



WEST BANK AND GAZA

INFRASTRUCTURE ASSESSMENT

December 2004

Finance, Private Sector and Infrastructure Group
Middle East & North Africa



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ILS 1 = US\$ 0.219

US\$ 1 = ILS 4.565

ABBREVIATIONS AND ACRONYMS

EU/EC	European Union
GDP	Growth Domestic Product
GEDCo	Gaza Electricity Distribution Company
GOI	Government of Israel
GWh	Gegga Watt per Hour
HEPCo	Hebron Electricity Distribution Company
IEC	Israeli Electricity Company
IMF	International Monetary Fund
IPP	Independent Power Producer
IT	Information Technology
JDECO	Jerusalem District Electricity Company
JWC	Joint Water Committee
JWU	Jerusalem Water Undertaking
MPWH	Ministry of Public Works and Housing
MVA	Mega Volt Amber
MW	Megawatt
NEU	Northern (West Bank) Electricity Utility
NGO	Non Governmental Organizatio
NWC	National Water Council
OPEC	Organization of Petrol Exporting Countries
PA	Palestinian Authority
PCBS	Palestinian Center Bureau of Statistics
PEA	Palestinian Energy Authority
PEC	Palestinian Electricity Company
PECDAR	Palestinian Economic Council for Development And Reconstruction
PERC	Palestinian Energy Regulation Commission
PLC	Palestinian Legislative Council
PLO	Palestinian Liberation Organization
PSESP	Palestinian Socio-Economic Stabilization Plan
PWA	Palestinian Water Authority
QIIP	Quick Impact Intervention Program
SELCO	Southern Electricity Company
UNSCO	UN Special Coordinator in the Occupied Territories
USAID	US Agency for International Development
VAT	Value Added Tax
WBG	West Bank and Gaza
WBWD	West Bank Water Department
WHO	World Health Organization
WSSA	Water Supply and Sewage Authority

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PREFACE

This assessment reviews the performance of the Palestinian water and wastewater, electricity, transport, and telecommunications sectors in the West Bank and Gaza over the last decade. It identifies the major issues each sector is facing and proposes short- and medium-term options for their future development. The assessment emphasizes institutional questions, particularly the need to build local capacity and to provide an environment that encourages private-sector participation.

Reliable infrastructure is vital to improving Palestinian quality of life and helping build a platform for private investment. Due in large measure to the conflict of the past four years, infrastructure development in the West Bank and Gaza has faltered badly, and the quality of services now available is far from adequate – despite substantial financial resources from donors. Restrictions on internal movement and on direct international access have seriously constrained commerce and trade, while Palestinian access to water resources remains seriously constrained.

As Israel disengages from Gaza and the northern West Bank, the possibility of Palestinian economic revival beckons. In this context the need for additional infrastructure and more efficient infrastructure services as well as for open international gateways becomes pressing. This assessment is intended to provide a basis for such developments.

Let me add that this work could not have been carried out without the full cooperation and contribution of a number of institutions of the Palestinian Authority, to whom we owe our thanks.

Nigel Roberts
Country Director

Introduction

- i. Assessing the performance and condition of electricity, water and wastewater, transport, and telecommunications services in the West Bank and Gaza, this report describes the efforts of the Palestinian Authority (PA) to manage and modernize WBG infrastructure over the past ten years. The study identifies the major issues—many of which center on problems of access to areas or resources controlled by Israel—facing these core infrastructure sectors. Taking account of the current social, economic and political situation, it sets out short- and medium-term options for development and investment needs that vary according to whether political conflict continues or abates.
- ii. Those needs could range from a little under US\$500 million in the short term (2005-2008), assuming continued political stalemate, to as much as US\$900 million in the same period if progress is made in resolving the Israeli-Palestinian conflict. In such favorable circumstances, medium-term (2008-2015) investments required to upgrade the four core sectors could total over US\$2 billion.
- iii. In the next three years—assuming political progress—and in the seven that follow, transport would account for more than half of all projected funding needs. Of special importance is the need to rebuild existing roads that have sustained damage (estimated at some US\$94 million) from military action. In addition, damage at the Gaza International Airport estimated at about US\$22 million needs repair. In the medium-term, a Jenin-Hebron highway on the West Bank ranks as a priority. A 20-year plan to improve *water and wastewater* facilities, to ensure Palestinians minimum WHO-recommended water consumption standards, is estimated to cost over US\$5 billion, almost three times the annual level of average investment in the sector over the past eight years.
- iv. 2005-2008 investment needs for *electricity*, of which 95 percent of the supply comes from Israel and system losses run to an estimated 20 percent, are only about one-third of those projected for water systems, with the bulk of the outlays needed to build a West-Bank transmission system and other funds required to diversify sources of supply. The study sees a degree of promise in the concept of regional electric interconnection facilities to help share power among Israel, Jordan, WBG and Egypt at peak load times. In *telecommunications*, a field dominated by a private company, average annual investments of as little as US\$10 million in the short term could bring significant returns if the sector strategy focuses, as the PA has mandated, on marrying growth in information technology to a high-quality infrastructure as well as well as on attracting private investment and increasing competition in the sector.
- v. This study concludes with an outline of a *way forward* that sketches a strategic framework and the associated financial needs for dealing with the infrastructure issues the WBG faces. The necessary actions are related to three different scenarios—short-term political stagnation or progress and medium-term progress—with budgets needed to implement the actions estimated for each of the three.
- vi. As the description of sector issues in Table 1 below reveals, accommodation between Israel and WB&G is crucial to the resolution of fundamental issues of access in all four sectors. In terms of development, however, the need for continuing financial support for infrastructure modernization is matched by the need to develop policies and institutions aimed at improving service and strengthening service providers. The report focuses as much on those policy questions as on the physical obstacles to development.¹

¹ The methodology on which the report is based consists of a cross-sectoral comparison of the quantitative evidence of progress in key areas: (i) supply and demand (access, quality, and affordability); (ii) legal, regulatory, and institutional reform; and (iii) investments in the sector and the development of issues matrices for the four sectors around five issues: (i) policy outside PA's control, (ii) social, economic, and environmental, (iii) financial, (iv) institutional, and (v) physical and operational. The report reviewed the development of each of the four sectors, using the October 1993 Oslo Peace Agreement between Israel and the Palestinian Liberation organization (PLO) and the Bank's September 1993 infrastructure study—Developing the Occupied Territories, An Investment in Peace, Volume 5, Infrastructure, Section III, Electricity—as the point of departure. Indicators have been prepared for each sector.

Table 1: Issues Matrix for Four Infrastructure Subsectors

Electricity	Water and Wastewater	Transport	Telecommunications
Policy Issues Outside PA's Control			
<ul style="list-style-type: none"> Transfer of transmission facilities in the West Bank to PA's control 	<ul style="list-style-type: none"> Access to and control of aquifers and riparian rights in WBG 	<ul style="list-style-type: none"> Restricted movement within WBG Access to neighboring countries and the World 	<ul style="list-style-type: none"> Lack of direct international gateways Palestinians limited access to frequency spectrum
Social, Economic, and Environmental			
<ul style="list-style-type: none"> Increasing access and reliability Reducing costs and establishing life-line rates Adopt environmental regulation 	<ul style="list-style-type: none"> Increasing access and reliability Increasing consumption to recommended WHO levels Reducing costs and establishing life-line rates Developing a regional cooperation framework 	<ul style="list-style-type: none"> Improve mobility and access Increasing safety Reducing travel cost Increasing cost recovery 	<ul style="list-style-type: none"> Increase access to all communities Increase access to IT applications for social and government services
Financial			
<ul style="list-style-type: none"> Improving cost recovery and local resource mobilization Reducing dependency on donors Clarify the role of the PA and the municipalities 	<ul style="list-style-type: none"> Improving cost recovery and local resource mobilization Reducing dependency on donors Clarify the role of the PA and the municipalities 	<ul style="list-style-type: none"> Improving cost recovery and local resource mobilization Reducing dependency on donors Clarify the role of the PA 	<ul style="list-style-type: none"> Secure funding for some applications that are key to socio-economic development like e-government applications
Institutional			
<ul style="list-style-type: none"> Strengthening PEA and focusing its role Establishing PERC and strengthening the regulatory framework, including realistic tariff setting and the passing of a new law Establishing PETL as the owner and operator of a revamped transmission network Establishing an appropriate framework for IPP development Strengthening the four existing utilities and establishing the fifth 	<ul style="list-style-type: none"> Rationalizing roles and responsibilities, including the separation between policy and development on one hand, and regulation on the other Establishing an effective regulatory framework and regime Establishing Bulk Supply Company Establishing efficient regional utilities in Gaza and the northern and southern West Bank Implementing the sector law 	<ul style="list-style-type: none"> Clarify roles and responsibilities within the sector Strengthening capacity in physical, strategic, and maintenance planning Formulation of construction and maintenance guidelines and road norms and standards to ensure safety and to deal with environmental issues 	<ul style="list-style-type: none"> Strengthening the capacity of the sector ministry to handle its expanded functions especially in the IT field; Develop a competent regulatory capacity and a detailed regulatory regime; Liberalize the sector and open new segments of the market for entry; and Develop a national IT sector strategy.
Physical and Operational			
<ul style="list-style-type: none"> Continuing system rehabilitation: improving service reliability and reducing system losses Continuing rural electrification Generation: Increasing local capacity, reducing IPP production costs by using natural gas for fuel Transmission: Completing the network in Gaza, establishing new feeders linking the main population centers on the West Bank to complete the network and stabilize the system, and establishing regional connection stations Distribution: Improving access, supply, reliability, delivering cost effective services; reducing system losses 	<ul style="list-style-type: none"> Continuing system rehabilitation: improving service reliability and reducing system losses Continuing rural development program Supply: Developing effective groundwater management; developing ground- and surface-water resources in keeping with sustainable yields, increasing rainwater harvesting and wastewater processing and reuse, developing new sources (e.g. through desalination) Transmission: Developing efficient networks, storage reservoirs and operational and financial systems Distribution: Improving access, supply, reliability; delivering cost effective services; reducing system losses 	<ul style="list-style-type: none"> Local Access: Repair the damage and alleviate the impacts caused to the transport sector by Israeli military incursions and movement restriction measures, including those related to the construction of the separation wall Regional Access: secure safe and unrestricted access between West Bank & Gaza for people and goods International Access: secure safe and unrestricted access to international border crossings for people and goods Eliminate the accumulated maintenance backlog in the road sector 	<ul style="list-style-type: none"> The development of the infrastructure and services required to achieve IT readiness Extend services to all communities Extend services and applications to public facilities through e-government, e-learning, e-health,) Expand backbone networks Upgrade human resources in IT

Palestinian Liberation organization (PLO) and the Bank's September 1993 infrastructure study—*Developing the Occupied Territories, An Investment in Peace*, Volume 5, Infrastructure, Section III, Electricity—as the point of departure. Indicators have been prepared for each sector.

The Context

- vii. When the PA assumed responsibility for parts of the West Bank and Gaza in 1994, it moved quickly to upgrade and modernize the existing, decayed infrastructure. Lacking financial resources equal to the challenge and with no national, public institutions to oversee the development of these services, the PA has adopted a dual strategy:
- An institutional reform to improve governance by creating better regulation, competent public institutions, and commercially- oriented service providers; and
 - Financial mobilization from the private sector and from bilateral and multilateral donors.
- viii. That strategy aims at modernizing and expanding infrastructure services and at the same time building efficient structures and institutions in order to facilitate the achievement of its infrastructure services' objectives. Its key pillars are:
- Increasing the access of citizens to infrastructure services at affordable prices by rehabilitating existing networks and expanding them to reach a greater number of users;
 - Establishing autonomous and commercially oriented regional utilities by consolidating the utility departments in municipalities and villages;
 - Increasing private participation in infrastructure operations to leverage private financing and management expertise; and
 - Separating regulatory from commercial functions and establishing regulatory institutions that will ensure a level playing field for all stakeholders.
- ix. In response to the broader crisis, the PA has undertaken a number of reforms and developed two programs. The latest is the Palestinian Socio-Economic Stabilization Plan (PSESP) which forms the backdrop to this report. The PSESP postulates the following three scenarios—points of departure as well for the study's strategic analysis—for policy making:
- Scenario A: Political Stagnation
 - Scenario B: Political Progress
 - Scenario C: Political Deterioration
- x. Development efforts over the last ten years have faced enormous challenges:
- Territorial fragmentation and mobility restrictions imposed by the Government of Israel across borders and within WBG (especially in the last four years);
 - Political uncertainty that confounds the public and private sectors amid interrupted negotiations on the permanent status of the Palestinian areas;
 - Limited access of Palestinians to resources critical to the improvement of infrastructure services – water supply, seashore, airspace, radio-spectrum, and right-of-way;
 - An underdeveloped and fiscally fragile economy subject to severe economic shocks;
 - The large number of donors supporting infrastructure and their impact on deciding developmental priorities; and
 - The need to build functioning national public institutions where none existed before.

Performance

- xi. Work on providing infrastructure services in WBG has made considerable progress since the PA assumed responsibility for them, but the Palestinians have had to build from a low base, including a huge backlog of rehabilitation and development work, few institutions, and very little funding. They have had to work, moreover, in very difficult physical, social, political, economic, and institutional circumstances. When these realities are factored in, the progress in water and wastewater, electricity, and telecommunications appears very creditable. For a number of reasons, progress in transport has not been as impressive, fundamentally because of the PA's failure to establish a coherent institutional and policy framework.
- xii. Good progress has been made in extending services and rehabilitating distribution networks, but more focus is needed on developing new sources of supply and backbone networks:
- ***Access to and consumption of services have improved.*** The majority of the population (84 percent) and the communities (62 percent) in WBG have access to piped water. Gross per capita water supply has also increased to about 106 liters per capita per day (l/c/d), although the net per capita consumption—an average of 65 l/c/d—remains low due to very high system losses. About 98 percent of the Palestinian population has access to electricity services. The number of villages still not connected to the electricity transmission grid was reduced from 138 in 1993 to less than 75 now, and work is underway to connect remaining villages. The paved-road network has been expanded by about 30 percent (nearly 700 km) since 1993 to bring the total paved network to about 2870 km. The agriculture roads network has also significantly expanded, as has access to telecommunications services. About 9 percent of the population (about 30 percent of households) has access to fixed telephones, mobile telephones, or Internet services.
 - Long-term, sustainable development of infrastructure, however, will require a strategic look at the ***development of supply sources and backbone networks***. Despite the overall improvement in service provision, the distribution networks and the transmission networks remain inadequate. Water and electricity transmission networks are still at a very early stage. The supply of electricity is still greatly dependent on the Israeli Electricity Company (IEC), with only about 5 percent of Palestinian demand met from a Palestinian power plant built recently by an independent power producer (IPP). Only 45 percent of the available water supply in the West Bank is obtained from locally owned sources, mostly wells. Access to water aquifers and riparian rights is constrained by the political arrangements. The development of key transport facilities—West Bank—Gaza link, Gaza seaport, Gaza airport, West Bank airport, the North-South highway in the West Bank; and the North-south highway in Gaza is still to be undertaken.
- xiii. Considerable progress has been made on the institutional development and sector reform fronts:
- Despite all the problems, internal and external, ***the Palestinians have been able in a relatively short time to build several, very creditable public and private-sector institutions and instruments:*** the Palestinian Water Authority (PWA) and Palestinian Energy Authority (PEA); and the Palestine Telecommunications Company (Paltel), its mobile subsidiary Jawwal, and the Palestine Electricity Company (PEC). Paltel and PEC have established themselves as strong national institutions, major employers, and key contributors to the national economy. Long-term strategies have been developed

for electricity and water. A similar attempt is now underway in telecommunications. The establishment of bulk utility companies for water and electricity is planned. New laws were enacted for telecommunications and water, and a draft law for electricity has been prepared and is under discussion. These developments augur well for the future.

