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REPORT No 20586

PERFORMANCE AUDIT REPORT

TURKEY

IZMIR WATER SUPPLY AND SEWERAGE PROJECT (LOAN 2818-TU)
ISTANBUL WATER SUPPLY AND SEWERAGE PROJECT (LOAN 2888-TU)
ANKARA SEWERAGE PROJECT (LOAN 3151-TU)

June 16, 2000

Sector and Thematic Evaluations Group
Operations Evaluation Department

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Currency Equivalents (annual averages)

Currency Name: Turkish Lira

1987	USD1.00	855
1988	USD1.00	1,421
1989	USD1.00	2,120
1990	USD1.00	2,606
1991	USD1.00	4,168
1992	USD1.00	6,864
1993	USD1.00	10,970
1994	USD1.00	29,670
1995	USD1.00	45,730
1996	USD1.00	80,780
1997	USD1.00	150,000
1998	USD1.00	306,850
1999	USD1.00	541,400

Abbreviations and Acronyms

ASKI	Ankara Water and Sewerage Administration
DSI	State Hydraulic Works
EIB	European Investment Bank
IB	Iller Bankasi
ICR	Implementation Completion Report
ISKI	Istanbul Water and Sewerage Administration
IZSU	Izmir Water and Sewerage Administration
KfW	Kreditanstalt für Wiederaufbau
KHGM	General Directorate of Rural Services
OED	Operations Evaluation Department
PMU	Project Management Unit
PPF	Project preparation Facility Advance
SAR	Staff Appraisal Report
SPO	State Planning Office

Fiscal Year

Government: January 1 - December 31

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The World Bank
Washington, D.C. 20433
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Office of the Director-General
Operations Evaluation

June 16, 2000

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Performance Audit Report on Turkey
Izmir Water Supply and Sewerage Project (Loan 2818-TU)
Istanbul Water Supply and Sewerage Project (Loan 2888-TU)
Ankara Sewerage Project (Loan 3151-TU)

The Turkey Izmir Water Supply and Sewerage Project (Loan 2818-TU) was approved on May 21, 1987. The loan was amended on December 13, 1994, and March 21, 1996, to cancel US$68 million and US$11.23 million, respectively, thus reducing the loan from US$184 million to US$104.77 million. The loan was closed on December 31, 1995, with no extension. The Istanbul Water Supply and Sewerage Project (Loan 2888-TU) was approved on December 1, 1987, and made effective on February 23, 1988. The loan was closed on January 31, 1998, compared to the original closing date of December 31, 1995, after two extensions of one year each and a final extension of one month. The last disbursement took place on July 31, 1998. US$215.5 million of the loan was disbursed and US$2.5 million cancelled. The Turkey Ankara Sewerage Project (Loan 3151-TU) was approved on December 21, 1989, and closed on February 28, 1999, with a two-month extension. The last disbursement of the loan was on May 25, 1999. The loan of US$ 173.0 million was fully disbursed.

The OED audits of the three projects represent an effort by OED to broaden its customary project audit format to include an analysis of the adequacy of the Bank's sector assistance. Besides analyzing each project the combined audit identifies constraints and recipes for success that could apply to the entire Turkish water supply and sewerage sector. The audit lessons come at a significant point in the sector dialogue between the World Bank and Turkey where the ongoing projects are coming to an end and where the future direction of sector assistance is unclear. Future Bank sector assistance should not follow the project-by-project approach of the past. The OED audits demonstrate that the focus of future assistance to the sector will have to help create an appropriate legislation, regulation and policies for the whole sector. Such a policy-based assistance strategy could broaden the impact of future lending and reach further down to the smaller municipalities where the needs are the greatest. The audit findings are timely since there is a palpable sense of willingness among the authorities in Turkey to attack the sector-wide constraints in the wake of Turkey's confirmed status as a candidate member state to the European Union.

As far as individual project ratings go, OED rates the outcome of the Izmir Water Supply and Sewerage Project highly unsatisfactory, its institutional development impact negligible, sustainability unlikely and both Bank and borrower performance as unsatisfactory. OED rates the outcome of the Istanbul Water Supply and Sewerage Project satisfactory, its institutional development impact modest, sustainability uncertain, and both Bank and borrower performance as unsatisfactory. Finally, OED rates

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the outcome of the Ankara Sewerage Project satisfactory, its institutional development impact modest, sustainability uncertain, and both Bank and borrower performance as satisfactory.

The project-specific lessons are many. The Izmir audit illustrates the risks of basing large, inflexible investments on over-optimistic demand projections. The project also underlines the necessity of planning and implementing sewage collection and treatment works in an integrated fashion. The Izmir audit also confirms the extremely high economic and financial returns of demand management. The Istanbul project one more time confirms the importance of careful demand projections and of focusing on investments that are both flexible and have a quick payback period. The Ankara audit pinpoints the risks of cross-connections where contractors connect sanitary sewage from buildings to the storm-water drainage system which forfeits some of the benefits of building a sewerage system and sewage treatment.

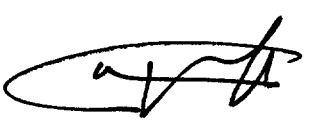
OED rates the Bank's sector development strategy as ineffective since it has been slow in addressing the sector-wide constraints. First, the OED audits confirm how excessive political interference from the municipal authorities has created financial difficulties for all three projects and shows the need for a more stable and professional type of management. The audits indicate that greater private sector participation is advisable to cement improvements. Properly regulated private operators with incentives to perform would likely increase efficiency substantially and bring financing without Treasury guarantees. The fiscal effect would be substantial since the Treasury now pays most of the debt service on the three Bank loans. Private operators could fill a particularly vital need in raising the operating standards in Turkey's medium-size and smaller municipalities.

Second, the audits identify the urgent need to create a regulatory system of water utilities in order to monitor tariff levels and operating efficiencies. A regulatory system is a necessary condition for sustainable private sector participation and would free consumers from paying for the inefficiencies of public sector management.

Third, the audits corroborate that reform of the sector's financial and institutional policies is much overdue. The two public sector agencies, DSI that finances source development and Iller Bank that finances both water supply and sewerage works, apply financing terms that the country's high inflation rates transform into virtual grants. Funds are often allocated on political grounds in a way that fragments available financing. The result is uneconomically long construction periods and low operating and investment efficiency. The audits indicate that more market-based financing terms would have a significant fiscal benefits for the government central budget.

Fourth, both DSI and Iller Bank would be more useful for the sector if they clearly separated their financing and project implementation functions. DSI could concentrate on water resources management in the sector and create a separate company to house its considerable expertise in design and project management of water supply works. Analogously, Iller Bank should clearly separate its financing function from its project design and implementation functions where the latter could become the core of a separate publicly owned engineering company.

Attachment



Contents

This report was prepared by Klas Ringskog (Task Manager), who audited the project in January 2000. William B. Hurlbut edited the report. Helen Phillip provided administrative support.

