,000
Ratio of house price to income			3.4	5.5
Lowest Price New Formal Unit	US$		40,000	
Ratio of Lowest Price to Median Income			1.51	
Rent to Income	1992			
Monthly Rent	NIS		100	89
Annual Rent	NIS		1,200	1,068
Rent to Annual Income	Ratio		5%	6%
Price of Serviced Land	sq.m		60.00	
Construction Cost	$/sq.m	300.00		
Owner Occupancy (towns)				
1974			49%	72%
1985			68%	89%
1992			69%	96%
Crowding	persons per room		2.1	2.4
Crowding	sq.m per room		22.7	26.3
Water Connections			79%	93%
New dwelling 1967	no.	90.00		
1975	no.	127.00		
1993	no.	140.00		

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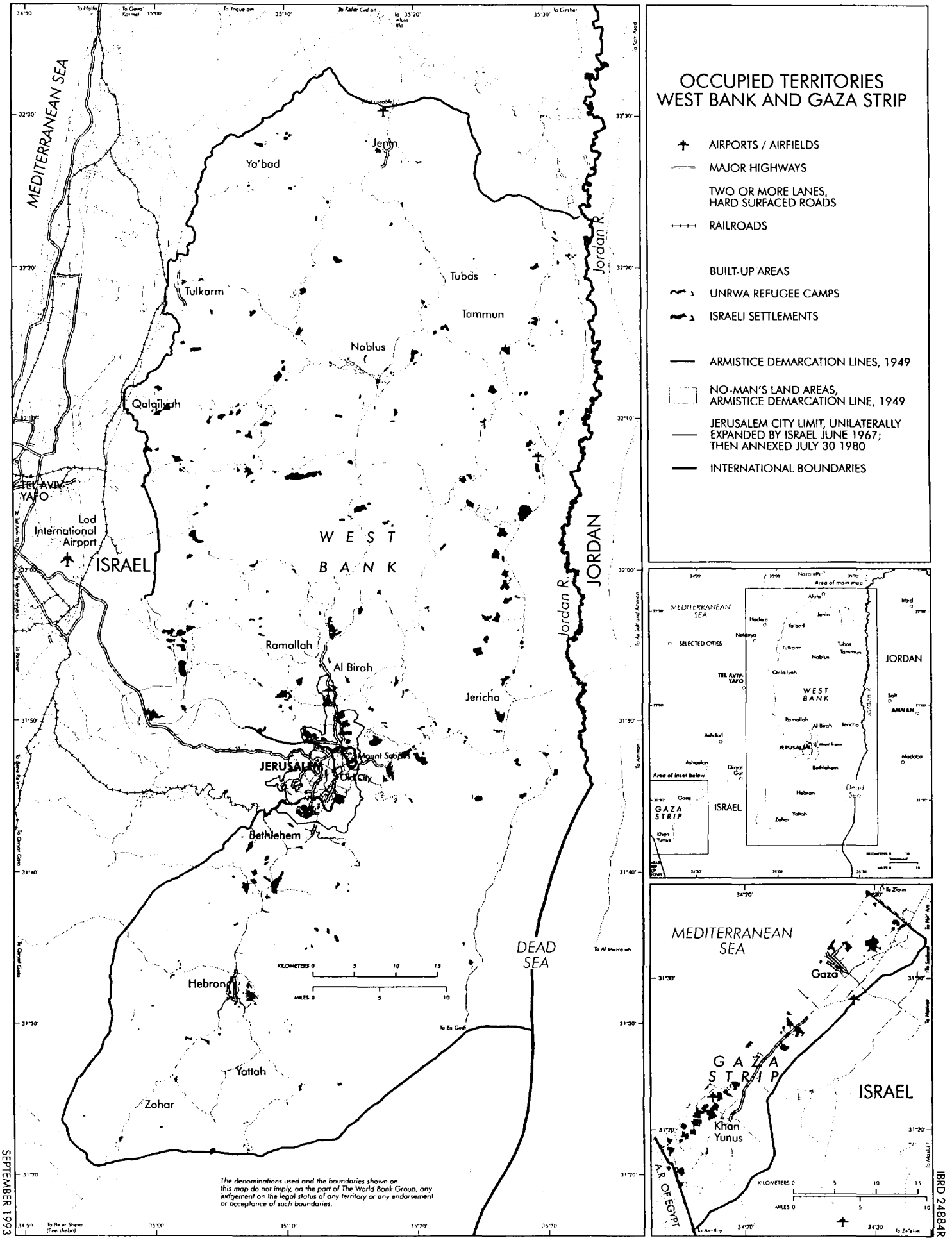