- ***WBG is still in the early stages of establishing regulatory institutions for its infrastructure.*** Sector ministries currently play the role as regulators of telecommunications and transport, although the PA Cabinet has recently decided to establish a separate regulator for telecommunications. Electricity and water are regulated by two separate public authorities. Despite the progress made on the legislative side, the institutions mandated to regulate their respective services have not focused on regulatory work and have not developed the institutional capacity to carry out their regulatory responsibilities. None of them has developed a detailed regulatory framework and the instruments required to enable effective regulation. Rather, they continue to perform several policy, developmental, and some times, service-provision functions.
- ***PA's effort to consolidate and commercialize the entities (mostly municipalities and village councils) in charge of providing services is still in progress.*** One of the key features of the PA's strategy in the area of infrastructure-services provision has been to set up regional utility shareholder-owned companies for electricity and water. While four (out of five planned) regional, electric utilities have been established since the PA took over, three more are still to be established. The Jerusalem District Electricity Company (JEDCO), which was founded in 1927, and the Jerusalem Water Undertaking (JWU) are the leaders in terms of commercialization and institutional capacity in their respective sectors. However, municipalities and joint service councils continue to play an important role in providing infrastructure services to their populations despite increasing evidence indicating that municipalities served through regional utilities have better services, lower costs, and better network conditions.
- The PA's experience shows how difficult it is to improve the performance of public utilities. The cost of production, the high system losses (about 40 percent in water and 20 percent in electricity), the status of the distribution network, and the collection rates are indicators of weak operational and managerial performance by public utilities. Relying on public provision reduces pressures to adopt more rational pricing policies. Coupled with difficulties in improving efficiency, such dependence will also increase reliance on public funding—from the government or from donors—rather than users. Private-sector experience, on the other hand, has shown that, even under very difficult conditions, efficiency, availability, and the quality of service can substantially improve with private management.
- ***Although the involvement of the private sector has been limited to few market segments, in many respects, private interventions in the sector highlight the potential for private participation in the infrastructure sector development.*** As mentioned earlier, Paltel, Jawwal, and PEC have established themselves as strong national institutions and key players in the infrastructure sector. The total investment made by these companies is estimated at about US\$400 million, most of which came from Palestinian and regional investors. The management contract in the water sector in Gaza was another pragmatic approach to involving private operators in infrastructure. It also provided best practice in two other areas: (i) how donor financing—Bank funding in this instance - can be leveraged to enable private participation; and (ii)

contracting out of some regulatory functions (operational and financial audit in this instance) to private firms when the capacity of the regulatory institutions is limited. The PA's recent attempts to replicate the experience of the management contract in other parts of the WBG and in other fields has not yet succeeded. Since political risk was often cited as the main reason for this lack of success, it is evident that with a modicum of political stability and an efficient regulatory environment, much progress can be made in developing the sector.

xiv. Self-financing in infrastructure has been limited; the need for a sustainable financing strategy cannot be overstated.

- *Inappropriate tariff regulation regimes, inefficient billing and collection systems, and weak sector governance have contributed to the limited cost recovery and self financing.* Telecommunications has been the exception, mainly because it was run by private firms on a commercial basis. Electricity and water tariffs are decided by PA public institutions whose decisions are significantly influenced by social and political considerations.

The prevailing political and economic conditions in the WBG make it difficult to charge cost-covering prices. Utilities do not always have sufficient incentives to collect payments for services delivered. In addition, the prevailing weak corporate governance in most utility companies and their inefficient operational management does not support economic efficiency and commercial discipline.

- Given the PA's fiscal constraints, donors provided most of the funding—about US\$1.3 billion—that went into *infrastructure*. The shares of the key beneficiary sectors are: US\$730 million for water, US\$473 million for transport, and US\$140 million for electricity. A strategy of continuing dependence on donor financing for infrastructure investments as well as for recurrent expenditure is neither healthy nor sustainable. Fluctuations and shifts in donors' support make long-term and strategic planning of sector development extremely difficult. Donor aid may reduce incentives for commercial orientation. The PA therefore needs to be realistic in its expectations of future donor funding and needs to do a much better job in developing effective procedures and setting national priorities for donor assistance. The PA should plan to assume a larger share of recurrent expenditures and maintenance costs of public infrastructure projects.
- *Innovative approaches are needed to increase private involvement.* The main reason for the limited role of private firms in providing infrastructure services is their inability in some situations to charge commercial rates and hence generate healthy revenues. If strong revenues cannot be generated by operators through cost-covering prices, especially from services provided to poor consumers, targeted subsidies provided by the government can be used to cover the gap. Public financing—required anyway if services remain public responsibilities—can be used to supplement user fees and leverage private investment. Linking payment of these subsidies to the achievement of predetermined target outputs, such as new connections or new production capacity, places performance risk on the private sector. Other approaches like leasing schemes and management contracts could also provide less risky instruments for attracting the private sector. Also sectors that are attractive to local investors should be explored (solid waste for example).

Towards A Strategy and Program for Developing the Sector

- xv. This report's main objective is the assessment of performance over the last decade; developing a sector strategy for the future is a distinctly secondary aim, since any comprehensive, long-term strategy for the four key infrastructure sectors is a very demanding task that requires more than the available time and resources. Attempting something more modest, however, the study outlines feasible short- and medium-term development strategies that take account of the current social, economic, and political situation.
- xvi. In considering strategies and programs for the future, the report adopts the PSEP framework outlined above as a point of departure, ignore Scenario "C", however, because it tends towards paralysis. As a time frame for the scenarios and in the current context, a short period of 2-3 years seems reasonable. The obvious question of "what then?" arises, however, because many developmental issues cannot be practicably addressed in a 2-3 years. Thus, to focus on the short- and ignore the medium- and long-term would be unrealistic, particularly in a field as complex as water in which development requires long lead times and bulky investments. Thus, the study identifies a fourth (medium-term) Scenario, "D" that is the equivalent of Scenario "B", but covers the subsequent 8-year period 2008-2015.
- xvii. In general, the proposals under Scenario "A" focus on system rehabilitation and maintenance. Those under Scenario "B" broaden and accelerate Scenario "A" proposals and envisage consolidation of on-going reform processes. Those under Scenario "D" take the process to an even higher level and begin to lay the foundation for longer-term sector development. Budget estimates range as follows:
- Scenario "A" - US\$500-600 million.
 - Scenario "B" - US\$800-900 million.
 - Scenario "D" - US\$2,070-2,360 million.

Table 2: Tentative Budgets Under Various Scenarios, WBG 2005-2015

Sector	Estimated Annual Budget (US\$m)		
	Scenario "A" Political Stagnation (Short-Term, 2005-2008)	Scenario "B" Political Progress (Short-Term, 2005-2008)	Scenario "D" Political Progress (Medium-Term, 2008-2015)
ANNUAL			
Water	45-50	80-90	70-80
Electricity	15-20	25-30	20-25
Transport	100-130	160-180	160-180
Telecom	0.4-0.6	3-4	8-9
TOTAL			
Water	135-150	240-270	60-640
Electricity	5-60	75-80	160-200
Transport	300-390	480-540	1280-1440
Telecom	2	10	70
Total for all sectors	487-602	805-900	2070-2358

CHAPTER I Introduction

1. Although the precise relationship between infrastructure and development remains a subject of debate, clear evidence shows that infrastructure capacity grows in step with gross domestic product.² Sound infrastructure—in the form of roads and water, power, and telephone lines, for example—contributes in significant ways to economic growth. It helps to expand trade, raise productivity, improve living standards, reduce poverty, and improve environmental conditions.
2. In the Palestinian context, efficient infrastructure in West Bank and Gaza (WBG) can provide a solid platform for reviving the Palestinian economy and for building a more balanced and independent economy when political conditions permit. In positive terms, the development of Palestinian trade, tourism, agriculture, and services all depend on functioning, modern infrastructure. The past neglect of such systems, services, and institutions, however, has harmed the quality of life of Palestinians and their health and environment.

Objectives and Scope

3. This study has three basic aims:
 - To review the performance and development of WBG infrastructure.
 - To identify the major, current infrastructure issues and the need and options for development in the short and medium term.
 - To lay the basis for such development strategies,³ given the current social, economic, and political situation.
4. The focus is on the four, core sectors (water and wastewater; electricity; transport; and telecommunications) in which the Palestinian Authority (PA), the Bank and donors have been active, in which much work has been done and significant accomplishments registered. The study does not review energy (natural gas and petroleum) issues nor cover solid-waste questions. Moreover, although municipalities play a key role in infrastructure service delivery, this review is only able to take note of their relevance and important actions in the four, core sectors. To do justice to such a large and complex subject, a separate study of the municipalities is needed. The foundation for this important work is currently being laid.
5. The assessment pays specific attention to institutional issues, particularly the need to build local capacity and to provide an environment that facilitates effective private-sector participation. Unable in the time available to collect much primary data, the authors have relied mainly on existing studies and on first-hand information gathered in interviews with key officials.

² World Development Report, Infrastructure for Development, the world Bank, 1994.

³ The report does not aim at detailed strategy development. This would require for more time and resources that are currently available.

6. The assessment of WBG infrastructure development reflects a full realization of the broader development context and the recent crisis described below. Development efforts over the last ten years have faced enormous challenges.⁴ Among them are the problems of an underdeveloped and fiscally fragile economy subject to severe economic shocks; the need to build functioning Palestinian public institutions where none existed before; the complexities associated with the various Israeli-Palestinian interim agreements; the large number of donors involved; the territorial fragmentation and mobility restrictions imposed by Israel in the PA areas (especially in the last four years); and the political uncertainty that impedes public- and private-sector planning amid interrupted negotiations on the permanent status of the Palestinian areas.

The Context

7. The development of WBG infrastructure services has been affected by the prevailing political and economic conditions. Until 1994, the Israeli Civil Administration held responsibility for providing services. Volume 5 of “Developing the Occupied Territories” (published by the Bank in September 1993), the Bank’s first report on WBG infrastructure, assessed the status and major concerns of most infrastructure sectors (power, water supply and sanitation, transport, housing and solid waste services) and the related, priority, technical assistance and investment needs. The report found the level and quality of infrastructure services provided in WBG below that generally found in countries with comparable incomes. A 1994 document—“Emergency Assistance Program for the Occupied Territories”—provided the scope and the format for the Bank’s initial intervention and identified the Palestinian Economic Council for Development and Reconstruction (PECDAR) and municipalities as the lead implementation agencies of the emergency assistance program since no other PA Ministries or institutions existed at the time. Since then, several Bank supported infrastructure-related projects have been identified and implemented.
8. Following the 1993 Oslo peace agreement, responsibility for providing these services was transferred to the PA, which established several new institutions to oversee the work. Donors also provided significant financial resources to support the rehabilitation and modernization of these services. The private sector, when given the opportunity, has also contributed significant resources to infrastructure development. Despite several deficiencies in governance, considerable improvements in the level and quality of infrastructure services were achieved between 1994 and 2000.
9. However, infrastructure performance has suffered since conflict erupted in September 2000 after the breakdown in Israeli-Palestinian negotiations on permanent-status issues. The conflict has led to political uncertainty as well as an ongoing economic crisis. Confrontations have led to closures and tight restrictions on movement of people and goods in WBG, resulting in a dramatic decline in trade, investment, and employment. In addition to preventing the planned implementation of infrastructure improvement programs, the conflict has caused serious physical damage to existing facilities—estimated at about US\$1.5 billion by the end of 2003. Forced to operate in an emergency mode, the PA’s young institutions have lost their ability to manage infrastructure development effectively at the same time that the PA faces a very difficult fiscal situation with sizable budget gaps.

⁴ World Bank and Japan, “Effectiveness of Aid in the West Bank and Gaza”, June 2000.

The Palestinian Authority's Response

10. Last fall the PA presented the Palestinian Legislative Council an integrated recurrent and capital budget for 2004. The Bank, with support from the IMF, the European Commission (EC) and UNSCO, assisted the Ministries of Finance, Planning and National Economy to prepare an economic management strategy for 2004-2005 as the basis for this budget submission (the *Palestinian Socio-Economic Stabilization Plan*, or PSESP). The two key PSESP priorities are (i) to finance the PA's external budget deficit and thereby ensure that the Authority can function and deliver basic public services; and (ii) to sustain a minimum level of humanitarian services. In addition, the PSESP contains a prioritized menu of capacity building, rehabilitation, and development projects that can realistically be implemented in today's harsh operating environment.
11. The PSESP is based on three economic scenarios modeled by the Bank and the Fund for 2004-2005:
 - *Scenario "A": political stagnation.* The positive impact on domestic activity and incomes in 2003 of fewer curfews and marginally improved access to the Israeli labor market, as well as the resumption of tax transfers by GOI, is projected to subside in 2004-5. As a result, GDP growth rates would decelerate and poverty remain close to 2003 levels, with the absolute number of the poor growing in line with population increases.
 - *Scenario "B": political progress.* The economic situation would improve more rapidly, fueled by larger worker remittances and lower restrictions on the movement of people and goods. GDP growth would accelerate in 2004, but poverty rates would remain relatively unaffected in 2004, declining slightly in 2005. Budgetary revenues would increase in line with GDP growth, but the PA's financing gap would remain significant.
 - *Scenario "C": political deterioration.* The Palestinian economy would lapse back into recession in 2004, illustrating once again the asymmetric effects of closures (rapid economic decline when imposed, gradual recovery when lifted). Under this scenario, GDP would fall in 2004, reaching a new low-level equilibrium in 2005. Poverty would increase. Revenues would fall significantly, widening the PA's fiscal gap.
12. The need for budget support and humanitarian assistance would remain considerable under all three scenarios, with fiscal recovery a more distant prospect and poverty persisting at high levels. Projected budget support needs in 2004 range between US\$621-705 million. The need for humanitarian assistance is estimated to exceed US\$200 million under all three scenarios.⁵

⁵ Financial requirements for humanitarian assistance are derived from disbursed assistance in 2002 amounts (US\$215 million for cash and food assistance, job creation programs and the support to emergency appeals of the United Nations Relief and Works Agency for Palestinian Refugees—UNRWA), adjusted for the change in the number of poor under the three scenarios.

13. The **two PSESP priorities** were to be pursued within the context of the three scenarios outlined above. The summary of the PSESP budget is presented in Table 3 to indicate the PA's component priorities as well as funding requirements.

Table 3: PSESP Budget 2004-2005

No.	PSESP Component	Total (US\$ m)	On-going & Pipeline (US\$ m)	New Request (US\$ m)
1	Budget Support	650.0	0	650.0
2	Humanitarian and Social Assistance	164.4	98.3	66.1
3	Rehabilitation and Reconstruction of Damage	26.0	2.0	24.0
4	Public Infrastructure Development	278.4	162.6	115.7
5	Private Sector Support	40.5	20.0	20.5
6	Reform and Institution Capacity Building	39.2	19.2	20.0
	Grand Total	1,198.4	302.1	896.4

Source: Ministry of Planning, 2003.

14. Of an overall proposed program of US\$1,198.4 million, the largest share (US\$650 million or about 50 percent) was dedicated to budget support. Some US\$278 million (about 23 percent) was allocated to public infrastructure development—the second highest allocation); and about US\$164 million (14 percent) was to go to humanitarian and social assistance—the third highest allocation). The new requests (i.e., the unfunded portion of the budget) was about US\$ 896 million, of which public infrastructure accounted for about US\$116 million. Stated differently, about 40 percent of the public infrastructure budget was unfunded.
15. As Table 4 shows, the three publicly managed sectors reviewed here (i.e., water, electricity and transport) accounted for about 55 percent (US\$ 153 million) of the total public infrastructure budget under PSESP.

Table 4: Public Infrastructure Component, PSESP 2004-2005

Component	Total (US\$ m)	On-Going/ Pipeline (US\$ m)	New Required (Un-Funded) (US\$ m)
Water and Wastewater	60.1	35.3	24.8
Energy	68.0	48.3	19.7
Transport	24.7	-	24.7
Sub-Total	152.8	83.6	69.2
Education, Health and Public Building	125.6	79.0	46.6
Total	278.4	162.6	115.8

Source: Ministry of Planning, 2003.

Bank Strategy

16. The Bank's engagement in WBG has been characterized by a need to adapt. During the first of three identifiable phases (1994-96), the Bank emphasized establishing the Palestinian Authority (for which the Technical Assistance and Holst Trust Funds were instrumental), and the rehabilitation of basic physical infrastructure (roads, school buildings, health clinics, water and wastewater networks) in order to provide immediate and tangible benefits to the population. In the second phase, from 1997-2000, as the PA's fiscal situation stabilized and the closures of 1995-6 were lifted, the Bank's program featured an increased focus on institution building, private-sector development, and regulatory and institutional reform. Bank assistance during the Intifada, since late 2000, constitutes the third phase and features a balance between maintaining medium-term developmental activity where feasible and providing emergency assistance designed to sustain Palestinian institutions and mitigate poverty.
17. In response to economic hardship and fiscal crisis, the Bank has placed increasing emphasis on fast-disbursing operations, with US\$89.1 million committed to various emergency projects since the beginning of the Intifada.⁶ Initially, consistent with the Bank's emergency support during periods of closure in the 1990s, priority was given to job creation (the Emergency Response Program, FY01). The scale of job losses made the overall impact of such efforts marginal, however, and from 2001 onwards the Bank's emergency strategy shifted towards sustaining basic services, largely through operating cost support.⁷ An additional element in the Bank's emergency response was a reallocation approved by the Board in August 2002 of US\$10.3 million from six credits into public-infrastructure repair.⁸
18. In the coming two years, the Bank's strategy and program will aim at balancing efforts to manage the emergency with a continued focus on medium-term development. This objective builds on the bi-focal strategy espoused in the Bank's two *Economic Assessments*, now reflected in the Quick Impact Intervention Program (QIIP) and the PSESP.