Annexes

Turkey Izmir Water Supply and Sewerage Project (Loan 2818-TU)

Principal Ratings

	ICR	*EVM*	*Audit*
Outcome	Highly Unsatisfactory	Highly Unsatisfactory	Highly Unsatisfactory
Sustainability	Unlikely	Unlikely	Unlikely
Institutional Development	Negligible	Negligible	Negligible
Borrower Performance	Unsatisfactory	Unsatisfactory	Unsatisfactory
Bank Performance	Unsatisfactory	Unsatisfactory	Unsatisfactory

Key Staff Responsible

	Task Manager	*Division Chief*	*Country Director*
Appraisal	Paul Bowron	Peter Ware	V. Rajagopalan
Midterm	Bernardo Gomez	Paula Donovan	Michael Wiehen
Completion	Bernardo Gomez	Ricardo Halperin	Kenneth Lay

Turkey Istanbul Water Supply and Sewerage Project (Loan 2888-TU)

Principal Ratings

	ICR	*ES*	*Audit*
Outcome	Unsatisfactory	Marginally Unsatisfactory	Satisfactory
Sustainability	Uncertain	Uncertain	Uncertain
Institutional Development	Negligible	Negligible	Modest
Borrower Performance	Unsatisfactory	Unsatisfactory	Unsatisfactory
Bank Performance	Unsatisfactory	Unsatisfactory	Unsatisfactory

Key Staff Responsible

	Task Manager	*Division Chief*	*Country Director*
Appraisal	Paul Bowron	Peter Ware	V. Rajagopalan
Midterm	Daniel Coyaud	Paula Donovan	Michael Wiehen
Completion	Daniel Coyard	Ricardo Halperin	Ajay Chhibber

Turkey Ankara Sewerage Project (Loan 3151-TU)

Principal Ratings

	ICR	*ES*	*Audit*
Outcome	Unsatisfactory	Marginally Satisfactory	Satisfactory
Sustainability	Uncertain	Uncertain	Uncertain
Institutional Development	Modest	Modest	Modest
Borrower Performance	Unsatisfactory	Satisfactory	Satisfactory
Bank Performance	Unsatisfactory	Unsatisfactory	Satisfactory

Key Staff Responsible

	Task Manager	*Division Chief*	*Country Director*
Appraisal	David Howarth	Yoshi Abe	Michael Wiehen
Midterm	Bernardo Gomez	Ricardo Halperin	Rachel Lomax
Completion	Alptekin Orhon	Ricardo Halperin	Ajay Chhibber

Preface

This is a Performance Audit Report (PAR) in Turkey for three water supply and sewerage projects: the Izmir Water Supply and Sewerage Project (Loan 2818-TU), the Istanbul Water Supply and Sewerage Project (Loan 2888-TU) and the Ankara Sewerage Project (Loan 3151-TU). The Izmir project was approved on May 21, 1987. The loan was amended on December 13, 1994, and March 21, 1996, to cancel US$68 million and US$11.23 million, respectively, thus reducing the loan from US$184 million to US$104.77 million. The loan was closed on December 31, 1995, with no extension. The Istanbul project was approved on December 1, 1987, and made effective on February 23, 1988. The loan was closed on January 31, 1998, compared to the original closing date of December 31, 1995, after two extensions of one year each and a final extension of one month. The last disbursement took place on July 31, 1998. US$215.5 million of the loan was disbursed and US$2.5 million cancelled. The Ankara project was approved on December 21, 1989, and closed on February 28, 1999, with a two-month extension. The last disbursement of the loan was on May 25, 1999. The loan of US$173.0 million was fully disbursed.

The PAR was prepared by the Operations Evaluation Department (OED). The Implementation Completion Reports (ICR) were prepared by the Europe and Central Asia Regional Office. The ICR for the Izmir project (Report No. 15958) was prepared on August 26, 1996, the one for the Istanbul project (Report No. 18419) on September 22, 1998, and the one for the Ankara project (Report No 19429) on June 15, 1999. The PAR is based on the ICRs, the President's Reports, the projects' legal documents, and the Staff Appraisal Reports (SARs). In addition, the analysis draws upon the discussions with the borrowers, a review of relevant project files and other background material collected during the audit mission in January 2000. The ICRs provide accurate accounts of the achievements of the three projects.

Copies of the draft PAR were sent to the relevant government officials for their views and comments. Comments from the Kreditanstalt fur Wiederaufbau and Iller Bankasi have been attached as Annexes B and C; respectively.

1. Sector Background

1.1 The 1997 census reported a total population for Turkey of 64 million, increasing at 1.8% annually. After growing in excess of 5% since 1980 the urban population reached 72% of total population in 1997. Over the same period the number of municipalities roughly doubled from over 1,700 to about 3,200. Half the urban population resides in 15 metropolitan areas.

1.2 The most recent 1992 water supply and sewerage sector study estimated that about 92% had access to potable water and about 78% had access to public sewerage. At the time, only about 3% of the sewage was treated to some degree. In spite of the rise in service levels, it was reported that morbidity of water-related disease had been on the increase, possibly because of inadequate service quality. Water resources in Turkey are relatively abundant, although sources ever further away need be tapped.

1.3 The 1981 ISKI law established water and sewerage agencies in the 15 metropolitan areas with the intent of making these autonomous from the central government. In reality, the ISKI-type water and sewerage agencies are controlled by the local political party in majority. In the remaining smaller cities and towns the water supply and sanitation systems are the direct responsibility of the municipalities. Service quality varies widely, with the metropolitan areas being the best and the smaller cities and towns the worst managed. There is no quality or economic regulation whatsoever of the individual systems. The absence of transparent economic tariff regulation has meant that consumers often pay for the inefficiencies of public management and that political meddling in the tariff setting has been excessive.

1.4 There is no single central ministry with responsibility for the sector. However, water resources are developed and financed by the DSI (the State Hydraulic Works) while water treatment and distribution and sewerage works in the non-metropolitan areas are financed and implemented by the Iller Bank. Both agencies design and manage the projects they finance with their own staff, before handing the works over to the municipalities to operate. Turkey's historical high inflation rates have effectively converted the financing terms to near grants. Both DSI and Iller Bank depend on the central government budget for their funding which has had two negative consequences: construction periods are frequently protracted and there is excessive political meddling in the allocation of investment funding. For example, Iller Bank is at present funding water and sewerage works with a total value of US$6 billion but its annual investment funding is only about US$0.26 billion with average completion periods above 20 years. DSI manages to complete its projects more rapidly, partly because if refuses to fragment its available funding as much as Iller Bank does.

2. The Izmir Water Supply and Sewerage Project

Objectives

2.1 The Implementation Completion Report (Report No. 15958) dated August 26, 1996, enumerates the four project objectives:

- Establish an autonomous water supply and sewerage institution in Izmir

- Implement full cost recovery policies
- Correct present service deficiencies and allow for future growth of demand, and
- Improve the environment by ending raw sewage discharges into the Izmir Bay.