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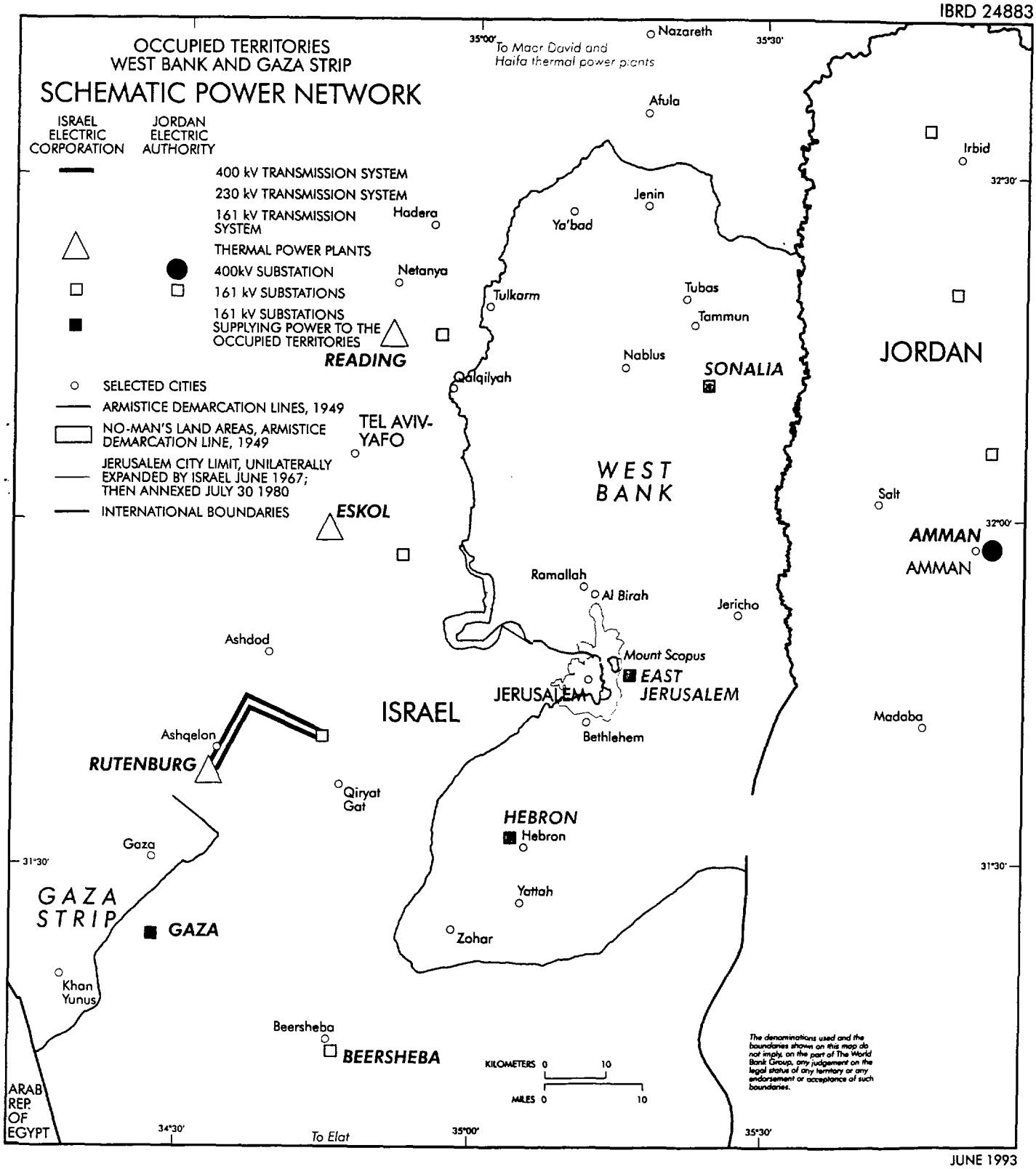

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The World Bank

Headquarters
1818 H Street, N.W.
Washington, D.C. 20433, U.S.A.

Telephone: (202) 477-1234
Facsimile: (202) 477-6391
Telex: WUI 64145 WORLDBANK
RCA 248423 WORLDBK
Cable Address: INTBAFRAD
WASHINGTONDC

European Office
66, avenue d'Iéna
75116 Paris, France

Telephone: (1) 40.69.30.00
Facsimile: (1) 40.69.30.66
Telex: 640651

Tokyo Office
Kokusai Building
1-1 Marunouchi 3-chome
Chiyoda-ku, Tokyo 100, Japan

Telephone: (3) 3214-5001
Facsimile: (3) 3214-3657
Telex: 26838

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