Toward A Strategy for Infrastructure Development

19. In attempting to outline a way forward, it is appropriate to use the scenarios developed under PSESP as a base and to try, as well, to advance more important medium and long-term developmental issues. It is, not, however, feasible – as explained above—to develop a detailed strategy – a far more complex task than is possible with the resources at hand.

⁶ These are Emergency Response Program (ERP), which financed over 200 labor-intensive micro-projects, two Emergency Services Support Projects (ESSP I and II), which provide operating-cost support to the main social service ministries (Education, Health, and Social Affairs), the Emergency Municipal Services Rehabilitation Project (EMSRP), which helps municipalities sustain basic services (solid waste, electricity, water & sanitation) as well as strengthen budget and planning processes, and the Emergency Water Project (EWP), which alleviates severe water shortage in the southern West Bank.

⁷ *The Annex in Twenty-Seven Months*. (op. cit.) features a comparison of welfare instruments—food, cash schemes, job creation, budget support—and concludes that budget support to the PA and municipalities has greater impact from the macro-economic and welfare perspectives than employment generation activities as implemented thus far.

⁸ The six projects being the Municipal Infrastructure Development Projects I & II, the Education Action Project, the Bethlehem 2000 Project, the Gaza Industrial Estate Project and the Solid Waste and Environmental Management Project.

CHAPTER II Cross-Cutting Issues

20. Several concerns characterize infrastructure sub-sectors. The most important are:
- Securing access to key assets and resources (like water supply, roads, and radio spectrum);
 - Extending the focus to developing backbone networks and supply sources;
 - Finishing the job of developing commercially oriented and financially viable regional utilities;
 - Adopting a more sustainable financing strategy: reducing dependency on donor assistance and encouraging private-sector participation;
 - Considering a more pragmatic approach to sector regulation; and
 - Safeguarding and protecting the environment, natural and cultural heritage and the indigenous people.

The issues are summarized in Table 1 of the Executive Summary. Their implications are explored below.

Increasing Access to Key Assets And Resources

21. The absence of permanent-status agreement has limited the access of Palestinians to key assets and resources. Their lack of control and access to crucial resources—water, land, roads, seashore, airspace, and radio spectrum—has had a major impact on their infrastructure development efforts. In addition, the absence of Palestinian control on border crossings and their restricted access to land and to the road networks of Israeli settlements have been major constraints for healthy development of the sector. Some of these constraints can be addressed before an agreement on permanent status is reached. Possible actions may include:
- Securing Palestinians’ water rights and access to and control of aquifers and riparian rights in WBG;
 - Providing external access to WBG (international crossings) and facilitating the development of necessary airport and seaport facilities;
 - Removing restrictions on the movement of goods and people within the West Bank and between the West Bank and Gaza Strip;
 - Securing Palestinians’ rights to have their own international telecommunications gateways; and
 - Securing Palestinians’ control over an appropriate frequency spectrum.

Developing Backbone Networks and Supply Sources

22. Since the PA assumed responsibility after the Oslo Agreement, WBG has seen good progress in the provision of infrastructure services. The coverage and access to water, electricity, transport, telecommunications services have increased. The PA, the donors, and the private sector have all contributed to making this possible. Despite this considerable progress, the fundamental structure and performance of the water and wastewater, electricity, and transport sectors are still underdeveloped. This situation is due to the limited progress in developing new and alternative supply sources, building backbone networks, production facilities, and bulk utilities.
23. Few water networks or systems exist in either the West Bank or Gaza. In both instances, networks developed around localized well or spring sources, and expanded as the communities grew. Until very recently, little attempt was made to develop regional or national transmission systems, or even systems at the governorate level. The main source of water available to the WBG is underground water. The quantity of the water being made available (in the case of the West Bank) and its quality (in the case of the Gaza Strip) are not adequate. The other potentially important source of supply, the Jordan River is not available. Supply development—a task that falls to PWA—is thus a critical task in both Gaza and the West Bank. Alternative sources like wastewater reuse and water desalination should also be considered.
24. With the very recent exception of Gaza, electricity transmission has been almost entirely provided by IEC. This situation is expected to change in the near future (the next 3-5 years or so), as PEA seeks to develop its own capacity. The question of inter-connection has also been on the regional (WBG, Egypt, Jordan and Israel) agenda for some time. The concept is an important one that offers potential benefits to all parties. It allows the region's countries to draw on external capacity to supplement currently isolated domestic capacity during peak-load periods, enabling each to develop more economic and possibly more stable systems. However, little progress has been made to date, and progress is not likely until there is a final status agreement between Israel and the Palestinians.

Developing Commercially Oriented and Financially Viable Regional Utilities

25. As the PA pursued a plan to modernize and expand the provision of infrastructure services, it has also recognized the importance of putting efficient sector structures and institutions in place to help achieve its infrastructure services' objectives. The key strategic directions pursued by the PA in reforming the various infrastructure sub-sectors over the last decade has included:
 - Establishing autonomous and commercially oriented regional utilities by consolidating the utility departments in the municipalities and villages;
 - Increasing private-sector participation in infrastructure operations to leverage private-sector financing and management expertise; and
 - Separating regulatory from commercial functions and establishing regulatory institutions to establish a level playing field for all sector stakeholders.

26. The PA's limited success in meeting its services' targets is partly due to its limited success in implementing these strategies. Table 5 provides a summary of progress made in developing strategies and institutions in the different infrastructure sub-sectors and some of the lessons learned so far. Although the institutional foundations for building a sustainable sector are laid, much remains to be done. Not all sub-sectors developed clear strategies or strategic plans, without which investment planning and prioritization were often inadequate.

Table 5: Summary of Progress on Institutional Reform

	Electricity	Water	Transport	Telecom
Sub-sector strategy	Strategy was developed	Strategy was developed	No strategy was developed	No clear strategy was developed. One is to be developed shortly
Sub-sector legislation	Bill presented by the PA to PLC for enactment	Issued in 2002. Needs to be revisited	Draft Road Law	Issued in 1996. Needs to be revisited
Sub-sector Regulation	PEA	PWA	Ministry of Transport for public transport	Ministry of Telecommunications and Information Technology
Industry structure	Distribution: Three utility companies under formation, municipalities; Transmission: Bulk utility (off-taker) planned; Generation: Palestine Electricity Company (IPP) in Gaza	Distribution: Three utility companies under formation, one already formed, municipalities; Transmission: Bulk utility (off-taker) planned	None	Palestine Telecommunications Company (Paltel): Fixed line and data services; Jawwal (or Paltel) for mobile services; Private ISPs for Internet services
Private Sector Role	The only IPP is private	The management contract in Gaza is private	Public transport service providers, part of roads maintenance work	All services providers (Paltel, Jawwal, and ISPs)

27. One key features of the PA's strategy in providing infrastructure services is to set up regional utility, shareholder-owned companies for electricity and water; different approaches have been adopted for transport and telecommunications. The rationale behind the electricity and water strategy is to reduce fragmentation and increase efficiency of service providers (the distribution segment). Utilities were to be established as commercially autonomous companies and to operate at arm's length from the PA policy and regulatory institutions. While progress has been made, much remains to be done. As a result, municipalities and joint service councils continue to play a very important role in providing key services to their populations despite increasing evidence indicating that local municipalities served through regional utilities have better services, lower costs, and better network conditions.⁹ Similarly, transmission companies and bulk water and transmission companies, although planned, are still to be established.

⁹ Source: "Support to Local Government Reform Project", UNDP, 2004..

Adopting a More Sustainable Financing Strategy and Encouraging Private-Sector Participation

28. Despite extensive public funding for infrastructure since 1994, most of the sector continues to suffer from under-funding and unsustainable dependence on donors' financing. The main exceptions are telecommunications and public transport where private enterprise took the lead on financing. Power generation has also attracted limited private investment.
29. Given the PA's fiscal constraints, donors provided most of the funding—about US\$1298 million—for the other sub-sectors: US\$730 million for water, US\$473 million for transport, and US\$140 million for electricity. This continuing dependence on donor financing for both infrastructure investment and recurrent expenditure is neither healthy nor sustainable. Fluctuations and shifts in donors' support makes long-term and strategic planning extremely difficult. Donor aid may also reduce incentives for commercial orientation. The PA needs, first, to make realistic assumptions about future donor funding. Based on reasonable expectations, it then needs to do much better in developing effective procedures and setting national priorities for donor assistance. And at the same time, the PA should plan to assume a larger share of recurrent expenditures and maintenance costs of public infrastructure projects.
30. Continuing the role of municipalities in providing water and electricity services raises concerns about municipal financing and accounting practices, subsidies, and fiscal governance. Revenues from electricity and water services represent a major part (50-80 percent) of the municipalities' revenues. According to their data, municipalities, until recently, have had positive cash flows from the provision of these services. This data and the resulting conclusions could, however, be misleading; some municipalities are not fully paying their water and electricity bills to their bulk suppliers (primarily Israeli utilities). The PA's Ministry of Finance has often ended up paying these charges. Since municipality accounts do not provide for depreciation and maintenance, moreover, investment expenditure is not always covered. Other sources of subsidies to municipal infrastructure service operations include donor assistance (normally grants) that is also not reflected in municipalities' cost structures. Several reports¹⁰ have therefore recommended removing the direct responsibility from municipalities with the goal of improving resource allocation, full-cost recovery pricing, economic efficiency, and service quality.
31. Self-financing for infrastructure has been limited. Inappropriate tariff regulation regimes, inefficient billing and collection systems, and the weak sector governance have contributed to the limited cost recovery through self-financing. The telecommunications sector has been the exception mainly because it was run by private firms on a commercial basis. The PA, like other developing countries, sets prices of such infrastructure services as water below the levels required to recover costs and to finance investments. Not only do the prevailing political and economic conditions in the WBG make it difficult to charge cost-covering prices, but utilities were also not pressured to collect bills for services delivered. In addition, the prevailing weak corporate governance and inefficient operational management in most utility companies does not support economic efficiency and commercial discipline.

¹⁰ See for example, NORCONSULT, "Water Tariff Study, Phase I" report (1997); Research Triangle Institute, "Municipal Revenue Generation in the West Bank and Gaza", Study no. 2, prepared for USAIDI (1998); World Bank, "Strengthening Public Sector Management", (Jerusalem: WBG Resident Mission, 1999).

32. If strong revenues from the provision of services cannot be delivered through cost-covering prices, targeted subsidies, especially to poor consumers, can make up the gap. Output-based subsidy approaches could help mobilize private financing—as subsidy programs in Latin America have done. Public financing, which would have been required anyway under public provision, management contracts, and leases, can be used to supplement user fees and leverage private investment. Making these subsidies payable when predefined targets—such as new connections—are achieved places performance risk on the private sector.
33. The PA recognized early that it needed private participation for infrastructure development and has demonstrated that it has the political will to pursue such a goal. The PA is convinced that the private sector brings much needed resources and expertise, recognizing that private firms are often more likely to fulfill the conditions for effective service provision that any operator—public or private—would need to meet. To attract private investment in the first place, the Government would have to make credible commitments to put in place the type of environment that any operator needs to deliver service efficiently.
34. In particular, private provision can help in establishing an arm’s-length relationship between service provider and public authorities, thereby relieving political pressures that hamper performance and undercut commercial incentives. As demonstrated in the case of the telecommunications and power generation in WBG, this fundamental change in institutional relationship often results in stronger commitments on the part of government to cost-covering tariffs, thereby giving operators a better chance of financial sustainability. Indeed, private companies exposed to commercial and investment risk will not enter the market without a credible commitment to cost-covering tariffs. In addition, under private provision, managers base operations on commercial principles, with greater flexibility in headcount adjustments and increased diligence in collection, cost savings, and efficiency gains. These changes stimulate further private capital investment, foster management expertise, and encourage technology adoption. Private provision also offers greater opportunity to generate competition, as well as a chance to review and reallocate risks between public and private parties.
35. The modalities for large-scale private participation in WBG have varied. In the power sub-sector, private investments have been limited to electricity generation through an IPP project where the PEA agreed to purchase all power produced from the private developers at an agreed-upon rate (off-taker). By contrast, PA’s initial moves in telecommunications included the privatization of the limited, existing PA’s operation and the licensing of a privately controlled company. As to water, private participation has taken the form of a performance-based management contract. For natural gas, the PA granted a concession to an international consortium led by British Gas. No private-sector participation was implemented for roads or in earlier efforts to develop the Gaza port. The Ministry of Transport, however, out-sources vehicle licensing, and Palestinian Airlines—no longer operational for political reasons—was established as a partnership between the PA and private investors.

36. The PA's limited experience in putting infrastructure services into private hands has often been matched by difficulties in improving the performance of public utilities, particularly those with weak institutional capacities and governance. The private sector, on the other hand, has shown that, even under very difficult conditions, it can substantially improve efficiency, availability, and the quality of service. Relying on public provision reduces pressures to adopt more rational pricing policies, which coupled with difficulties in improving efficiency, will also increase reliance on public funding—from the government or from donors—rather than users.
37. The actual and limited WBG practice of private-sector participation in infrastructure matters, however, does not reflect many of the potential advantages. Private participation moved more rapidly than the institutional infrastructure necessary to ensure appropriate levels of competition and regulation. In the absence of an appropriate legal, institutional, and regulatory framework, many of the benefits frequently associated with private-sector participation have not materialized. Most public institutions in the sector have focused their efforts on attracting private and donor-funded capital but without developing adequate legislation, regulation, or monitoring capacity. Most of the contracts listed above, for example, have been directly negotiated with the private investors, without competitive bidding. Clearly, awarding concessions without competitive bidding so that consortiums of investors gain exclusive rights to develop projects in partnership with foreign investors does not inspire confidence from the international community of investors and donors.
38. Under present conditions, private investment in infrastructure projects which require sound cash flows, may not be attainable without the PA's taking steps to mitigate political and regulatory risks. Attracting private investment to develop infrastructure projects presents particular challenges inasmuch as initial investments tend to be large and lumpy, growth in capacity utilization is often slow with correspondingly long pay-back periods, and tariff increases are generally socially and politically sensitive. Since those particular risks are compounded by an unfavorable overall investment climate, special measures are needed to take into account private investors' desire for predictable and secure returns. International experience has shown that, with sound policy and regulatory frameworks and competent institutions, risks can be reduced and appropriately allocated so as to make infrastructure projects attractive. But where these conditions are not met, private financing will be impossible or, at best, very costly. During the 1990's, when a growing number of firms began pursuing private infrastructure projects in developing countries, even deals that were not well-structured could attract investors. This is no longer the case. Following the onset of the Intifada, WBG has been viewed as a high-risk country. Public-private partnerships may therefore require an appropriate framework for future investments in the sector, at least under current circumstances.

Establishing Efficient Regulatory Frameworks

39. Regulation is an enabling activity that aims at balancing economic efficiency and social equity. It is particularly applicable to infrastructure where monopolies are often the service-providers. Regulation can help protect the interests of consumers and correct for market distortions that stem from the dominant market power of providers. Effective regulatory institutions improve the performance of the sectors they oversee by fostering efficiency and innovation in service provision, creating incentives to service-providers to expand access to customers and increasing public participation in policy formulation and implementation.
40. There are three main approaches to regulate the provision of infrastructure services:
 - a) Separate, independent regulatory agencies for each sub-sector (i.e. telecommunications, electricity (or energy), water, and transport). Jordan for example has adopted this approach;
 - b) A single independent regulatory agency for several infrastructure sectors with dedicated regulatory departments for each. Peru for example has adopted this approach; and
 - c) Ministry-level supervision of the service-providers, as adopted by several developing countries for electricity, water, and transport.
41. It is now established that independent, competent, and transparent regulation can greatly facilitate successful private participation in infrastructure services,¹¹ including in particular where competition is possible. The supervisory ministry model, on the other hand, has rarely led to efficient and financially viable utilities. Decisions on pricing become subordinated to short-term political pressures; ministries become utility managers rather than policy-makers. There has been little international experience with the multi-sectoral independent regulatory model.
42. WBG is still in the very early stages of establishing regulatory institutions for its infrastructure services, but it has experimented with two of the three approaches to regulation described above. Ministries currently play the role of regulators for telecommunications and transport, although the PA Cabinet has recently decided to establish a separate regulator for the former. Electricity and water are regulated by two separate public authorities. Despite the progress made on the legislative side, the institutions mandated to regulate their respective sectors have not developed detailed regulatory framework and instruments required to enable effective regulation nor developed the institutional capacity to undertake their responsibilities. Instead, these institutions continue to perform several policy, developmental, and some times, service-provision functions.
43. Following about 10 years of experience, infrastructure industry experts question the effectiveness of regulators established in developing countries in meeting some priority goals.¹² Reasons cited include inadequate legislated grants of independence, inadequate progress to independence even where authorized by law, and inadequately developed capacity to deal with the complex issues involved. One major area where regulators fell down is in adjusting tariffs so as to ensure cost-covering. Many regulators could not muster the independence and capacity needed to take the politically and socially sensitive step of raising tariffs (especially

¹¹ Ioannis Kessides, *Reforming Infrastructure: Privatization, Regulation and Competition*, the World Bank, 2004.