ICR Findings

2.2 The ICR concludes that none of the four objectives was fully achieved. First, although a water supply and sewerage institution, IZSU, was established, it failed to become autonomous and remained under the influence of the political winds within the municipality. Second, full cost recovery was not achieved and this prevented full financial autonomy of IZSU. Third, although rationing in Izmir was finally ended in 1997 (after the Bank loan closed) the project failed to collect the city's sewage. For the latter reason, the discharges of raw sewage into the Izmir Bay continues and the planned environmental improvements did not materialize.

OED Review of the ICR

2.3 OED in its ICR review concurred that the project failed to meet its physical and institutional objectives and rated the project outcome as highly unsatisfactory, the institutional development as negligible, the sustainability as unlikely, and the Bank performance as unsatisfactory. These ratings largely agree with those of the ICR that in addition rated the performance of the borrower deficient. OED concluded that the project failed mainly because of its poor quality at entry.

The Evolution of the Izmir Performance Indicators

2.4 The table below summarizes eight performance indicators that relate to the provision of efficient and sustainable service for all. The indicators for coverage and quality refer to how well the project has provided service for all, while efficiency is measured by distribution efficiency and staff productivity. Sustainability is measured both in terms of financial and in terms of environmental sustainability. The indicators are shown for three years: 1995 (the last year of Bank project), 1997 (the year when rationing was ended after the completion of the Tahtali surface water system boosted water production), and 1999 – the most recent data.

The Izmir Water Supply and Sewerage Company

	1995	*1997*	*1999*
Service Coverage and Quality			
Share of households connected to piped water	86%	92%	95%
Share of households connected to sewerage	86%	92%	95%
Share of households with continuous water supply	0%	87%	90%
Share of water supplied that is disinfected	100%	100%	100%
Efficiency of Service			
Accounted Water (Metered consumption/production)	44%	38%	39%
Employees per thousand water supply accounts	3.9	4.4	3.9
Sustainability of Service			
Working Ratio (Cash operating costs/operating income)	61%	54%	71%
Share of wastewater that is treated	0%	0%	0%

2.5 The data demonstrate that service coverage and quality improved in Izmir as a result of the project. Rationing was ended in 1997, some 13 years after the General Water Directorate (DSI) started work on the Tahtali reservoir and on the ancillary treatment plant with financing from the Bank loan. In contrast, the distribution service continues to be inefficient. Only 39 percent of the produced water is accounted for and the remaining 61 percent is lost through leakage and lax control, or is simply not reliably metered. IZSU remains both financially and environmentally unsustainable partly because of the high losses. Its working ratio was 71 percent in 1999 and its debt service on the World Bank loan is paid by the Treasury. No sewage was treated in 1999. A sewage treatment plant was inaugurated in January 2000, but raw sewage will continue to spill into the Izmir Bay because the collectors do not yet exist to bring the sewage to the wastewater treatment plant.

OED's Five Evaluation Criteria for Izmir

Project Outcome

2.6 The performance indicators, enriched by discussions during the mission, confirm that the outcome should be rated *highly unsatisfactory*. The project is rated high on relevance but the poor quality at entry dictates that efficacy be rated low. Practically, no project objective was met in spite of considerable resources expended. The project failure confirms how difficult it is to redress a flawed project design during implementation short of restructuring it completely.

2.7 The poor quality at entry broke most rules that make a project feasible. The project design lacked *technical feasibility* since Izmir's sewerage system is combined and receives both sanitary sewage and rainwater. Rather than beginning by laying separate sanitary sewers, the Bank project focused on building an interceptor with pumping stations around the Izmir Bay. The originally planned wastewater treatment plant had to be removed from the Bank project due to IZSU's financial difficulties. The wastewater treatment plant was only constructed after the Bank loan had closed with the major financing provided by the Izmir municipality. This recently commissioned plant, with capacity to treat 7.5 cubic meters per second, receives little sewage because there is no separate sanitary sewerage system. In January 2000 the system could capture only 2.5 cubic meters per second of mixed sanitary sewage and stormwater and the pumping stations sat idle most of the time. When it rains the plant receives diluted sewage that is problematic to treat. The physical legacy of the Bank project is an interceptor and sewage pumping stations with a capacity of up to 32 cubic meters per second which will be underutilized for many decades. The capacity mismatch raises serious queries as to the judgment of the design consultants and of the Bank's appraisal team.

2.8 The project's *financial feasibility* was similarly flawed. Water sales were projected to reach about 150 million cubic meters in 1994 but turned out to be half that, or 76 million cubic meters. In order to compensate for the lower volume, tariffs were raised above the levels projected which made water sales stagnate further. The project financing plan included five major financing sources: the Bank loan, the Izmir municipality, DSI, Iller Bank, and IZSU's internal cash generation. Three of the intended sources – the Izmir municipality, DSI and Iller Bank – were dependent upon unreliable budget funds which slowed implementation. IZSU's internal cash generation was substantially below forecasts due to the low water sales. The World Bank loan was the only dependable source of financing and, as a result, the components the Bank loan

financed were built – even though they were not needed the most and even though they were grossly over-designed.

2.9 The *institutional feasibility* was lacking. It was a leap of faith to expect IZSU – established one month before the approval of the Bank loan in 1987 – to be able to provide the ownership and support that the complex project required. In the event, IZSU's management estimates that the Bank project left no institutional development.

2.10 The *economic feasibility* was absent since the project did not meet project objectives at the least cost, let alone meet project objectives in the first place. Four years after the Bank loan closed, IZSU's operations continue to be inefficient. The way to increase efficiency is known. It involves metering consumption reliably and creating the incentives for an experienced operator to convert losses into paid water sales. The payback period of reliable metering and demand management is estimated at only three months. Such short payback periods demonstrate the extremely high economic and financial rates of return from demand management and begs the question why IZSU did not implement such measures at an early stage of project implementation. Reduced water consumption levels also enable the utility to reduce the size of all sewage collection and treatment works and saves both on investment and on operations (see Box 1).

Box 1: The Benefits of Metering

In 1998 IZSU conducted a pilot study of four sections of its service area. Two sections had a new distribution system, and two had older networks. District meters were installed to meter supply accurately and consumption of the 1,500 sample households in each section were reliably metered. The study calculated that replacing the installed, less reliable class A meters with class C meters would increase consumption on average by 20 percent. Given that each household consumed an average 20 cubic meters per month and paid tariffs of US$1.0 per cubic meter the study estimated that the cost of purchasing and installing class C meters would be recovered in three months.

Institutional Development

2.11 The opinion of the IZSU management is that the Bank project has resulted in no institutional development. The audit confirms this opinion and rates the project institutional development impact as *negligible*. Like most other Turkish water supply and sewerage utilities, IZSU lacks a reliable information flow. A rudimentary management information system was created during a few years of the Bank project but was jettisoned shortly after the Bank loan closed. More seriously, the incentives within IZSU do not favor efficiency. It is likely that the incentive structure will not change until a well-structured contract with a private operator is signed.

2.12 IZSU's lack of autonomy is illustrated by the difficulties in implementing a reasonable tariff policy with automatic monthly adjustments to compensate for Turkey's high inflation rates. In 1992 a decision was made to maintain the tariff in constant terms through quarterly adjustments, but the commitment fell apart within a year due to the political interference in the wake of municipal elections. For all practical purposes, IZSU is subject to the political vagaries since the Izmir mayor is the chairman of its board and recommends board candidates to the Ministry of the Interior.

2.13 In addition to the difficulties to adjust the tariff for inflation, IZSU's tariff structure is confusing and contains substantial cross-subsidies, although it is difficult to analyze who subsidizes whom. The tariff contains more than 30 different categories and is liable to rather arbitrary assignment of consumers to different categories. The average tariff level in January 2000 was US$1.0 per cubic meter, which is high for the quality of service provided. The absence of an explicit and economically rational tariff policy is common to all Turkish water supply and sewerage utilities.

Sustainability

2.14 The sustainability of IZSU can be measured by the financial sustainability and by its environmental sustainability. Neither exists and the project sustainability is rated as *unlikely*. IZSU continues to depend on municipal contributions for financing investment and on the Treasury for servicing foreign debt. The lack of a dependable cash flow has led to a topsy-turvy financing policy where long-term investments are financed with short-term sources such as internal cash generation (when it exists) and with grants or near-grants from DSI, Iller Bank and the Izmir municipality. A more sound policy would have been to finance a greater proportion of fixed assets with long-term loans but the gyrating internal cash generation made this avenue difficult.

2.15 The environmental sustainability continues to lag. In spite of the recent commissioning of the wastewater treatment plant, the quality of the Izmir Bay will improve only slowly since the sanitary sewage cannot be collected and conveyed to the treatment works. IZSU estimates that it will cost in the order of US$500 million to construct a separate sanitary sewerage system and that it will take at least 10 years to implement the program. No dependable sources of financing for these works have been identified yet.

2.16 Although the completion of the Tahtali reservoir and ancillary water treatment plant ended rationing, the Izmir water supply continues under the threat of bacteriological contamination of the surface waters from the surrounding settlements. IZSU has devised a temporary solution where the septage from these un-sewered settlements is collected by septage trucks. However, a permanent solution is needed to provide a sewerage system.

Bank Performance

2.17 The performance of the Bank must be rated *unsatisfactory*. Its performance should be rated highly unsatisfactory during project preparation and appraisal since it persisted in promoting an unfeasible project. At the time of appraisal, the dangers of excessive demand projections had been known for at least 10 years. The importance of proper least-cost analysis with flexible staging was also known, but the lessons were neglected in the Izmir project. The dangers of developing sewage collection and treatment systems in anything less than an integrated fashion had also been demonstrated in other Bank client countries. Most of all, the challenges of building competent institutions were known after a series of failed projects elsewhere. Again the lessons learnt elsewhere were not applied in the Izmir project.

2.18 Part of the poor quality at entry might have been compensated by radical early action once the implementation problems started. In the event, the Bank supervision teams restructured the project twice but without taking the necessary decisive action. In the end, the Bank declined

to extend the project closing date, and IZSU and Izmir were left to sort out their deep-seated structural problems. To its credit the Bank made an exception by stretching disbursements to allow the completion of the Tahtali surface water scheme. This flexibility helped end rationing in Izmir which constituted the project's lone but tardy accomplishment.

Borrower Performance

2.19 The audit rates the borrower's performance as *unsatisfactory*. The political interference in the application of tariff adjustments damaged the viability of IZSU and made an orderly project implementation difficult. The Izmir project also suffered the consequences of macroeconomic imbalances that resulted in unsustainably high inflation rates, and of an inappropriate sector organization where source development was financed by long-term and interest-free DSI loans, where sewerage was partly financed by insufficient Iller Bank grants, and where the sector lacks regulation.

Lessons Learned

2.20 Five lessons stand out from the audit of the Izmir water supply and sewerage project:

- Turkey's recent status as a candidate for European Union membership makes it important to accelerate the adaptation of water quality and environmental standards in Turkey to European Union standards. For Izmir, it becomes important to protect IZSU's raw water sources from the Tahtali reservoir in order to guarantee the bacteriological safety of its drinking water. This will require the provision of sanitary sewerage to the settlements adjacent to the Tahtali reservoir.

- Izmir is obliged by the Barcelona convention to control the quality and quantities of effluents into the Mediterranean Sea. This will require a prompt decision on how to finance and implement the collection of sanitary sewage in Izmir.

- The protracted implementation of the Tahtali surface water system and the failure to identify a viable plan to finance the construction of the sanitary sewerage system in Izmir confirms the unreliable funding of water supply and sewerage works in Turkey. System development is fragmented since DSI is entrusted with the source development, Iller Bank with the financing and implementation of sewerage works, and the municipalities with the construction and operation of water supply networks and of the sewerage systems. A superior alternative to the sector fragmentation would be to develop municipal systems in an integrated fashion with due regard to both operating and investment efficiency. IZSU may feel it can afford levels of unaccounted water of 61 percent since it does not pay for the development of new sources and since it does not pay for debt service. Similarly, IZSU may feel that it is not responsible for the continued unsustainable wastewater management since regulation of the coverage, quality and efficiency of water supply and sewerage services is absent in Turkey.

- The difficulties in maintaining an efficient and equitable tariff in Izmir is ample proof of the need for more rational tariff policies approved by a national regulator. Tariffs cannot be held hostage to rapidly shifting political considerations that are often short-term but should be based on principles of full recovery of operating and investment costs from the beneficiaries

with due regard to the affordability of tariffs. Where subsidies are justified to enable the lowest income segments of the population to connect and benefit from public water supplies and sewerage systems the subsidies should be transparent and best be financed from outside the tariff out of general budget revenue. Subsidies should first facilitate the connection to the systems. Where the mechanisms are not available to finance subsidies from general budget revenue, tariffs should be simplified and be based on universal metering of consumption. One possibility could be two-tier lifeline tariffs with a fixed monthly charge for a minimum quantity of water and with all consumption above this minimum charged at full cost.

- Finally, the degree of political interference during the implementation of the Izmir project demonstrates that the time has arrived to change the incentive framework and contractual and regulatory framework in the sector. International experience shows that the objective to professionalize the services can best be met through private sector participation. Through explicit contracts with experienced private operators the Turkish municipalities will be able to demand and receive value for the tariffs paid for services.