¹² Tonic Bakovic, Bernard Tenenbaum and Fiona Woolf, *Regulation by Contract*, World Bank, Energy and Mining Sector Board Discussion Paper No. 7, March 2003.

for water and electricity) to cost-recovery levels. It is not surprising, therefore, that some industry experts now call for altering the regulators' traditional discretion over key decisions, in order to give investors the certainty they need in areas like tariffs. Renewed interest in the contract regulation approach has therefore surfaced, perhaps as a transitional step until regulators develop the needed independence and capacity. Regulating through a contract or a concession entails stipulating terms and conditions and setting out a basis for adjusting tariffs, often through a formula.

44. Under the prevailing political and institutional conditions in WBG, a gradual approach to improving regulation is the only realistic option. While developing a separate and independent regulatory agency (or agencies) should remain a key objective, the near-term priority could be to establish and/or strengthen regulatory departments in existing institutions (for example, PWA, PEA, MOT). In addition, using well-designed, comprehensive contracts and licenses as a key regulatory instrument could allow for the gradual development of regulatory capabilities. Explicit policies governing the behavior of infrastructure operators, the scope for competition, and the setting and adjustment of tariffs on the basis of clear and simple formulas can reduce the regulatory burden. At a later stage, the PA may also want to consider multi-sectoral regulatory options.

Safeguarding and Protecting The Environment

45. According to the Palestinian Environment Law adopted in 2001, any infrastructure investment should be environmentally sound and sustainable. The Environment Quality Authority (EQA) was established to ensure, among other things, that environmental issues are properly addressed during the formulation of policy and plans and project-design and implementation stages. The law stresses that adequate environmental reviews be conducted to ensure proper treatment of any evident impacts and that mitigation measures are ready to be adopted when needed.
46. In most cases, investments in infrastructure—including rehabilitating and constructing of roads, water and wastewater and electricity networks—supported environmental improvements. Potential adverse impacts and risks were effectively mitigated through proper planning and design as well as qualified environmental reviews and monitoring that are normally performed by staff of the appropriate institutions and contracted consultants.
47. During the last 10 years, several training programs for staff of infrastructure-related institutions were aimed at building knowledge, capacities, and awareness of the need to protect the environment. Similarly, several private consulting firms, especially in collaboration with international firms, have acquired knowledge in the environmental review and assessment process, which they have put to use in carrying out their tasks and activities. However, lack of enforcement mechanisms has hindered most efforts to ensure adherence to the protection law. Often only those projects with preconditions related to environmental preservation and financed by donors and financial institutions are in compliance with the law.
48. Many of the investments proposed in this study would require proper reviews and analyses of their environmental impact. The financing of such analyses is proposed as part of the technical assistance related to project planning and design, and it is likely that more attention will be required to build further capacity at the various planning, implementing, and enforcing agencies to ensure full compliance with and enforcement of the law.

CHAPTER III The Sectors

49. Focusing on four sectors—water and wastewater, electricity, transport and telecommunications—this chapter outlines the progress in each since the PA came to office in 1994 and summarizes the key issues that now need to be addressed. Further details are presented in the other volume of this study.

A. Water and Wastewater

Introduction

50. The first significant attempts at development in the water and wastewater sector began with the establishment of the Palestinian Water Authority (PWA) in 1995.¹³ Since then, considerable progress has been made. A capable national institution (PWA) has been built; several studies have been undertaken to evaluate resource availability and quality, supply and demand, well and network conditions, tariffs, technical and financial management, and institutional options; a coherent national policy has been laid out and a national plan developed; a new water law has been passed; several new wells have been dug and many rehabilitated particularly in the West Bank; several existing municipal distribution networks have been rehabilitated and new networks developed; in Gaza not only have municipal networks and systems been significantly upgraded; under an internationally recruited management contractor, effective managerial and operational systems have also been established; and plans for the establishment of a “Coastal Utility” in Gaza are well advanced. No less important, the foundations for policy and operational coordination with Israel have been established.
51. Despite these considerable efforts much remains to be done to assure Palestinians of reliable and economic supplies. For example, water production and consumption at 105 and 65 l/c/d respectively, remains low, well below comparators and Israel; critical water resources are still almost totally under Israeli control; Palestinian supply and demand in the West Bank is highly constrained by Israeli actions; supply in Gaza, while somewhat less constrained than in the West Bank, is of highly variable quality; the Gaza aquifer remains degraded and at risk of irreversible damage; adequate transmission networks and systems have yet to be developed; the institutional framework is still suffering from significant overlaps in roles and responsibilities; the investment and regulatory frameworks are still works in progress; distribution institutions and systems are still inefficient and in need of major reform and rehabilitation, and water losses are unacceptably high; tariffs generally do not reflect the cost of operations or maintenance, much less development needs; adequate wastewater treatment and disposal are still lacking; and the potential for wastewater reuse is unexploited. In sum, the long and difficult road ahead is made even more difficult by the on-going crisis (see below). More positively, though, PWA has so far shown itself equal to the challenge and able to accomplish much with steadfast leadership and effective donor support.

13 PWA was established by Decree 90/1995.

Supply and Demand

52. *Distribution:* This service is almost wholly the province of municipalities and village councils, though in the West Bank two utilities exist: the Jerusalem Water Undertaking (JWU) serving the Jerusalem/Ramallah area, and the Water and Sanitation Services Authority (WSSA) serving the Bethlehem area. Gaza still relies on municipal supply although, as noted, the foundation for a regional utility has been laid. Most municipalities own and operate local wells, but most are also dependent on the West Bank Water Department (WBWD), a relic of the Israeli Civil Administration and on Mekoroth, the Israeli National Water Corporation for supplies—far less so in Gaza than on the West Bank.
53. *Transmission:* Until quite recently, there were no Palestinian transmission systems in WBG. PWA is now gradually developing systems in the northern and southern West Bank with the assistance of USAID, and a system is also planned for Gaza. On the West Bank, PWA currently shares transmission responsibilities with WBWD. WBWD operates a number of wells from which it provides supplies to several municipalities and village councils, often utilizing networks owned and controlled by Mekoroth. The latter continues to play a key role, controlling access to groundwater resources, supplying much of the water used by municipalities and villages, and owning and controlling most of the transmission network. Mekoroth's role is much less important in Gaza where, except for those serving settlements, no transmission networks exist. There is no equivalent to WBWD in Gaza.
54. *Supply:* Supply is mostly from ground-water sources, the mountain aquifers on the West Bank and the coastal aquifer in Gaza. In the West Bank, Israel controls supply, even though the Palestinians were granted certain rights to drill new wells under the 1995 Oslo II Agreement. A key problem is the fact that the mountain aquifers are believed to be already over-exploited, leaving little groundwater for current or future Palestinian needs. The other potentially important source of supply, the Jordan River is also under Israel's control and is fully utilized by it. Supply in Gaza is less constrained. However, the coastal aquifer is already over-exploited, polluted with nitrates and chlorides and, as already noted, in danger of permanent damage. Supply development is thus a critical task in both Gaza and the West Bank, a task that falls to PWA.
55. The total municipal and industrial (M&I¹⁴) water supply in WBG in 2002 was estimated at 125.5 MCM. This amounts to a gross per capita supply of about 106 l/c/d. However, consumption (equivalent to billed supplies) is significantly lower at some 65 l/c/d. The difference between supply and consumption is largely explained by system losses which are believed to average about 40 percent of gross supplies in the West Bank and have been measured at 36 percent on average in Gaza. These losses are due to the combined effect of leakages, illegal connections (theft), and defective metering and meter reading.¹⁵

¹⁴ This excludes water used for agricultural purposes. But includes industrial, commercial and public uses.

¹⁵ The available data do not allow us to differentiate among the various types of loss.

56. *Wastewater:* The Palestine Environmental Strategy calls for all wastewater from the urban centers to be collected and treated. However, this sector remains neglected. Even the relatively large volume of wastewater collected in Gaza (64 percent) is not properly treated and is significantly contributing to contamination of the coastal aquifer. Only some 9 percent of the wastewater is collected in the West Bank, and most of it is not properly treated. The risk of contamination of the deeper West Bank aquifers is a significant concern. In response, PWA has recently formed a wastewater committee to begin to deal with the issue.

Table 6: Summary of M&I Water Supply and Demand, WBG 2002

	Region/ Governorate	Population ('000)	Percent Population Served* (%)	Communities	Percent Communities Served (%)	Gross Supply (MCM)	Net Supply (MCM)	Gross Per Capita Supply (l/c/d)	Net Per Capita Consumption (l/c/d)	Net Per Capita Deficit (l/c/d)	Gross Supply Deficit (MCM)	System Losses (%)**
West Bank	Northern	904	69%	292	52%	24.4	14.6	75	44	106	58.1	52%
	Central & Southern	1104	83%	354	87%	38.4	23.0	97	57	93	62.3	40%
	Sub-Total	2,008	76%	646	60%	62.8	37.7	86	51	99	120.4	40%
	Gaza	1,250	98%	37	100%	62.7	40.1	138	88	62	44.2	36%
	WBG Total	3,258	84%	683	62	125.5	77.8	106	65	85	164.6	38%

Source: PWA, various reports, 2000-2003. Note: * Population Served excludes the unserved population in served communities, estimated by PWA at 15%. Gaza supply data are for 2001. ** Includes technical and non- technical losses.

57. In Gaza, the level of wastewater treatment varies considerably. While the recently renovated treatment plant in Gaza City is functioning well, the plant in Northern Gaza (Beit Lahia) has been overflowing, creating a health risk to the neighboring communities. It urgently requires rehabilitation and extension. The existing treatment plant in Rafah serves more as a collection pond than a treatment plant, and is only kept operational by small-scale emergency interventions. The poorly treated wastewater of Rafah and most of the treated wastewater of Gaza city are pumped into the ocean. Because Israel prohibits the bulk of the untreated wastewater, approximately 8MCM per year, from being discharged into the sea, it is typically dumped in sand basins. This contributes greatly to the high nitrate levels. The PWA has prepared a master plan for Gaza, but implementation has so far been delayed by a lack of firm donor commitment.
58. The wastewater situation in the West Bank is not quite as alarming, but is serious nonetheless. Roughly 91 percent of the population relies on septic tanks for temporary storage of wastewater, none of which is treated. The majority of these septic tanks are emptied through private-sector vacuum trucks which discharge their contents into the closest wadi. Of the 9 percent that is collected by sewers and sent to one of seven treatment plants, only that of al Bireh Municipality is functioning properly. The result is that roughly 25MCM of untreated wastewater per year is discharged into the environment at over 350 locations.¹⁶

16 USAID / Tamkeen / Applied Research Institute of Jerusalem Report – Analysis of Waste Management Policies in Palestine, Final Draft March 2004 [http://www.arij.org/units/posters/waste_management/index.htm]

Institutional Framework

- 59. *The Institutional Framework:* Core aspects of the institutional framework have been noted above. Figure 1 summarizes the current structure of the sector and the allocation of roles and responsibilities.
- 60. Municipalities and village councils dominate distribution in both West Bank and Gaza; Mekoroth and WBWD dominate transmission on the West Bank; and while many municipalities rely on their own wells for supply, most also require supplies from Mekoroth and WBWD. PWA is responsible for sector development and is currently involved in almost every aspect except distribution. At an ever higher level, dialogue with Israel is through a Joint Water Council (JWC) that Mekoroth largely dominates, often refusing to approve important PWA initiatives to improve supply on the West Bank.
- 61. Over the last 3-4 years PWA has taken several steps to strengthen the institutional framework: A new water law has established a higher-level National Water Council (NWC) as the main policy-making body for the sector; consolidation of existing municipal water departments into regional utilities has been confirmed as the key strategy with respect to distribution; plans for the establishment of a bulk-supply utility based on WBWD are well advanced; and PWA is actively taking steps to establish regulatory capacity. A core issue has been that of PWA’s role. To date, as noted, it has played multiple roles, though it states that it intends to focus on regulation in the future. Such a shift, however, would leave a policy and developmental vacuum. For the time being it would seem sensible for PWA to continue in its developmental role. Doing so would not necessarily mean neglecting the also critical regulatory role. Instead, PWA could begin to establish a separate regulatory department (None currently exists.), recruit and train key regulatory staff, and establish the necessary systems and procedures. NWC, with added capacity, should undertake the policy function. Figure 2 summarizes the proposed structure of the sector and the allocation of roles and responsibilities.

Figure 1: The Existing Structure of the Water Sector in WBG

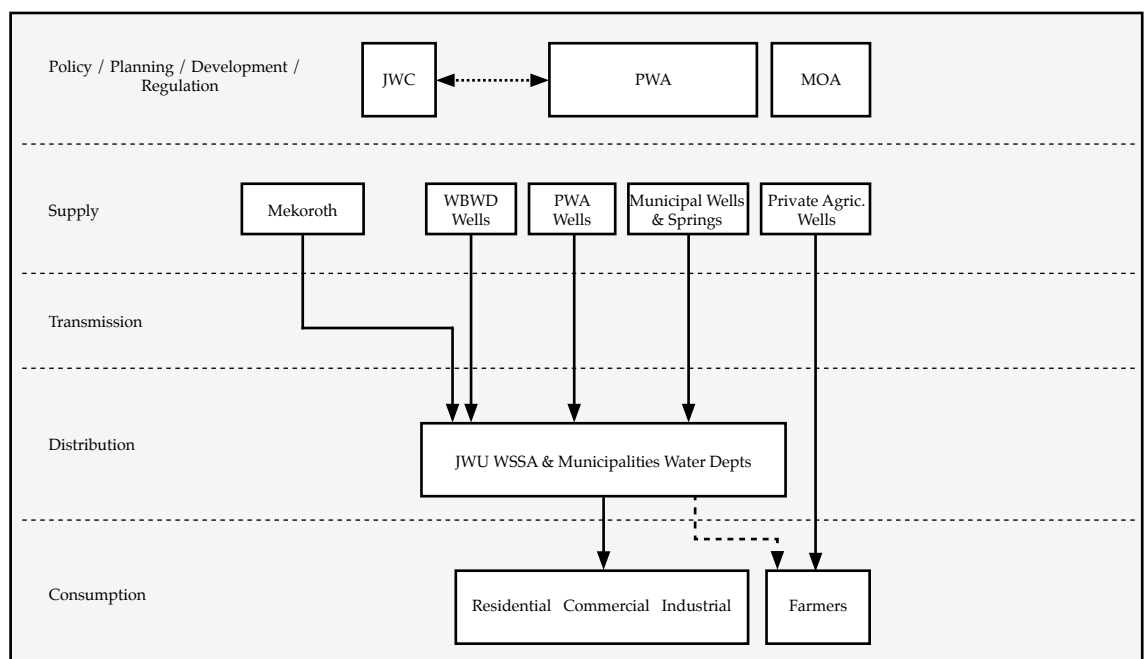
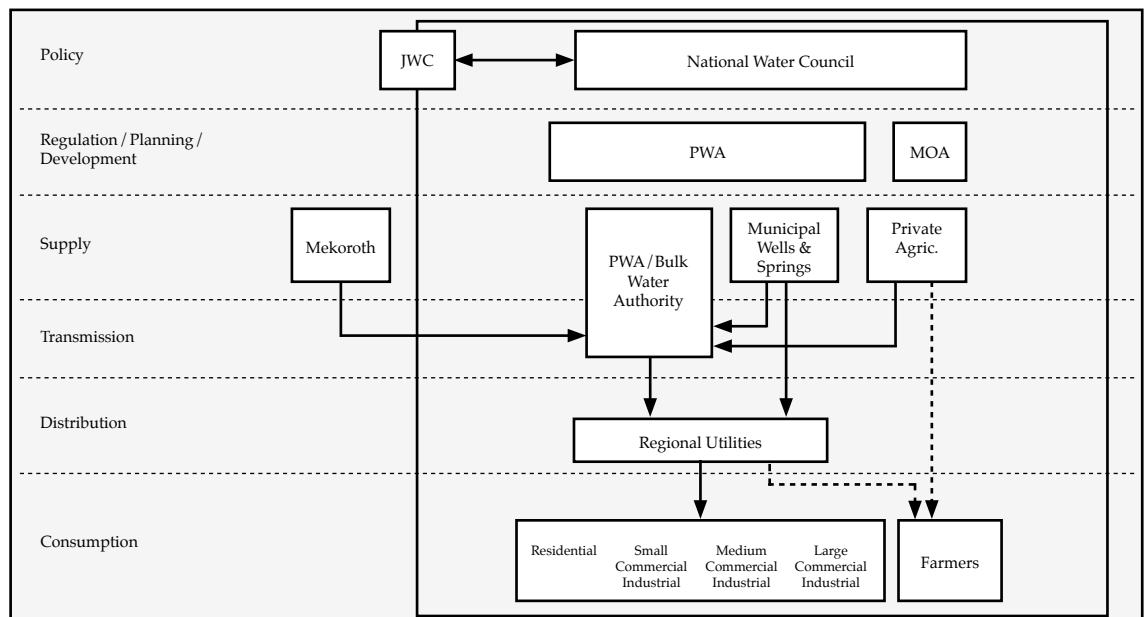