3. The Istanbul Water Supply and Sewerage Project

Objectives

3.1 The Implementation Completion Report (Report No. 18419) dated September 22, 1998, lists the four project objectives for the Istanbul project:

- To improve and extend sewerage services to 75 percent by 1995
- To provide for appropriate disposal of sewage in order to protect the waters and the shorelines of the Sea of Marmara and the Bosphorus
- To reduce unaccounted water, and
- To strengthen (the borrower) ISKI's operations, maintenance and industrial waste management capacities.

ICR Findings

3.2 The ICR concludes that the project achieved its four objectives only partially. The first objective was not fully met since sewerage coverage reached 65 percent as compared to the planned 75 percent by the year 1997. The main reason for the shortfall was a severe drought that affected Istanbul in the early 1990s and that skewed investments in favor of water supply at the expense of sewerage. The second objective was partially achieved since three out of four planned sewage treatment plants were built with their respective outfalls. The aborted sewage treatment plant could not be accommodated since the investment program had to be scaled back in the face of internal cash generation at levels one-third of those projected. The third objective of reducing unaccounted water from 60 percent in 1987 to 23 percent at closing was missed, but at least unaccounted water was reduced to 38 percent in 1999. Finally, the fourth objective of strengthening ISKI's operational capacity and industrial waste management were partially achieved. The number of employees per thousand water connections fell from 6.3 to 3.0, and the number of firms monitored for wastewater discharges more than doubled, above what had been the target at appraisal.

3.3 OED in its evaluation of the ICR concurred that the project did not fully meet its physical and institutional objectives and rated the project outcome as marginally unsatisfactory, the institutional development as negligible, the sustainability as uncertain, and the Bank and borrower performance as unsatisfactory. These ratings largely agree with those of the ICR with the exception of project outcome, which was rated slightly higher than the ICR rating of unsatisfactory. OED faulted the project's unrealistic design assumptions and the mismatch between an overly ambitious project scope and ISKI's financial capacity.

The Evolution of the Istanbul Performance Indicators

3.4 The audit focuses on the evolution of the eight key performance indicators and applies OED's standard evaluation methodology to the project:

The Evolution of the Istanbul Performance Indicators

	1988	*1993*	*1997*	*1999*
Service Coverage and Quality				
Share of households connected to piped water	57%	70%	98%	97%
Share of households connected to sewerage	52%	68%	65%	79%
Share of households with continuous water supply	N.A.	N.A.	97%	98%
Share of water supplied that is disinfected	100%	100%	100%	100%
Efficiency of Service				
Accounted Water (Metered consumption/metered production)	49%	52%	67%	62%
Employees per thousand water supply accounts (ANTSU)	6.1	5.1	3.0	3.0
Sustainability of Service				
Working Ratio (Cash operating costs/Cash operating income)	49%	65%	36%	50%
Share of wastewater that is treated	11%	14%	24%	37%

Source: ISKI

3.5 The data indicate that ISKI has made considerable progress. Water supply coverage is close to universal. Sewerage coverage has risen but dipped in the mid-1990s when drought and financial difficulties forced ISKI's new management to redirect its attention away from sewerage in favor of water supply. Service is continuous in most areas and supplies are disinfected which should ordinarily guarantee bacteriologically safe water. However, testing for coliforms show up a surprisingly large share of samples with coliform contamination as Box 2 indicates.

Box 2: The Risks of Contamination of Customer Water Storage Tanks

Prolonged drought periods can have undesirable consequences that last beyond the drought itself. Customers will try to alleviate rationing by building their own storage tanks. If not well disinfected and maintained, these tanks can become a source of bacteriological contamination. Bacteriological testing in four sections of Istanbul in the year 1998 offers proof. About 96 percent of the samples from the water supply network tested negative for coliforms compared to only 76 percent of the samples from customer water storage tanks. The conclusion is that customer water storage tanks should be discouraged since the bacteriological quality of the drinking water is compromised by the difficulties to ensure their disinfection and since the small individual storage is much more costly than large public storage tanks given the substantial economies of scale.

Source: ISKI, 1998

3.6 The indicators show that efficiency of service has risen. Accounted water, i.e., the ratio between metered consumption and metered production rose from 49 percent in 1988 (the first year of the project) to 62 percent in 1999. Staff productivity also rose, from 6.1 employees per thousand water accounts to 3.0 in 1999. Financial sustainability as measured by the working ratio (cash operating expenditure/cash operating income) has bounced about at 50 percent. Environmental sustainability has risen steadily since the share of sewage treated rose from 11 percent in 1988 to 37 percent in 1999.

OED's Five Evaluation Criteria for Istanbul

Project Outcome

3.7 The rating for project outcome is based on an assessment of the composite of the sub-ratings for the relevance, efficacy and efficiency of the project. *Relevance* is rated satisfactory given the project's clear objective of improving the urban and marine environments of Istanbul. The *efficacy* is rated satisfactory since substantial progress resulted although sewage collection and treatment lagged the planned targets. However, these targets were quickly proven unrealistic. ISKI had been established only six years before the Bank loan was approved and was still implementing the Istanbul Sewerage I project (Loan 2159-TU) when the present loan was approved in 1987. Finally, *efficiency* is rated satisfactory. The ICR estimated the internal rate of return as 6.4%. OED considers this rate-of-return an underestimate since it does not capture most environmental, health, and social benefits. It is also likely that the redirection of investment since closure of the Bank loan in favor of water distribution raised the internal rate of return further, which is the rationale for the satisfactory rating. Similarly, accounted water rose from 49 percent to 62 percent and staff productivity was doubled. In composite, the audit rates the project outcome *Satisfactory* notwithstanding the fact that many of the appraisal targets were unrealistic and should have been recognized as such from the start. The project restructuring, although late in coming, did make the reformulated targets more realistic.

Institutional Development

3.8 ISKI is the first example of a number of water supply and sewerage agencies, established under the ISKI Law promulgated in 1981. The law intended to make water supply and sewerage services in the major metropolitan areas independent from the excessive central government

control up till then. The results fell short of intentions. The ISKI-type agencies exchanged their central government masters for municipal masters, i.e., the elected mayors and the municipal councils. This provides for volatility due to the reality of political interference.

3.9 In the case of ISKI, the volatility was accentuated by the fact that the director general in the early years of the Bank project was convicted of corruption. His departure triggered a widespread turnover of management staff deep down into the institution since it coincided with a change in municipal administration. The new director general has proven energetic and initially concentrated on improving service coverage and quality rather than improving the institution. Belatedly there is now greater emphasis on institution building but there is a long way to go. ISKI lacks a management information system (MIS) and the audit revealed that ISKI continues to be a composite of separate departments that share data and works in a fashion less coordinated than would be desirable. Work has started on creating an MIS and mapping the network and customers in a geographical information system (GIS). The summary rating for institutional development is *modest* versus negligible in the ICR review. The slight upgrade is motivated by the acceleration of the effort in modernizing ISKI's administration that took place since closing of the Bank loan.