Figure 2: Proposed Structure of the Water Sector in WBG

Donor Investments

62. *Donor Support:* Donors have provided very strong support to PWA over the years, recognizing it as the lead agency in a key economic and social field. Since 1996 they have contributed or pledged some US\$730 million, or about US\$90 million per year over the period 1996-2002. Of this amount, about two-thirds has gone to the West Bank and the rest to Gaza. The lion's share (about 41 percent) has gone to improving water networks and supplies; about 27 percent has gone to a combination of storm-water harvesting, source development, irrigation and capacity building; about 18 percent went to water-reuse development and about 14 percent to water conservation. PWA has put the capacity-building support to very good use in undertaking essential studies, developing policy and monitoring capability, training staff, and generally raising the technical level of the sector.
63. *Impact of Crisis:* An estimated US\$910 million in overall infrastructure damage was inflicted on WBG between September 2000 and July 2003. The water and wastewater sector accounted for about US\$140 million, or about 25 percent of the total. Most of the damage involved the breakage of supply lines and the destruction of water pumps and installations.

Issues

64. The key issues are the following:
- *Policy Issues:* Securing Palestinian water rights and obtaining increasing access to and control of aquifers and riparian rights in WBG.
 - *Social and Economic:* Increasing access; increasing supply and consumption to recommended WHO levels; increasing reliability; reducing system losses; reducing costs; establishing life-line rates; increasing program funding; reducing dependency on donors for funding of system development; and promoting a feasible framework for cooperation with Israel and neighboring countries.

- *Institutional*: Rationalizing roles and responsibilities, including the separation between policy and development on one hand and regulation on the other; establishing an effective regulatory framework and regime; establishing a bulk-supply company; establishing efficient regional utilities in Gaza and the northern and southern West Bank, and strengthening JWU; implementing the legal framework to provide for effective unbundling and private participation in service delivery.
- *Physical and Operational*: a) Continuing system rehabilitation: improving service reliability and efficiency; reducing system losses; b) Continuing rural development program: reducing the number of unserved villages and increasing supply quantity, quality and reliability; c) Supply: developing ground- and surface-water resources in keeping with sustainable levels, increasing rainwater harvesting, increasing wastewater processing and reuse, developing new sources, particularly through desalination.

Development Options and Investment Program

65. Based on detailed sector analysis, PWA has prepared a solid strategy for the development of the sector.¹⁷ It requires a considerable investment: some US\$5.2 billion over the next 20 years or so – approximately US\$260 million per year on average. Compared to an average annual investment of about US\$90 million in water over the last 8 years, the magnitude of the investment task is clear. In essence, current levels would need to be almost tripled during the next 20 years in order to ensure that Palestinians can enjoy the minimum water-consumption standards recommended by WHO, and even then, not until 2020 at the earliest. The strategy also means that Palestinians will either have to secure or generate considerable additional funding for development or adapt themselves to relatively low consumption standards. The implication for cost recovery in the sector, in terms of increasing revenues and rationalizing demand, is as obvious as the need for donors, even in these difficult times, to begin to take a more strategic view of the sector and its long-term development needs.
66. With regard to the short term, the next 2-3 years or so, PWA is already focusing and intends to continue to focus on emergency measures to repair networks and provide additional piped water to those areas in the northern and southern West Bank without safe or reliable services. This program involves drilling and equipping new wells in the Nablus, Tubas and Jenin governorates and building transmission lines from the new Herodian and Bani Naim well fields in the southern West Bank to serve villages in the south and southwest.
67. Other initiatives include the development of waste-water treatment and reuse plants in Gaza, Hebron and in the northern West Bank. Finally PWA expects to make a start on developing desalination capabilities in Gaza. The plans for the above are well-advanced, but the funding has yet to be secured. On the institutional side, the priorities are establishing the coastal utility in Gaza and resuscitating the efforts to build a southern-area utility in the West Bank.

¹⁷ National Water Plan (Final), PWA, Dec. 2000.

B. Electricity

Introduction

68. Since its formation in 1995, the Palestine Energy Authority (PEA), the agency formally responsible for sector development, has: i) developed a clear and coherent strategy; ii) established a new, privately owned and operated generation plant, an independent power producer (IPP) in Gaza; iii) initiated the establishment of three new regional utilities, one in Gaza and two in the Hebron district of the southern West Bank, and the strengthening of the existing Jerusalem utility—the Jerusalem District Electricity Company (JDECO); iv) initiated development of a transmission system in Gaza; v) rehabilitated systems in the Gaza strip and a number of major municipalities in the West Bank, including Nablus, Tulkarem, Jenin and Qalqilia; vi) extended electricity services to the rural areas of the West Bank, reducing the number of un-serviced villages from 138 to about 75; vii) completed a number of studies aimed at establishing new transmission and regulatory capacity; and viii) drafted a new electricity law. These are very significant achievements, particularly so in such a difficult social, economic, and political setting.
69. Despite the above important achievements, much remains to be done. For example: electricity production and consumption continue to lag comparators by significant margins; dependency on Israel for supply is as great as ever—about 95 percent of the total; a Palestinian transmission system has yet to be established on the West Bank where 60 percent of the population live; distribution continues to be inefficient, with technical and non-technical system losses of well over 20 percent in most areas; technical and financial management is still quite weak; the legal and regulatory framework, while developing steadily, is inadequate; and system development continues to be almost completely externally financed. Complicating matters is the second *Intifada* that—according to PEA estimates—has occasioned some US\$14.6 m in damage to systems and services as a result of Israeli military actions since September 2002.

Supply and Demand

70. Total *local* (i.e., domestic) electricity production in 2002 was estimated at 111 GWh, or 34 KWh per capita per year. Due to system losses (estimated at about 20 percent on average) consumption is significantly less than supply. Total consumption was estimated 1570 GWh or about 480 KWh per capita per year – the average consumption in the region is about 800 KWh. Thus production, supply and consumption are all significantly below comparators. Peak demand was estimated at about 500-600 MW.¹⁸ The average load factor, at about 54 percent, is still very high. Frequent outages and wide voltage fluctuations are experienced in many areas.
71. *Distribution:* With the exception of the JDECO which was founded in 1927, until recently local governments were largely responsible for the delivery of electricity services to customers in WB&G. The arrangement has proven to be very inefficient technically, financially and institutionally, and in terms of service delivery.¹⁹ In order to improve distribution services, in 1997 PEA began taking steps to consolidate existing municipal systems into regional utilities. Discussions began first in the northern West Bank, but

¹⁸ It should be noted that the figures quoted in this section are not precise in part because IEC apparently refuses to share supply data with PEA. A further limitation is the fact that PEA's data relates to the main municipalities, omitting several village councils which have services, particularly in the northern West Bank. In the case of the peak demand, the individual municipal estimates sum to about 500 MW. This probably is an underestimate given the systems not accounted for in the data. Also, there is a suppressed demand of about 80 MW, so peak demand in 2002 could actually be somewhat higher than shown above.

¹⁹ Support to Local Government Reform Project, Diagnostic Report, UNDP and PAPP, 2004 (Draft).

when these proved inconclusive, the focus was shifted to Gaza and the southern West Bank. The Gaza Electricity Distribution Company (GEDCO) was established in 1999. Two new utilities, the Hebron Electricity Distribution Company (HEPCO) and the Southern Electricity Company (SELCO), which were also formally constituted in the Hebron governorate in 1999, did not really become operational until 2003.

Table 7: Summary of Electricity Supply and Demand, WBG 2002

	Region	Population ('000)	Consumers ('000)	Municipal/Utility Accounts ('000)	Gross Supply (GWh)	Peak Demand (MW)	Load Factor (%)	System Losses (%)	Percent of Population served (%)
West Bank	Northern	910	632	57	256	85	46-64	11-15	NA
	Central	605	600	117	891	200	51	18	NA
	Southern	490	485	52	271	52	46	19	NA
	Sub-Total	2,005	1717	226	1363	337	50	NA	98
	Gaza	1,255	1240	120	835	154	62	23	98
	WBG Total	3,260	2957	346	2198	491	54	19	98

Source: PEA.

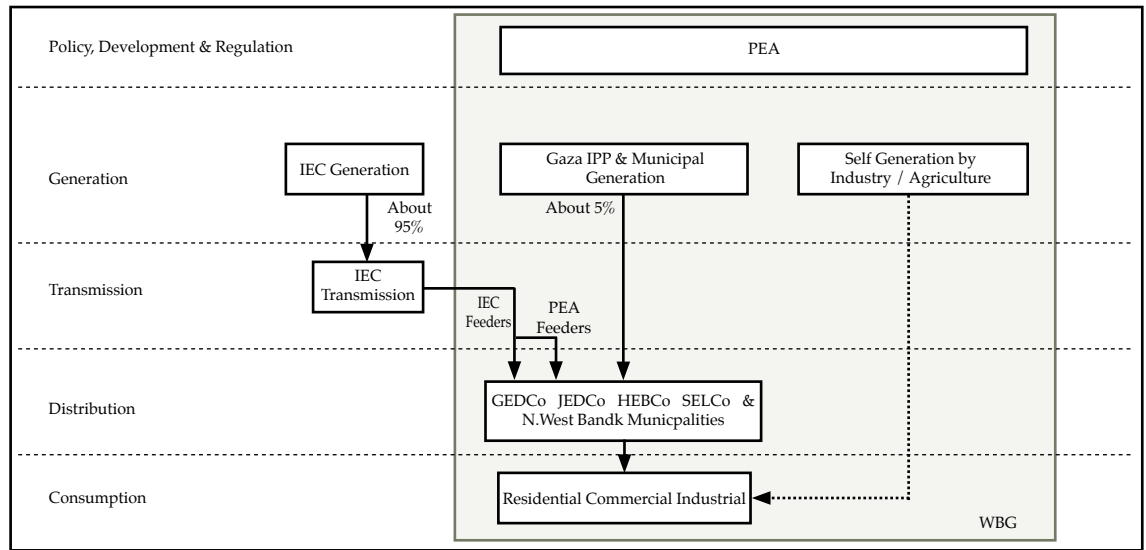
72. *Transmission:* With the very recent exception of Gaza, transmission has been almost entirely in the hands of IEC. In order to service the West Bank, IEC has extended several 33 KV and 22 KV distribution feeders from four of its 161 KV transmission stations. In Gaza, IEC's supply is via 11 (22KV) medium voltage feeders. This situation is expected to change in the next 3-5 years or so, as PEA seeks to develop its own capacity.
73. *Generation:* Until the establishment of the IPP in Gaza in 1999, generation was almost totally provided by IEC. A few municipalities (mostly in the northern West Bank) owned and operated small diesel power plants, but their production was miniscule compared to the demand. The Gaza IPP currently has the capacity to produce about 140 MW—almost the entire current Gaza demand—and this capacity can be expanded on site up to about 490 MW. While a major innovation and strategic initiative, IPP production costs are currently very high compared to the IEC bulk selling price (US 12 cents vs. US 7 cents), and service payments by GEDCO to the IPP are behind schedule. Over time, however, IPP production costs could be highly competitive with IEC supplies particularly if, as planned, natural gas replaces oil as the main fuel.²⁰ It is also expected that the payment issue will be largely solved when current PEA plans to restructure GEDCO are completed, even though customer payments have been declining as a result of the crisis.

Institutional Framework

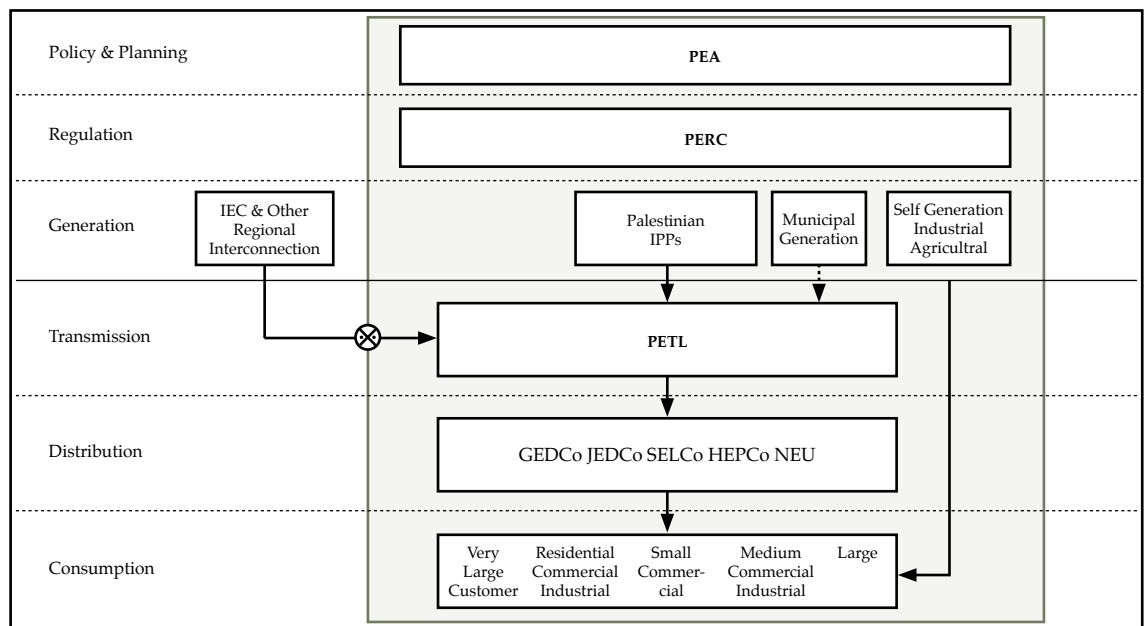
74. *Institutional Framework:* PEA inherited a chaotic and inefficient framework and has been acting decisively to transform it. Their plans have yet to be fully implemented however. Within the current structure, PEA plays pivotal and multiple roles. It is responsible for policy, sector development, regulation and generation (the IPP), and transmission. IEC is still responsible for generating most of the power used in WBG, and owns and operates most of the transmission system. As already noted, distribution is handled by the four existing utilities (JDECO, SELCO, HEPSCO and GEDCO) and by the municipalities in the northern West Bank that have not yet been incorporated as utilities. Figure 3 summarizes the current structure of the sector and the allocation of roles and responsibilities..

²⁰ With the recent discovery of natural Gas in commercial quantities off the coast of Gaza this is a real possibility for the future.

Figure 3. The Existing Structure of the Electricity Sector in WBG



75. This structure is due to be transformed over the next few years. Under the proposed new structure, PEA will continue to be responsible for policy, overall development, and for managing the PA (residual) holdings in the electricity field. A separate regulatory agency, the Palestinian Energy Regulation Commission (PERC) and a separate transmission company, the Palestinian Energy Transmission Company (PETL) are planned.



Donor Investment

76. *Donor Support:* Since its formation in 1995, PEA and the sector have benefited from considerable donor support and, by and large, have put this support to good use. Particularly noteworthy is its attempt to develop a coherent, modern, and efficient institutional framework, build internal capacity, and mobilize private participation. In many respects, this effort has been a model—not a perfect one—but one worthy of emulation in many respects by other sectors. It has not been possible to quantify donor support to the sector accurately, particularly with respect to capacity building,

because the data are inadequate. However, total investment in physical development and rehabilitation during the 1995-2002 period (excluding the IPP which was privately funded and cost about US\$150 million) was established at about US\$140 million, an amount equivalent to an average annual investment of some US\$18 million over the period.