Sustainability

3.10 ISKI would ordinarily be considered a financially sustainable agency given that its working ratio has remained around 50 percent which means that internal cash generation is healthy. However, ISKI has chosen to use the cash generation to finance long-term investments in its water supply and sewerage network rather than pay its debt service on past loans in full. It is the Treasury and not ISKI that pays at least part of the annual debt service on the three past World Bank loans. Considering also the fact that source development for Istanbul is financed by DSI on near-grant terms ISKI cannot be termed financially sustainable. Until ISKI attains the financial autonomy through predictable tariff policies and rational financing policies, sustainability must be rated *uncertain.*

3.11 Environmental sustainability has not yet been reached but is steadily improving. A visit to the Tuzla biological treatment plant of sanitary sewage revealed a less than optimally designed plant that fails to meet its effluent standards by a wide margin, partly because the sewage it receives is too diluted to make effective treatment possible.

Bank Performance

3.12 The audit rates Bank performance *unsatisfactory* because of the poor quality at entry. The financial projections were overoptimistic. Actual consumption in the 1987-94 period turned out to be 55 percent of the projections, operating revenue proved to be 53 percent of forecasts and gross internal cash generation were 28 percent of expected levels. In essence, the project was much too large, all the more since only 15 percent of investments were earmarked for the relatively more remunerative water supply program, and 82 percent for sewage collection and treatment that are more difficult to recover financially. Eventually, in the eighth year of project implementation the Bank did restructure the project in a midterm review, but this was late in the day.

Borrower Performance

3.13 The rating of the borrower performance should rightly distinguish between the early years 1988-93, culminating in the conviction of the then director general, and the period from 1994 onwards. The early years' rating is unsatisfactory and the later years' rating satisfactory. Overall, however, the audit confirms the ICR rating of the borrower performance as *unsatisfactory*.

Lessons Learned

3.14 The main lesson flowing from the Istanbul water supply and sewerage project is that the law under which ISKI was established does not guarantee a stable and sustainable development of water supply and sewerage services. Due to the complete control that the Istanbul municipality exercises, ISKI could deteriorate as quickly as it improved in 1994. The managers of essential services such as water supply and sanitation should better be accountable to transparent regulation that applies the prevailing legislation in the long-term interest of consumers. Long-term viability in the sector would require predictable tariff policies that require suppliers to charge and consumers to pay the full costs of service.

3.15 Istanbul presents ideal conditions for introducing competition to ISKI through the employment of a private operator for half of its service area. The Bosphorus divides the city into two parts and a private operator could be employed to operate one side of the city and offer competition to ISKI. After the past decade of substantial investment the prime objective is now to operate the existing assets more efficiently and offer consumers sustainable higher quality service. The private sector could meet these objectives under a lease contract where the private operator would take on commercial risk and have a direct incentive of increasing the levels of accounted water from the present 62%. An appropriately crafted contract could tie operator remuneration to operational and commercial efficiency by linking operator pay to the amount of water billed and collected from consumers. By introducing such a contract in one half of its service area ISKI would gain valuable benchmark data on operating efficiencies and practices which would help it in raising its own performance.

4. The Ankara Sewerage Project

Objectives

4.1 The Implementation Completion Report (Report No. 19429) dated June 15, 1999, lists three project objectives:

- Eliminating raw sewage discharges into the rivers flowing through Ankara
- Serving those not connected with sanitary sewerage and improving service for those already connected, and
- Reducing flooding in flood-prone city areas through better stormwater drainage.

ICR Findings

4.2 The ICR reports that the borrower, ASKI, achieved and in some instances surpassed the original physical objectives:

- Raw sewage discharges into the Ankara river and its tributaries were eliminated
- 850,000 new sewerage connections were made compared to the some 550,000 anticipated at appraisal, and
- Measures were taken that were successful in reducing flooding.

4.3 OED in its ICR review noted that the physical objectives of the project were met and in some cases surpassed, which prompted an upgrade of the project outcome to marginally satisfactory compared to the ICR rating of unsatisfactory. OED rated institutional development impact as modest, which largely corresponds to the ICR rating of partial. It agreed with the ICR rating of uncertain for project sustainability. It rated Bank performance as satisfactory compared to the ICR rating of deficient. And it rated borrower performance as unsatisfactory, which corresponds to the ICR rating of deficient. The higher OED ratings were motivated by the fact that the Borrower did manage to meet the physical project objectives within budget and within the deadlines despite a late start.

The Evolution of the Ankara Performance Indicators

4.4 The audit focuses on the evolution of the eight key performance indicators and applies OED's standard evaluation methodology to the project:

Ankara Water Supply and Sewerage System

	1988	*1997*	*1999*
Service Coverage and Quality			
Share of households connected to piped water	94%	98%	100%
Share of households connected to sewerage	87%	98%	100%
Share of households with continuous water supply	NA	100%	100%
Share of water supplied that is disinfected	100%	100%	100%
Efficiency of Service			
Accounted Water (Metered consumption/production)	49%	66%	71%
Employees per thousand water supply accounts (ANTSU)	6.8	4.3	3.8
Sustainability of Service			
Working Ratio (Cash operating costs/operating income)	62%	47%	58%
Share of wastewater that is treated	0%	85%	85%

Source: ASKI

4.5 ASKI accomplished much over the project period. In 1999 it had the entire Ankara population supplied with continuous and disinfected water and the whole city was connected to the sanitary sewerage system. ASKI steadily increased the accounted water from 49 percent in 1988 to 71 percent in 1999. Staff productivity improved during the same period to reach 3.8 employees per thousand water connections compared to 6.8 in 1988. Financial sustainability measured by the working ratio remained constant over the period at around 60 percent. In

contrast, environmental sustainability sharply improved once the KfW-financed central wastewater treatment plant was commissioned in 1997 and ASKI estimates that it is now treating 85 percent of ASKI's sanitary sewage.

OED's Five Evaluation Criteria for Ankara

Project Outcome

4.6 The project outcome rating aggregates relevance, efficacy, and efficiency. The audit rates relevance *satisfactory*, efficacy *satisfactory* and efficiency *satisfactory* for a composite rating of *satisfactory*. The satisfactory rating for efficacy is tempered by a lingering problem of cross-connections (see Box 3).

Box 3: The Importance of Controlling the Quality of Sewerage Connections

The Izmir project illustrates the unsatisfactory situation where the city now has a sewage treatment plant, interceptors, sewage pumping stations, sewerage house connections – but no separate sanitary sewerage system that could convey the sanitary sewage to the treatment plant. The lesson is that all projects must be designed and implemented in an integrated fashion, beginning with the connection of domestic and industrial consumers. It is even more important to connect households at the same time that sanitary sewers are laid in streets where consumers already have septic tanks. Consumers might feel no incentive to connect to the sanitary sewerage system since they may not realize, or care about, the risks from their septic tanks to the safety of the water supply and to the quality of groundwater.