77. *Impact of Crisis:* The crisis did not spare the sector. In addition to the estimated US\$14.6 million in damage (valued at replacement cost) to networks and systems noted above, the economic crisis had - and is still having - a major negative impact on consumers' ability to pay for services, the availability of spares, and the ability of utilities and municipalities to carry out timely and effective repairs. The financial impact on municipality operations has been significant, particularly so in Gaza. Already weak collection performance has been further eroded.

Issues

78. The most critical issues are the following:
- *Diversifying production base:* The dominant position of a single source (Israel) for generation and transmission has proven problematic; West Bank and Gaza needs to increase and diversify its production base;
 - *Social and Economic:* Increasing access and reliability; reducing costs and increasing cost recovery; establishing life-line rates; increasing program funding; reducing dependency on donors for funding of system development;
 - *Institutional:* Strengthening PEA, and focusing its role on policy formation, systems development, rural electrification, social protection, energy efficiency, regional cooperation, and those areas that only the state can manage effectively; establishing PERC and strengthening the regulatory framework, including realistic tariff setting and the passage of a new law; establishing PETL as the owner and operator of a revamped transmission network; establishing an appropriate framework for IPP development; and strengthening the four existing utilities and establishing the fifth Northern Electricity Utility (NEU) in the northern West Bank;
 - *Physical and Operational:* Continuing system rehabilitation: improving service reliability and efficiency; reducing system losses. Continuing rural electrification: electrifying the Palestinian rural areas. Generation: increasing local capacity by encouraging more investors to participate in establishing additional plants on an IPP basis; reducing IPP production costs by using natural gas for fuel and negotiating more appropriate purchasing arrangements. Transmission: completing the network in Gaza; finalizing the takeover of the West Bank network from IEC; establishing new feeders linking the main population centers on the West Bank to complete the network and stabilize the system; and establishing regional connection stations and capacity. Distribution: improving access, supply, and reliability; delivering cost-effective services by strengthening the utilities through managerial, financial, and technical reform and systems rehabilitation; and reducing system losses.

Development Options and Investment Program

79. In responding to the issues, PEA intends to pursue four tracks, as follows:
- Continued system rehabilitation and rural electrification;
 - Development of transmission systems and networks in the WBG;
 - Continued institutional reform to establish a Northern Electricity Utility (NEU) in the northern West Bank, to restructure GEDCO, consolidate the newly formed utilities, and to establish PERC and PETL; and
 - Continued effort to encourage private participation in the establishment of new IPPs in the West Bank and the expansion of the one in Gaza.
80. The system improvement and rehabilitation costs are of the order of US\$3-5 million per year over the next 5 years, an amount that should be well within PEA's capacity to finance given continuation of the current levels of donor support. Donors have recently been particularly supportive of rural electrification. The development of a Palestinian transmission network in the West Bank and Gaza is a critical step in building local capacity. It is estimated to cost some US\$188 million over the next 3-4 years. It thus seems likely that this investment on the West Bank may have to be phased over a somewhat longer period, though the Gaza part of the network is very urgent and can and should proceed as quickly as possible. It should be stressed, that transmission-system development on the West Bank is crucial to the efficient development of the sector, enabling effective use of growing generation capacity and exploiting the potential for regional inter-connection. Development should not be excessively delayed.
81. Further investment in generation capacity is also essential if the national objective of increased energy independence is to be achieved. However, private investors are not likely to come forward with additional funds (about US\$150 million per plant on the Gaza model) in the current political climate, and donors do not see this need as a priority at this time. Luckily, IEC has the capacity to continue to supply Palestinian needs, and so far has refrained from using its dominance for political ends. If that practice changes, donors will need to rethink their support for generation.
82. With respect to institutional reform, the program is well advanced, but no budget has yet been presented. Something on the order of US\$3-5 million per year will be needed to establish PERC and PETL as effective entities, and this amount should be forthcoming from donors, particularly the Norwegians and the World Bank, who have strongly supported PEA in this area. The only outstanding issues are timing, and the precise course of action that PERC and PETL should take. As noted, studies have been completed for both organizations, but no firm decisions have been taken by PEA or the PA. In the current context, regulation, while important, is not the most crucial issue, and little would be lost in phasing capacity-building here over 3-5 years. In the interim, support could and should be provided to PEA to establish core regulatory capacity and to begin to recruit and train key staff. A similar argument could be made with respect to PETL, as establishing the latter in the absence of transmission network development in the West Bank may be unrealistic. With respect to distribution, the consolidation of the existing West Bank utilities, the restructuring of GEDCO, and the establishment of NEU are high priorities and should be strongly supported. The cost of the latter is difficult to estimate, but on the basis of the HEPCO/SELCO experience it should be on the order of US\$ 50 million.

C. Transport

Introduction

83. Despite the progress made in rehabilitating and expanding local and agricultural roads over the past ten years, transport development is probably one of the most difficult issues confronting the Palestinian economy. Movement of people and goods remains difficult and costly. Most commercial activities involving external trade have contracted over the past three years. Many of the challenges facing transport development in WBG are unusual and not readily amenable to solutions independent of an overarching peace settlement. These challenges include the following: the West Bank and Gaza are separated by Israeli territory; the classification of Palestinian areas into the areas A, B, and C with limited access for the PA on C areas—most transport development projects lie partially in Areas B and C; the PA self-rule areas are not contiguous in the West Bank, where the PA has limited control over the transport infrastructure connecting its various parts; and the uncertain access to bypass and settlement roads under Israeli control. In addition to the problems of internal transport there is the problem of Israeli restrictions on external access by road to Egypt, Jordan, and Israel, and by air and sea to countries beyond. Comprehensive and effective transport development will therefore require coordination with Israeli authorities in a number of areas.

Supply and Demand

Roads and Highways

84. Despite the small size of the Palestinian territories (6,100 km²), there are about 500 towns and villages in WBG (many are sparsely settled areas) requiring the services of a transport network. The World Bank's assessment of 1993 identified the need for extensive rehabilitation and maintenance programs to prevent further deterioration and eventual loss of existing facilities. Since the establishment of the PA, considerable effort was invested in implementing road projects. Rehabilitation of the major roads significantly improved the situation in the period up to the start of the Intifada, however, the government was unable to develop a funding mechanism to provide the level of maintenance needed to sustain these improvements and other parts of the major road network. Furthermore, and due to the political constraints, existing transport facilities remain inadequate.
85. The current paved road network of 2870 km has been expanded by nearly 700 km since the 1993 assessment. About 2250 km of roads are in the West Bank, including 200 km within the Jerusalem governorate, and about 620 km are in Gaza Strip. The main roads form about 20 percent of the total road network, regional roads 30% and local roads 50 percent. Unpaved agricultural roads amount to another 2,400 km in the WBG—up from 800 km in 1993. In addition to the Palestinian network about 1,015 km of roads were constructed by the Israeli authorities to serve as bypass and settlement roads in WBG for Israeli use only, the majority of them built since the Oslo Agreement. Table 7 illustrates the length and distribution of these roads by region.

Table 8: Israeli Bypass and Settlement Roads in WBG (Km)

Region	Bypass	Settlement	Total
West Bank	345	620	965
Gaza Strip	-	50	50
Palestinian Territories	345	670	1,015

Source: Universal Group report on the transport sector commissioned by the Bank

86. About 50 percent of the Palestinian paved road network is in poor condition, up by 40 percent from its 1993 despite the investments made during the past 10 years. The rehabilitation of old roads and the construction of new ones were far less than enough to meet normal needs, let alone to offset the damage resulting from military incursions into the main towns and villages. In addition, local authorities were unable to conduct regular maintenance primarily due to loss of income. The remaining network is a combination of fair (25%) and good (25%). Table 8 illustrates the lengths and condition of the network.

Table 9: Pavement Condition by Road Class (excluding bypass & settlement roads)

Classification	Length (km)	Condition of Roads (%)		
		Good	Fair	Poor
Main	620	30	30	40
Regional	850	18	32	50
Local	1,400	25	20	55
Total	2,870			

Source: Ministry of Public Works and Housing.

87. The deteriorating conditions of the road network contributed to a reduced road safety level. The annual fatality rate per 10,000 vehicles increased from 12.8 in 1996 to 15.3 in 2000. With the start of the crisis and the imposed movement restrictions the fatality rate dropped to 13 and 10.4 in 2001 and 2002, respectively, as shown in Table 10.

Table 10: Road Accident Fatality Rate and Severity Index

Index	Region	Year				
		1996	1999	2000	2001	2002
Fatality Rate (fatality / 10,000 veh)	Palestinian Territories	12.8	13.6	15.3	13.0	10.4
	West Bank	10.5	11.6	13.6	12.5	6.2
	Gaza Strip	18.4	17.3	18.0	13.8	13.9
Severity Index (%)	Palestinian Territories	2.1	2.2	2.5	2.6	3.6
	West Bank	1.6	1.7	1.9	2.1	2.5
	Gaza Strip	3.8	3.2	4.2	3.9	4.3

Source: Universal Group report on the transport sector commissioned by the World Bank.

Freight Transport

88. Freight transport in the Palestinian territories is road-based and primarily privately operated. Freight routes are not fixed, regulated, or enforced except for transport of hazardous material currently being regulated by MOT. The stock of vehicles in WB&G is very old—about 20 years. The number of truck registrations rose from 20,000 in 1993 to 30,000 in 1998, with 22,000 registered in the West Bank. In 2003, MOT's records show that nearly 35,170 trucks were operating in WB&G. Thirty-three freight transport enterprises were in business in 2000, but only 14 in 2003—10 in the West Bank and 4 in the Gaza Strip. Several companies went out of business or froze their operations because of the travel restrictions imposed by Israel. In addition, several small unregistered companies provide freight transport services, and some others have registered in Israel to be able to benefit from transit through Israeli check points in the West Bank to Israel.
89. Trade values for WBG generally rose between 1995 and 2000. The net trade balance decreased up to year 1999, but then increased in year 2000 (Table 11). Israel has been the main trade partner for the PA over the years. Exports to Israel were about 94 percent of all Palestinian exports in 1996, 96 percent in 1999, and approximately 92 percent in 2000. Exports to Arab countries were approximately 5 percent in 1996, 3 percent in 1999, and 7 percent in 2000.

Table 11: Total Trade Value for WBG in US\$M (1995-2002) ⁽¹⁾

Year	Total Value of Imports	Total Value of Exports	Net Trade Balance	Trade Transaction (in thousands)
1995	1,658	394	-1,264	2,052
1996	2,016	339	-1,676	2,356
1997	2,239	382	-1,856	2,621
1998	2,375	395	-1,980	2,770
1999	3,007	372	-2,635	3,379
2000	2,383	401	-1,982	2,784
2001 ⁽²⁾	N/A	17	N/A	N/A
2002 ⁽²⁾	N/A	20	N/A	N/A

(1) Source: PCBS, 2002.

(2) Source: PCBS, 2003. The value of exports includes exports to all world countries except Israel.

N/A: Final information was not available (under preparation) at the time of preparing this report. (1) Source: PCBS, 2002.

90. About 95 percent of Palestinian foreign trade is by land, as shown in Table 12. Over 85 percent of exports/imports pass through border crossings of the West Bank, and the remainder use the Gaza Strip crossing. Exports from the West Bank are much higher than Gaza Strip because of its higher industrial and manufacturing capacity as well as the availability of raw materials and natural resources (World Bank, 2000). Table 13 shows the Palestinian trade by border crossing between 1996 and 2000.

Table 12: Palestinian Trade Values by Means of Entry/Exit in US\$M (1999-2000)

Entry/Exit Means	Total Value of Exports		Total Value of Imports	
	1999	2000	1999	2000
By Land	372	381.7	2,815	2,128.3
By Air	0	18.8	0.7	1.2
Total	372	400.5	2,815.7	2,129.5

Source: PCBS, 2002.

Table 13: Palestinian Trade by Border Crossing in US\$M (1996-2000)

Border Crossing	Export			Import			
	1996	1999	2000	1996	1999	2000	
Gaza Strip	Beit Hanun/ Erez	20.9	0	0	375.1	162.9	0.07
	Al-Montar/ Karni	12.3	41.8	59	154	473.7	459.5
	Rafah	0	0	0	15	0.02	0.004
	Others	0	0	0	84.2	0.01	0.004
	Sub-Total	33.1	41.8	59	628.3	672	537.5
West Bank	West Bank-Israel Crossings	287.1	318.7	313.1	1,264.3	2,107.8	1,565
	Others (Damiah & Allenby Bridges)	19.3	11.7	10	0	6.7	26
	Sub-Total	306.3	330.4	323.1	1,264.3	2,114.5	1,591
Total*	340	372	401	1,893	3,007	2,383	

Sources: the World Bank, 2000 and PCBS, 2002.

* Total values include water, electricity, and petroleum products for Gaza Strip only.

* Total values include water, electricity, and petroleum products for Gaza Strip only.

Institutional Framework

91. *Institutional Framework:* During the years 1996-2000, the PA established several institutions related to road transport. The Ministry of Transport leads these institutions with a mandate to develop policies and regulation to govern the sector; the Ministry of Public Works and Housing is responsible for development and maintenance of regional and access roads under PA's jurisdiction; the Ministry of Planning is responsible for national and regional physical planning; the Ministry of Finance provides the financial support for such activities; the Ministry of Local Government identifies local needs and directs donors' assistance; the Palestinian Economic Council for Development and Reconstruction (PECDAR) was a vehicle to implement donor-financed rehabilitation and reconstruction projects; and the local authorities—in particular, the larger municipalities—are responsible for planning, developing and maintaining internal roads. In addition, the Civil Aviation Authority was created to administer and operate the airport.

Donor Investment

92. *Domestic revenues and donor investment:* On average, treasury revenues from transport have been estimated by MOT at US\$150 million annually. However, very little has been reinvested. Any measurable improvement has come predominantly from donors' assistance to the roads sector, estimated at US\$473 million through December 2003. That total is 7% of total donor contributions to the PA since its inception in 1994. The contribution primarily supported programs aimed at mitigating part of the road

maintenance backlog that existed when the PA assumed responsibility, upgrading urban roads, and rehabilitating some regional roads, as well as providing technical assistance support for feasibility studies and project designs.

93. *Impact of the Crisis:* the crisis has had several impacts on road transport. On one hand, access to social services and to employment sources has been reduced substantially due to road blocks and checkpoints with resultant increases in travel cost, unemployment, and poverty. Moreover, Israeli military actions have caused nearly US\$118 million of physical damage, with 80 percent (the bulk) done to roads, 19 percent to the GIA, and 1 percent to the seaport.²¹

Issues

94. The main issues and challenges to recovery and development in this sector include:
- *National Autonomy:* Securing unrestricted access to essential services, sources of employment between West Bank and Gaza, and to international crossings.
 - *Social and Economic:* Increasing unrestricted access, safety, reliability, and mobility; reducing traffic accidents and travel costs; increasing cost recovery and program funding; facilitating the recovery of the private sector from more than three years of losses; reducing dependence on donors for funding of system development.
 - *Institutional:* Clarifying mandates, roles and responsibilities among the various stakeholders; strengthening capacity in physical, strategic, maintenance planning, procurement and contract management, and project supervision at national and local levels; establishing an effective regulatory framework and regime; formulation of construction and maintenance guidelines, road norms, and standards will also be necessary to ensure safety; studies related to the roads classification will be essential to help in the delineation of assets, responsibilities, and shares of revenues.
 - *Physical and Operational:* Improving local access by repairing the damage and alleviating the impacts caused by military incursions and movement-restriction measures, including those related to the construction of the segregation wall; eliminating the accumulated road maintenance backlog; improving regional access by securing safe and unrestricted passage between the West Bank and Gaza for people and goods; improving international access by securing safe and unrestricted transit through international border crossings for people and goods.

Development Options and Investment Program

95. The following is a summary of the sector's needs and funding requirements. However, and in order to promote sustainable development of this sector, serious commitment to institutional development should be established first. A well-developed set of priorities would be needed to ensure the best use of donors' assistance and sustainability of the processes. National revenues would need to be reviewed to identify resources that could be committed primarily to finance recurrent costs, including institutional building, routine maintenance, and development projects that aim at promoting economic growth.

²¹ Source: Universal Group report on the transport sector commissioned by the World Bank.

96. The following proposed program of assistance is substantial: US\$155 annually. Managing and implementing this program would require institutional reform and great coordination effort among stakeholders. PA's commitment to implement such reform would be a prerequisite for progress on each of the proposed projects.

Roads

97. Immediate priorities will be to implement a rehabilitation and damage-repair program to improve the road network condition; design and develop a road maintenance management system to enable the relevant agencies to better plan and identify resources for systematic network maintenance; develop a road master plan within a comprehensive master transportation plan to guide development on national and regional levels; and further develop the official (ministerial and municipal) cadre to take on the challenges in this sector.
98. Medium-term priorities focus on linking the West Bank and Gaza Strip; building a North-South highway in the West Bank from Jenin to Hebron; developing a safe and efficient national traffic system and strengthening traffic police and enforcement measures.

Air Transport

99. Immediate priorities include: repair the damaged parts of the GIA to enable it to resume operations; introduce a computerized system in the operation of the airport and the Civil Aviation Authority; and carry out technical training programs for GIA staff.
100. Medium-term priorities focus on developing air transport services in the West Bank to ensure proper links to regional airports, i.e. Amman/Cairo.

Seaport

101. Immediate priorities are to repair and upgrade the fishing port and to study the feasibility of establishing a short sea Roll-on/Roll-off operation from Gaza to one or Mediterranean terminals, e.g. Port Said or Limassol, which would facilitate access to overseas markets and provides opportunities for economic development in Gaza.
102. Medium-term focus on capacity-building program for seaport authority personnel in port planning and management, sea transport operations, environmental pollution, and quality control; support the construction of the seaport.

Public Transport

103. Immediate priorities are to develop policies and strategies to enhance public transport through changes in the composition and structure of passenger-transport services, in operating practices, and in legislation guiding this sector; build capacity at MOT and the municipalities in planning and supervising public transport and associated facilities; and to regulate transport so as to make it efficient and profitable.

Freight Transport

104. Immediate priorities are to regulate freight services and promote private, registered companies' engagement; set incentives to upgrade the freight fleet to ensure safety, reliability, and efficiency in service delivery.
105. Medium-term focus is on studying inter-modal freight transport and formulating related strategic plans, as well as studying the potential for constructing freight land border crossings and links between the seaport and airport to major commercial centers in the West Bank and Gaza Strip.

West Bank - Gaza Corridor Terminal

106. A special terminal would be constructed on the West Bank / Israel border to provide the necessary inspection and processing of people and goods crossing from West Bank into Gaza through the Israeli territories. Investment would include economic feasibility studies and corridor design.

King Abdullah Bridge Crossing

107. This crossing is important element in the Amman-Jericho-Jerusalem-Gaza connection. Most of the connecting road network already exists or is under implementation. The project, which includes bridge construction, terminal improvement and construction of a customs clearance area at this crossing, is one of the second-priority projects identified by the European Community study. It is necessary to complement the service provided by the King Hussein/ Allenby Bridge because of the large amount of traffic expected in the long term.

International Airport in the West Bank

108. This project would involve developing an airport facility in the West Bank to ensure proper access to the rest of the world and provide a more convenient and less costly alternative to Palestinians living in the West Bank. It may be financially and economically viable as an international gateway for goods and passengers to and from the West Bank. An airport in the West Bank would also enhance tourism in the region.

Estimated Investment Program

109. It is estimated that US\$1,280-1,440 million in public expenditure is needed over the next ten years at US\$128-144 million per year to implement the suggested program. This sum does not include special projects estimated at US\$80 million during the first six years.
110. Short to Medium-Term PA Strategy: Despite various achievements in transport field, much remains to develop. Along with clear policies needed to guide development, clarity in functions and responsibilities among stakeholders would contribute to an improved performance. The proposed short- and medium-term strategy should have activities that would be geared towards institutional restructuring, improving internal access and facilitating access to overseas markets in an attempt to regenerate the economy.

111. A short-term investment program of US\$100-130 million per year in Scenario “A” and US\$160-180 million per year in Scenario “B” for the next three years would focus on institutional restructuring and capacity building and address the need to improve access and movement of people and goods internally and to the outside world whether by land, air, or sea. The short-term program would, with some progress in the peace process, support the establishment of a specialized seaport in Gaza at an estimated cost of US\$50 million and a West Bank-Gaza Corridor inspection terminal at US\$5 million.
112. In the (Scenario “D”) medium term of seven years, an investment of US\$160-180 million per year would be needed to further support institution building, the road sector rehabilitation and improvement especially the north-south axis in the West Bank from Jenin to Hebron with connections to the border crossings with Jordan as well as to the Erez-Rafah north-south axis in Gaza. The program would also support further development of the GIA, development of border crossings with Jordan and investment toward the recurrent expenditures of the ministries of transport and public works.

D. Telecommunications

Introduction

113. The development of telecommunications infrastructure and services in WBG has made excellent progress since the PA was established. This achievement—with almost no donor funding assistance—reflects the strong role played by the private sector in the investment and provision of these services. Palestine Telecommunications Company (Paltel), the dominant private company, has developed a semi-independent telecommunications infrastructure. Paltel, its mobile subsidiary Jawwal, and other private operators were able to bring the level of access to fixed, mobile, and Internet services to levels comparable with other countries in the region. Paltel and Jawwal have run commercial operations and have been very profitable. The Internet market has been more competitive and less profitable.

Supply and Demand

114. The fixed telephony network operated by the Palestine Telecommunications Company (Paltel) currently has about 315,000 customers covering all WBG governorates, a penetration level of about 9 percent of inhabitants (about 30 percent of households), compared with 8.5 percent in 2001, 5.9 percent in 1998, and about 4 percent in 1996. Services cover about 499 localities out of more than 600 in WBG. International calls of all Paltel customers go through the networks and international gateways of Israeli operators, in line with the Oslo Agreement. Paltel is now trying to use its unutilized switching capacity to stimulate its Internet dial-up business. Paltel also has about 2250 public payphones.
115. Mobile services are provided by Jawwal – a Paltel subsidiary. Jawwal currently has about 275,000 customers, compared with 264,000 customers in 2003, 201,000 customers in 2002 and 23,000 customers in 1999. Jawwal’s estimates indicate that the Israeli operators, Cellcom and Orange (Partners Communications Company) together have about 375,000 customers in WBG,²² roughly a 20 percent penetration rate. Jawwal (like Cellcom and Orange) runs a GSM-based network using limited spectrum allocated by

²² Source: Jawwal.

the Israeli-Palestinian Joint Committee, established by the Oslo Agreement. No GPRS infrastructure is available yet to support mobile data services. Rates offered by Jawwal are competitive with Israeli as well as regional operators. Jawwal claims that its recent efforts to expand its services and to improve its coverage have been hampered by restrictions imposed by Israeli authorities on importing needed equipment.

116. Supply for advanced and corporate data services, however, is distinctly constrained. International services are still provided through Israeli operators, an arrangement that adversely affects the ability of WBG to leverage the revolutionary changes in the sector, especially in the Internet area.
117. To gain insight into the current state of basic services in WBG, key indicators were compiled and compared to a group of Arab countries. The comparative statistics presented in the table below demonstrate the following findings:
 - WBG has established a best-quality basic digital backbone – 100 percent digital with excess capacity.
 - Telephone density has been significantly increased since 1995, but measures on the low end of the range (higher, however, than Algeria and Morocco). Cellular density is better positioned. Other sources indicate the number of requests for new service (waiting list) has decreased by approximately 98 percent in the past 4 years.
 - Telephony monthly subscription tariffs are on the low end of the range but not as low as Egypt, indicating a need for tariff restructuring. Residential connection charges are also on the low end, while business rates are the highest in the comparative group. (See a more detailed discussion of tariff comparisons below.)
 - International usage is in the-mid range of the comparison group.

Table 14: Basic Services Indicators (2002 – 2004)

Indicator	WB&G	Algeria	Egypt	Jordan	Morocco	KSA	Lebanon
1. Population (000) (a)	3,200	31,300	66,400	5,200	29,600	22,100	4,400
2. GDP per capita-2002 (a)	930	1,720	1,470	1,760	1,190	8,674	3,990
3. Fixed Telephony revenues -%GDP	3.4	0.5	1.1	4.1	1.3	1.5	2.9
4. Fixed Telephony annual revenue per line (ARPU)-US\$/ Line (b)	29	12	11	46	36	71	52
5. Main Line density (per 100 inhab.) (c)	8.73	6.10	11.04	12.66	3.80	14.39	19.88
6. Cellular density (per 100 inhab.) (c)	20.00	1.28	6.68	22.89	20.91	21.72	22.70
7. Local network % digital (c)	100	100	100	100	100	100	100
8. Local capacity utilization % (c)	70.7	.....	72.0	79.6	.....	69.1	.....
9. Telephony Res. Subscription-US\$ (c)	5.57	.....	1.06	5.96	9.63	8.0	13.21
10. Telephony Bus. Subscription-US\$ (d)	5.57	.....	1.87	13.63	13.76	8.0	13.21
11. Telephony Res. Connection-US\$/month (d)	56	.....	81	63	69	80	66
12. Telephony Bus. Connection-US\$/month (d)	167	.....	162	126	69	80	66
13. Cellular tariff-Connection-US\$/month (d)	.....	.....	17.05	18.31	11.47	27.00	75.00
14. Cellular Subscription (d)	.....	.....	11.25	49.30	14.33	53.00	25.00
15. International minutes/subscriber (c)	137.2	113.9	26.7	294.7	253.4	1,114.5	153.4

Sources :

(a) World Bank, World Development Indicators database, August 2003.

(b) Arab Advisors Group, "Key Performance Indicators Scorecard of Arab Telecom Operators", June 2003.

(c) ITU – World Telecommunications Development Report 2002, December 2003.

(d) Operator web sites (2/24/2004): Paltel, Telecom Egypt, Jordan Telecom, Maroc Telecom, Saudi Telecom Company, MOT – Lebanon (All prices excluding VAT and other taxes).

Institutional Framework

118. The public institutions governing the telecom sector are still underdeveloped with little progress made to build a modern policy and regulatory framework. The existing regulatory framework guiding the telecommunications sector is based on the Post and Telecommunications Law No. 3 approved in 1996. The Ministry is currently responsible for granting permits and licenses to network operators, setting tariffs, encouraging investment, monitoring and protecting consumer interest, and license enforcement. Law No. 3 also gives the Ministry broad powers to establish, operate, and manage telecommunications networks. The PA Cabinet has recently announced the decision to change the mandate and name of the Ministry and establish an independent telecom regulator. MOPT has been renamed the Ministry of Telecommunications and Information Technology (MTIT) and will now be responsible for promoting and overseeing telecommunications, postal, and information technology. The responsibility for the Government Computer Center has also been moved from the Ministry of Planning to the MTIT.
119. Paltel was incorporated in 1995 as a private company, with PA's ownership limited to approximately 8 percent (sold to the private sector earlier this year). Its initial paid-in capital was about \$70 million. Initial holders included about 66 institutional investors and 6,800 individuals. One of the most traded companies in Palestine Stock Exchange, Paltel was granted a 20-year license in November 1996, giving it exclusivity of up to 10 years (to 2006) for certain (telephony, data transmission, paging, leased circuits, satellite, value added) services and up to five years for mobile services. Paltel's service obligation includes increasing penetration of fixed telephony connections from 80,000 in 1996 to 250,000 in 1999 (penetration of about 12 percent) and 352,000 in 2001 (penetration of 25 percent), in addition to achieving service quality targets. Tariffs are subject to adjustment according to a price-cap-regulation-based approach. An adjustment formula is provided.
120. Several external factors have limited further progress, including: lack of authorization, under the Oslo Agreement for the PA to have its own international telecommunication gateways, limited PA access to needed frequency spectrum, restrictions on the needed right of way to build facilities, and restrictions on movement of people and goods.
121. Internal factors have also shaped and limited further progress in the sector. Although the PA has been a leader in the region in terms of privatizing the incumbent operator and promoting private-sector participation, the PA has failed to build the necessary telecommunications policy and regulatory capacity that would ensure more effective private participation and more efficient provision of services. The PA has authorized very little competition in the provision of services, and it has been ineffective in enforcing a pro-competitive regulatory regime with respect to Palestinian firms, and in terms of preventing the operations of unlicensed Israeli firms.
122. The present market structure and regulatory framework may not provide future guarantees as to best quality and lowest prices for advanced high-speed data telecommunications services. The existence of a privately owned monopoly without transparent regulation is unlikely to be an impetus to change. It is essential, therefore, for the PA to provide the environment necessary to foster and sustain a thriving IT industry by meeting the urgent need to liberalize the telecommunications sector, license new operators and services, and establish independent regulation to ensure successful liberalization and modernization. WBG would not be alone in initiating telecommunications reforms and implementing effective regulation. Several case studies of Arab countries that have initiated reforms can provide important insights and lessons to WBG.

Development Options and Investment Program

123. The PA has recently taken some constructive steps to adjust its approach to telecommunications development, measures which reflect an appreciation for the potential role that a vibrant and dynamic telecommunications and information technology services could play in building a modern Palestinian society. The PA has recently expanded the MTIT mandate to include information technology and established a national inter-ministerial committee to coordinate IT activities. The MTIT is now in the process of developing a national IT strategy with the main objective of ensuring that WBG can play a significant role both as a producer and user of IT products and services. The MTIT has also taken steps to restructure the operations of the Government Computer Center and to build the Ministry's staffing capacity in this regard.
124. There are two possible scenarios to developing the required telecom infrastructure:
 - The first, conservative scenario is to develop the infrastructure that provides an adequate service. In this scenario, advanced telecommunications supply (including high-speed data and Internet access) broadly lags behind market demand. This approach, if elected, would not be likely to provide the degree of support required for the development of an IT intensive economy.
 - The alternative scenario is more dynamic and is necessary for building a vibrant IT industry in and of itself, for the support of the rest of economy and for deepening the information economy. WBG's telecommunications industry would be firmly established at the standards of developed countries. WBG businesses and citizens would have high-quality telecommunications infrastructure capable of moving large volumes of data cheaply and quickly to and from the rest of the world and internally. WBG would be recognized as having an advanced broadband infrastructure in the backbone network, in the local access network and in its international links. Every citizen would have direct access to public information and services (via schools, municipal offices, libraries, if not home or work), and the PA agencies would be major IT users (e-government applications).
125. The PA is advised to implement the second alternative to develop the telecommunications infrastructure. A decision by the PA to pursue the second scenario requires a commitment to establish advanced telecommunications services that meets or exceeds a minimum level of IT readiness.
126. Advanced telecommunications services require significant levels of investment and resources. At this point in time, there is no estimate of the cost of achieving IT readiness. A technical, economic, and financial analysis should be undertaken to define the needs and to identify possible sources of financing. Ideally, private investors should be encouraged, using the appropriate regulatory instruments, to build the networks and provide the services. Attracting the private investors would however require reforming the telecom structure. Consequently, there is an urgent need to:
 - Liberalize the telecommunications sector and to license new operators and services;
 - Establish independent regulation to ensure successful liberalization and modernization; and
 - Amend the current legislation to enable the two above-mentioned actions.

127. With that, investment will materialize to meet the unsatisfied and growing demands efficiently so that activity can be expected to approximate the dynamic scenario more closely than the conservative alternative.
128. To develop the planned IT strategy and to undertake the telecommunications reform strategy, the PA would need to invest about an average of US\$10 million in the coming three years. Priorities for the PA are as follows:
 - Short term:
 - (a) Obtain technical assistance and build capacity on policy and regulation. The estimated budget is US\$2 million over two years.
 - (b) Develop and implement a pilot e-government program. The estimated budget is US\$10 million over two years.
 - Medium term:
 - (a) Strengthen capacity at MTTT, the planned regulatory agency, and the management of the e-government program. The estimated budget is US\$10 million over three years.
 - (b) Develop and implement a comprehensive e-government program. The estimated budget is US\$60 million over three years.

CHAPTER IV Towards Strategy and a Program: The Way Forward

129. As noted in the introduction, this report does not attempt to develop detailed strategies for the sectors under review. Doing so would require far more resources than are currently available. The aim is only to point "The Way Forward".