The Ankara project confirms the necessity of supervising closely the sewerage connections. After sewering 100 percent of Ankara and after completing the sewage treatment plant, ASKI found that only about 85 percent of the sanitary sewage actually arrived at the treatment works. Measurements of the quality of the Ankara river confirmed that the discharges of raw sewage had not been completely eliminated. Further analysis revealed that there are about 15 percent of cross-connections where the sanitary sewage is discharged through the storm water drainage system. The cross-connections will now have to be identified and rectified over the next four years.

The Istanbul project illustrates another kind of cross-connection: when storm drains from properties are connected to the sanitary sewerage system, they overload sanitary sewerage whenever it rains and make it difficult to treat the diluted sewage. This kind of cross-connection, compounded with infiltration into the street sewers and interceptors, has been found to be a problem for the Tuzla treatment works in Istanbul.

Institutional Development

4.7 The Bank project set no explicit targets for improving the institutional capacities of ASKI. The audit did find that the institutional development of ASKI must be rated *modest*, confirming the ratings of both the ICR and OED's earlier evaluation. ASKI does not yet have a functioning MIS and gives the impression of being a loose grouping of separate departments. Part of the explanation could be found in the ASKI bylaws that are analogous to those of ISKI and ISZU and which is liable to political interference in the setting of tariffs and in staff

appointments. Symptomatically, ASKI's financial performance only took a sharp turn for improvement from 1996 onwards when the automatic adjustments of the tariff to the cost-of-living index was instituted.

4.8 In the particular case of ASKI the political interference may have been moderate and institutional improvements have been made. For instance, since 1996 ASKI has outsourced certain functions with private subcontractors and have reported sharp reductions in costs and in productivity. Meter readings and sewer cleanings have both been outsourced at costs roughly one third of those in-house. The wastewater treatment plant is operated by a private company, BELKA, in which ASKI is the majority share-holder.

Sustainability

4.9 ASKI's sustainability must be rated *uncertain*, as long as its dependence on the shifting political winds in the municipality and on budgetary investment funding from DSI and on payment of debt service by the Treasury. In spite of its relatively satisfactory working ratio around 60 percent it is the Treasury that pays at least part of the debt service on the World Bank loan and on KfW-loans. The lack of sustainability is not only of ASKI's doing: it could be corrected with reform of the sector's financial policies and of the failure of Treasury to force ASKI (and the other borrowers, such as ISKI and IZSU) to pay for debt service. It is reasonable on grounds of regional income distribution to require these cities with above-average service coverage and regional incomes to pay all debt service.

4.10 The environmental sustainability of the Ankara system will be assured once the cross-connections are corrected. The state-of-the-art central wastewater treatment plant is of German design and equipment and was built by German/Turkish contractors. It is operated impeccably and removes between 95 and 98 percent of BOD.

Bank Performance

4.11 The audit rates the Bank performance *satisfactory,* which is an upgrade from the unsatisfactory rating of the ICR (but a confirmation of OED's earlier evaluation). The Bank chose to set modest physical objectives rather than overstretching, and the objectives were met. The converse would have been less satisfactory.

Borrower Performance

4.12 The audit rates the borrower performance as *satisfactory* which represents an upgrade from the unsatisfactory rating of both the ICR and OED's earlier review. The upgrade is motivated by the steady improvement in key operating indicators and in the quality of both water supply and wastewater services since the project closed.

5. Cross-Cutting Lessons from the Three Projects

5.1 The audits clearly identify cross-cutting lessons that have sector-wide validity:

(i) The projects all suffered from excessive political interference from the municipal authorities which created financial difficulties and which shows the need for a more stable and professional type of management;

(ii) There is an urgent need to create a nationwide regulatory system of water and sewerage utilities in order to regulate tariff levels and operating efficiencies and service quality;

(iii) Reform of the sector's financial policies is overdue where the target should be to phase out subsidies from the central budget to the urban water supply and wastewater sector in order to force systems to increase operating and investment efficiency and produce consistent cash surpluses from operations; and

(iv) Institutional reform is also overdue of the sector's central agencies, DSI and Iller Bank. The sector would benefit from splitting DSI's water resources planning function away from its project design, financing and implementation functions. Similarly, the sector would benefit from splitting Iller Bank's financing function from its project design and implementation functions.

5.2 The audits question the lending strategy the Bank pursued when it committed close to US$600 million for the three projects. The impression is that a clear lending strategy was lacking and the loans were made in a piecemeal and somewhat opportunistic fashion. High hopes were pinned on the application of the 1981 ISKI law, which was meant to replace central government control and funding by financially and institutionally autonomous water supply and sewerage agencies. The hoped for transformation did not materialize and the ISKI-type entities remained subject to municipal political control for better or for worse.

5.13 The projects failed to address the sector-wide constraints: absence of economic and quality regulation; inappropriate and unrealistic financing policies; and inappropriate sector institutional policies. The lack of focus on regulation is understandable since the World Bank had only started focusing on the importance of regulation at the time of the loan approval. In contrast, appropriate sector financing and institutional policies had been at the forefront of World Bank analysis for decades in many other client countries. Reform was overdue in Turkey, where the macroeconomic imbalances had accelerated the obsolescence of the sector's traditional financial and institutional policies. The audits provide some indications of what might have been an alternative lending strategy and what might be a recommended sector reform agenda in the future.

The Need for Regulation of Water Supply and Sewerage Services

5.14 Water supply and sewerage services are close to being natural monopolies that can result in both expensive and inadequate services. For these reasons, regulation is necessary to protect consumers from monopolistic pricing and to ensure quality service. This type of regulation is overdue in Turkey, starting with the systematic collection of performance indicators in order to assess in which cities consumers (and the local and national governments) receive value for the operating and investment costs paid to operators. Such yardstick regulation can be effective by making comparisons transparent and prodding operators to increase both operating and investment efficiencies as a price for receiving financing and having their tariff requests approved. The State Planning Organization would likely be a natural candidate for collecting and analyzing key performance indicators.

5.5 The tariff policies are part of the economic regulation. Judging by the three audited projects, no national consensus exists as to what constitutes sound tariff policies. The decisions are rather left to the discretion of individual municipal councils. This represents a missed opportunity in creating more efficient, equitable and transparent tariff policies that are easy to administer. It should prove relatively easy to get agreement on guidelines on tariff regulation, based on the principles of cost recovery, minimized cross subsidies and ease of administration. The truth is that the tariff levels in Turkey of as much as US$1.0 per cubic meter are high and are probably close to the long-term development cost of supply. What is most needed is to make the tariffs into useful instruments to promote efficiency in consumption and production and into the engine for financial autonomy.

5.6 A corollary of national tariff guidelines would be a system of subsidies tied to the income levels of consumers rather than to institutions, use of funds or political expediency which is now the case. Subsidies should be explicit and favor access to service rather than subsidize level of consumption. Turkey could learn from the experience of other countries, such as Chile, that have developed this kind of targeted subsidies.