The Scenarios

130. Using the scenarios developed under PSESP as the point of departure but ignoring scenario "C" (political deterioration) as a recipe for paralysis, the way forward adopts a short-term (3-year) timeframe for scenarios "A" and "B" and adds a fourth (mid-term) scenario "D". The latter is essentially an eight-year, developmentally oriented follow-on to scenario "B".
131. The key issues and proposed actions in each sector under each of the scenarios ("A", "B" and "D") are summarized in Tables 14 (a,b,c and d) below. Budgets are summarized in Table 15. The rationales underlying the strategies and budgets are presented in the individual sector chapters in part II, chapters V-VIII.
132. In general, the strategies focus on system rehabilitation and maintenance under scenario "A". Under scenario "B," it is proposed that the activities outlined under scenario "A" can be broadened and accelerated and work on institutional reform can be expanded. Under scenario "D," it is proposed that a serious effort be made at beginning to lay the foundation for long-term system development, as well as in consolidating institutional reforms.
133. With respect to budgets, the projections are relatively conservative in assuming that under scenario "A" donor funding will, in general, be somewhat less than the sector averages for the eight-year period 1995-2002. Under scenario "B," annual average donor commitments are assumed to be significantly above the eight-year averages, consistent with some kind of "peace dividend". Scenario "D" generally assumes that annual, average donor funding will be above the 1995-2002 average, not as high as that under scenario "B" for the medium term.

Budget Estimates

134. The estimated costs are as follows:
- Scenario "A" – US\$500 – 600 million
 - Scenario "B" – US\$800 – 900 million
 - Scenario "D" – US\$2,070 – 2,360 million

135. It should be noted that funding under all scenarios is less than what is necessary to satisfy Palestinian development objectives as stated in various PA sector-development plans. This should not be taken to reflect a lack of support for these plans or a judgment that they are unrealistic. On the contrary: The issue here is the extent to which these plans can be financed within the current pattern of donor contributions. Unless these patterns can be significantly modified or new sources of finance developed, the inescapable conclusion is that the proposed sector-development plans will not be adequately financed. An alternative route out of this dilemma is for Palestinians to gear themselves and their sector institutions to develop the ability to tap long-term capital markets, an advance that would require even greater institutional reform than is currently envisaged.

Table 15 (a): Issues/Strategy Matrix under Various Scenarios, Water, WBG 2005-2015

Issue	Strategy		
	Scenario "A" Political Stagnation (Short-Term, 2005-2008)	Scenario "B" Political Progress (Short-Term, 2005-2008)	Scenario "D" Political Progress (Medium-Term, 2008-2015)
Policy Issues Outside PA's Control			
<ul style="list-style-type: none"> ▪ Access to and control of aquifers and riparian rights in WBG 		<ul style="list-style-type: none"> ▪ Increase access to aquifers and to Jordan river source 	<ul style="list-style-type: none"> ▪ Deal with the issues of water rights, including rights to West Bank Aquifer and Jordan river;
Social, Economic, and Financial			
<ul style="list-style-type: none"> ▪ Increasing access and reliability ▪ Increasing consumption to recommended WHO levels ▪ Reducing costs and establishing life-line rates ▪ Reduce dependency on donor financing 	<ul style="list-style-type: none"> ▪ Continue existing rural network development program and urban network rehabilitation program ▪ Continue emergency repair and relief program ▪ Continue existing well drilling and transmission programs in northern and southern West Bank ▪ Improve cost recovery 	<ul style="list-style-type: none"> ▪ Accelerate and broaden efforts begun under "A" ▪ Leverage donor funding with stronger private sector participation, and better fiscal management of the sector 	<ul style="list-style-type: none"> ▪ Complete rural water distribution and network rehabilitation program ▪ Begin to address socio-economic problems through regulatory and tariff reform ▪ Increase private sector participation ▪ Construct wastewater collection system and infrastructure to facilitate treated effluent reuse
Institutional			
<ul style="list-style-type: none"> ▪ Rationalizing roles and responsibilities, including the separation between policy and development on one hand, and regulation on the other ▪ Establishing an effective regulatory framework and regime ▪ Establishing Bulk Supply Company ▪ Establishing efficient regional utilities in Gaza and the northern and southern West Bank 	<ul style="list-style-type: none"> ▪ Initiate establishment of Coastal Utility in Gaza; ▪ Review the previous efforts to establish Southern utility or to initiate establishment of joint service council in area; ▪ Initiate establishment of Bulk water utility; ▪ Consolidate efforts to establish regulatory capacity 	<ul style="list-style-type: none"> ▪ Further develop coastal utility in Gaza and the Bulk Water utility on the West Bank ▪ Resuscitate the Southern West utility; at minimum, establish JSC in area ▪ Begin establishment of JSC in north as precursor to building a northern area utility; ▪ Establish regulatory capacity 	<ul style="list-style-type: none"> ▪ Consolidate Coastal utility in Gaza; ▪ Establish Southern and Northern Utilities on West Bank; ▪ Consolidate Bulk Water Utility ▪ Consolidate regulatory capacity ▪ Encourage further private participation in the management of the sector.
Physical and Operational			
<ul style="list-style-type: none"> ▪ Continuing system rehabilitation: improving service reliability and reducing system losses ▪ Continuing rural development program ▪ Supply: Developing effective groundwater management; developing ground- and surface-water resources in keeping with sustainable yields, increasing rainwater harvesting and wastewater processing and reuse, developing new sources (e.g. through desalination) ▪ Transmission: Developing efficient networks, storage reservoirs and operational systems ▪ Distribution: Improving access, supply, reliability; delivering cost effective services; reducing system losses 	<ul style="list-style-type: none"> ▪ Continue rural network development program and urban network rehabilitation program; ▪ Continue emergency repair and relief program; ▪ Continue existing well drilling and transmission programs in northern and southern West Bank; ▪ Consolidate existing Gaza network rehabilitation program; ▪ Initiate work on tariff reform 	<ul style="list-style-type: none"> ▪ Accelerate and broaden efforts begun under "A" ▪ Accelerate water treatment program; ▪ Initiate desalination program in Gaza ▪ Strengthen technical and financial management systems 	<ul style="list-style-type: none"> ▪ Complete rural water distribution and network rehabilitation program ▪ Build transmission system in West Bank and in Gaza ▪ Begin focusing on long term resource development ▪ Consolidate water treatment and develop reuse program ▪ Expand well drilling program in the West Bank ▪ Expand desalination program in Gaza
Estimated Annual Budget (US\$m)	\$45-50m	\$80-90m	\$70-80m
Estimated Total Budget (US\$m)	\$135-150m	\$240-270m	\$560-640m

Table 15 (b): Issues/Strategy Matrix under Various Scenarios, Electricity, WBG 2005-2015

Issue	Strategy		
	Scenario "A" Political Stagnation (Short-Term, 2005-2008)	Scenario "B" Political Progress (Short-Term, 2005-2008)	Scenario "D" Political Progress (Medium-Term, 2008-2015)
Policy Issues Outside PA's Control			
<ul style="list-style-type: none"> ▪ Transfer of transmission facilities in the West Bank to PA's control 		<ul style="list-style-type: none"> ▪ Begin establishing additional generation capacity by doubling the Gaza plant and/or building a new plant in the West Bank; 	<ul style="list-style-type: none"> ▪ Establish further generation capacity by further expanding the Gaza Plant and/or establishing an additional (second) plant in the West Bank; ▪ Initiate regional inter-connection program with Jordan and Egypt
Social, Economic, and Financial			
<ul style="list-style-type: none"> ▪ Increasing access and reliability ▪ Reducing costs and establishing life-line rates ▪ Adopt environmental regulation ▪ Reduce dependency on donor funding 	<ul style="list-style-type: none"> ▪ Continue existing rural electrification, system rehabilitation and system improvement programs ▪ Improve cost recovery 	<ul style="list-style-type: none"> ▪ Accelerate rural electrification, system rehabilitation and system improvement programs ▪ Leverage donors funding with stronger private sector participation, and better fiscal management of the sector 	<ul style="list-style-type: none"> ▪ Complete rural electrification and network rehabilitation programs ▪ Increase private sector participation
Institutional			
<ul style="list-style-type: none"> ▪ Strengthening PEA and focusing its role ▪ Establishing PERC and strengthening the regulatory framework, including realistic tariff setting and the passing of a new law ▪ Establishing PETL as the owner and operator of a revamped transmission network ▪ Establishing an appropriate framework for IPP development ▪ Strengthening the four existing utilities and establishing the fifth 	<ul style="list-style-type: none"> ▪ Continue effort to establishing PERC & PETL; ▪ Consolidate SELCO and HEPCO, restructure GEDCO, and lay the foundation for NEU; 	<ul style="list-style-type: none"> ▪ Establish and operationalize PERC and PETL ▪ Consolidate existing utilities; ▪ Begin establishing the Northern Utility ▪ Strengthen legislation to encourage greater private sector participation in utility management; 	<ul style="list-style-type: none"> ▪ Consolidate PERC and PETL ▪ Consolidate Northern Utility ▪ Encourage private participation in utilities ▪ Establish framework for regional inter-connection
Physical and Operational			
<ul style="list-style-type: none"> ▪ Continuing system rehabilitation: improving service reliability and reducing system losses ▪ Continuing rural electrification ▪ Generation: Increasing local capacity, reducing IPP production costs by using natural gas for fuel ▪ Transmission: Completing the network in Gaza, establishing new feeders linking the main population centers on the West Bank to complete the network and stabilize the system, and establishing regional connection stations ▪ Distribution: Improving access, supply, reliability, delivering cost effective services; reducing system losses 	<ul style="list-style-type: none"> ▪ Continue rural electrification, system rehabilitation and system improvement programs ▪ Complete northern Gaza transmission line 	<ul style="list-style-type: none"> ▪ Accelerate rural electrification, system rehabilitation and system improvement programs ▪ Consolidate transmission system in Gaza; ▪ Begin work on establishing transmission system in West Bank ▪ Begin increasing generation plant capacity in Gaza and/or developing equivalent IPP on West Bank 	<ul style="list-style-type: none"> ▪ Establish further generation capacity by further expanding the Gaza Plant and/or establishing plants in the West Bank ▪ Complete rural electrification and network rehabilitation program ▪ Consolidate transmission network on West Bank ▪ Initiate regional inter-connection program with Jordan and Egypt, and wheeling of power across Israel
Estimated Annual Budget (US\$m)	\$15-20m	\$25-30m	\$20-25m
Estimated Total Budget (US\$m)	\$45-60m	\$75-80m	\$160-200m

Table 15 (c): Issues/Strategy Matrix under Various Scenarios, Transport, WBG 2005-2015

Issue	Strategy		
	Scenario "A" Political Stagnation (Short-Term, 2005-2008)	Scenario "B" Political Progress (Short-Term, 2005-2008)	Scenario "D" Political Progress (Medium-Term, 2008-2015)
Policy Issues Outside PA's Control			
<ul style="list-style-type: none"> ▪ Restricted movement within WBG ▪ Access to neighboring countries and the World 			<ul style="list-style-type: none"> ▪ Build regional highways ▪ Develop international crossings
Social, Economic, and Financial			
<ul style="list-style-type: none"> ▪ Improve mobility and access ▪ Increasing safety ▪ Reducing travel cost ▪ Increasing cost recovery 	<ul style="list-style-type: none"> ▪ Repair damaged roads; ▪ Rehabilitate roads; and ▪ Improve safety measures 	<ul style="list-style-type: none"> ▪ Remove restrictions on movement; ▪ Open trade routes; and ▪ Secure "Safe Passage" between West Bank and Gaza 	<ul style="list-style-type: none"> ▪ Build regional highways ▪ Improve cost recovery ▪ Develop international crossings
Institutional			
<ul style="list-style-type: none"> ▪ Clarify roles and responsibilities within the sector ▪ Strengthening capacity in physical, strategic, and maintenance planning ▪ Formulation of construction and maintenance guidelines and road norms and standards to ensure safety and to deal with environmental issues 	<ul style="list-style-type: none"> ▪ Develop strategic plan; ▪ Clarify responsibilities; and ▪ Improve institutional capacity and regulation. 	<ul style="list-style-type: none"> ▪ Develop strategic plan; ▪ Clarify responsibilities; and ▪ Improve institutional capacity and regulation. 	<ul style="list-style-type: none"> ▪ Consolidate PERC and PETL ▪ Consolidate Northern Utility ▪ Encourage private participation in utilities ▪ Establish framework for regional inter-connection
Physical and Operational			
<ul style="list-style-type: none"> ▪ Local Access: Repair the damage and alleviate the impacts caused to the transport sector by Israeli military incursions and movement restriction measures, including those related to the construction of the separation wall ▪ Regional Access: secure safe and unrestricted access between West Bank & Gaza for people and goods ▪ International Access: secure safe and unrestricted access to international border crossings for people and goods ▪ Eliminate the accumulated maintenance backlog in the road sector 	<ul style="list-style-type: none"> ▪ Limited road rehabilitation program; ▪ Limited road maintenance program; and ▪ Limited road damage repair program. 	<ul style="list-style-type: none"> ▪ Large road rehabilitation program; ▪ Large road maintenance program; ▪ Large road damage repair program; ▪ Safe passage between West Bank and Gaza; and ▪ Improve trade facilitation access facilities including Gaza airport and seaport. 	<ul style="list-style-type: none"> ▪ As in the previous scenario ▪ Consider building a West Bank airport
Estimated Annual Budget (US\$m)	\$100-130m	\$160-180m	\$160-180m
Estimated Total Budget (US\$m)	\$300-390m	\$480-540m	\$1280-1440m

Table 15 (d): Issues/Strategy Matrix, Telecommunications

Issue	Strategy		
	Scenario "A" Political Stagnation (Short-Term, 2005-2008)	Scenario "B" Political Progress (Short-Term, 2005-2008)	Scenario "D" Political Progress (Medium-Term, 2008-2015)
Policy Issues Outside PA's Control			
<ul style="list-style-type: none"> ▪ Lack of direct international gateways ▪ Palestinians limited access to frequency spectrum 	<ul style="list-style-type: none"> ▪ The PA to articulate case more strongly 	<ul style="list-style-type: none"> ▪ Make the case for spectrum at least for Gaza in light of Disengagement Plan 	<ul style="list-style-type: none"> ▪ Secure international gateway and spectrum.
Social, Economic, and Financial			
<ul style="list-style-type: none"> ▪ Increase access to all communities ▪ Increase access to IT applications for social and government services 	<ul style="list-style-type: none"> ▪ Assess needs and explore options; ▪ Review tariffs; and ▪ Monitor Paltel's performance. 	<ul style="list-style-type: none"> ▪ Develop pilot programs to increase access. 	<ul style="list-style-type: none"> ▪ Develop and implement programs to increase access to Internet and telephone services.
Institutional			
<ul style="list-style-type: none"> ▪ Strengthening the capacity of the sector Ministry to handle its expanded functions especially in the IT field ▪ Develop a competent regulatory capacity and a detailed regulatory regime ▪ Liberalize the sector and open new segments of the market for entry ▪ Develop a national IT sector strategy 	<ul style="list-style-type: none"> ▪ Develop capacity at the sector Ministry and regulatory capacity; ▪ Review tariffs; and ▪ Develop IT strategy 	<ul style="list-style-type: none"> ▪ Issue new licenses; ▪ Develop capacity to manage the implementation of the IT strategy; and ▪ Develop regulatory capacity. 	<ul style="list-style-type: none"> ▪ Issue new licenses; ▪ Develop capacity to manage the implementation of the IT strategy; and ▪ Develop regulatory capacity.
Physical and Operational			
<ul style="list-style-type: none"> ▪ The development of the infrastructure and services required to achieve IT readiness ▪ Extend services to all communities ▪ Extend services and applications to public facilities through e-government, e-learning, e-health, ▪ Expand backbone networks ▪ Upgrade human resources in IT 	<ul style="list-style-type: none"> ▪ Expand access for telecommunications and Internet through private operators 	<ul style="list-style-type: none"> ▪ Implement pilot e-government program; and ▪ Expand backbone networks if demand established. 	<ul style="list-style-type: none"> ▪ Implement e-government and e-commerce programs
Estimated Annual Budget (US\$m)	\$0.4-0.6m	\$3-4m	\$8-9m
Estimated Total Budget (US\$m)	\$2m	\$10m	\$70m

Table 16: Tentative Budgets under Various Scenarios, WBG 2005-2015

Issue	Strategy		
	Scenario "A" Political Stagnation (Short-Term, 2005-2008)	Scenario "B" Political Progress (Short-Term, 2005-2008)	Scenario "D" Political Progress (Medium-Term, 2008-2015)
Annual			
Water	45-50	80-90	70-80
Electricity	15-20	25-30	20-25
Transport	100-130	160-180	160-180
Telecom	0.4-0.6	3-4	8-9
Total			
Water	135-150	240-270	60-640
Electricity	5-60	75-80	160-200
Transport	300-390	480-540	1280-1440
Telecom	2	10	70
Total for all sectors	487-602	805-900	2070-2358



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