The Need for New Financial Policies in the Sector

5.7 Financing water supply and sewerage has in the past largely been the task of the central government budget that has used the General Water Directorate (DSI) to develop water supplies, and Iller Bank to build systems to collect and treat sewage. Both DSI and Iller Bank have financing functions and design and manage project implementation. The municipalities take over the completed systems once constructed by DSI and Iller Bank and are also responsible for finding the funds to construct and operate the distribution systems. The danger of such fragmentation in the funding and implementation of water production, water distribution, and wastewater collection and treatment is lower efficiency. For instance, DSI could well add new production capacity such as in the case of Bursa at the same time that the distribution efficiency remained at 50 percent of the water received. A more economic solution would be to exhaust the possibilities of demand management before undertaking major increases in production.

5.8 DSI has financed the development of new production more than 30 years at no interest. DSI itself is aware of the inadequacy of these concessionary financing terms and has proposed to require its borrowers to repay the loans in constant prices, albeit without interest. The DSI proposals in this direction have not been accepted, however, by the relevant political decision makers. Iller Bank finances three quarters of its lending over terms of 15 to 25 years at no interest. With annual inflation of 50 percent or more such loans are effectively grants. Grant financing has not served the sector well. The demand for grants has naturally been heavy and grant allocation has been influenced by political considerations. The effect has been fragmentation of available budget grants and inordinate long construction periods and low productivity of investments.

5.9 A sector-wide analysis is needed on how the water supply and sewerage sector could better fund its operating and investment costs. It is particularly relevant to document the amount of water supply and sewerage grants from DSI, Iller Bank, and other central government conduits and sources. Reportedly, the central government share could be as high as 5 percent of central government expenditure, of which the major part in the form of grants. If further analysis confirms such high levels of grants, it would also explain a significant proportion of the central government budget deficit. The ultimate target would be a sector financial policy where urban

water supply and wastewater would not receive subsidies from the central budget which would force urban systems to increase operating and investment efficiency and produce consistent cash surpluses from operations.

The Need for New Institutional Sector Policies

5.10 A phase-out of implicit investment subsidies will force both the country's municipalities and its water supply and sewerage agencies, DSI and Iller Bank, to reform their institutional policies. The municipalities would be faced with the challenge of creating capacity to operate and administer the services to produce operating surpluses that could be used for debt service and to fund part of required investments. This will require an accelerated pace of private sector involvement.

5.11 With an emphasis on cost recovery DSI might best be transformed into a regulator of the country's water resources. Its sound technical capacity and experience from financing and implementing water production schemes could best be separated from its regulatory duties and be managed as a new agency, DSI Consultancy Incorporated to give it the flexibility and incentives to compete.

5.12 For the same reasons, Iller Bank might best be transformed into two separate parts: the (financial assistance) Iller Bank that would retain its financing functions and a (technical assistance) Iller Consultancy arm that would retain and develop its substantial capacity in the design and implementation of water supply and wastewater projects.

Annex A

Basic Data Sheet

TURKEY IZMIR WATER SUPPLY AND SEWERAGE PROJECT (LOAN 2818-TU)

Key Project Data *(Amounts in US$ million)*

	Appraisal estimate	*Actual or current estimate*	*Actual as % of Appraisal estimate*
Total project costs	522	359	68
Loan amount		184	

Cumulative Estimated and Actual Disbursements

	FY88	*FY89*	*FY90*	*FY91*	*FY92*	*FY93*	*FY94*	*FY95*	*FY96*
Appraisal estimate	4.8	23.2	52.4	85.2	118.0	143.6	163.8	178.6	184.0
Actual (US$M)	11.1	12.1	22.6	39.4	54.8	61.8	74.3	79.1	99.4
Actual as % of appraisal	231.3	52.2	43.1	46.2	46.4	43.0	45.4	44.3	54.0
Date of final disbursement:	May 16, 1996								

Project Dates

	Original	*Actual*
Identification	4/84	7/85
Preparation	9/85	4/86
Appraisal	5/86	11/86
Negotiations	11/86	4/87
Board Presentation	12/86	5/87
Signing	6/87	6/87
Effectiveness	10/87	10/87
Project Completion	12/94	Not yet completed
Closing date	12/95	12/95

Staff Inputs (staff weeks)

	Actual Weeks	*Actual US$000*
Preparation to appraisal	N/A	110
Appraisal	N/A	30
Negotiations-Board Approval	N/A	7
Supervision	N/A	200
Completion	15	25
Total	N/A	372

Annex A

Mission Data

	Date (month/year)	No. of persons	Staff days in field	Specialization represented[a]	Performance rating[b]		Types of Problems[c]
					Implementation Status	Development objectives	
Through appraisal	7/85-9/86		72	F,N,E			
Appraisal through Board approval	11/86	2	16	F,N			
Supervision 1	1/87	3	3	F,N,E	1	1	T
Supervision 2	1/88	2	5	F,N	1	1	T
Supervision 3	4/88	2	6	F,N			T
Supervision 4	6/88	2	5	F,N	1	1	F,M
Supervision 5	12/88	2	4	F,N			F,M
Supervision 6	5/89	3	15	F,N	2	1	F,M
Supervision 7	11/89	1	11	N	3	2	F,M
Supervision 8	3/90	2	6	F,N	3	2	F,M
Supervision 9	6/90	2	4	F,N	3	2	F,M
Supervision 10	12/90	1	6	N	2	2	F
Supervision 11	5/91	2	9	F,N	2	2	F,M,T
Supervision 12	5/92	3	8	2F,N	3	3	F,M,T
Supervision 13	10/92	3	18	F,N,Consultant	3	3	F,M
Supervision 14	3/93	3	8	2F,N,2Resettlement	3	3	F
Supervision 15	12/93	3	6	F,N,Resettlement	2	2	F,M
Supervision 16	6/94	3	13	2F,N	U	U	F,M
Supervision 17	12/94	3	16	2F,N	U	U	F,M
Supervision 18	6/95	2	5	2F	HU	HU	F,M
Completion	11/95	2	6	2F	HU	HU	F,M

Other Project Data

FOLLOW-ON OPERATIONS

Operation	*Loan no.*	*Amount (US$ million)*	*Board date*

[a] A=Agriculturalist; E=Economist; D=Education Specialist; F=Financial Analyst; H=Horticulturalist; L=Livestock Specialist; M=Marketing Specialist; N=Engineer; R=Forestor

[b] 1=Minor problems; 2=Moderate problems; 3=Major problems

[c] F=Financial; T=Technical; M=Managerial

Annex A

Basic Data Sheet

TURKEY ISTANBUL WATER SUPPLY AND SEWERAGE PROJECT (LOAN 2888-TU)

Key Project Data *(Amounts in US$ million)*

	Appraisal estimate	*Actual or current estimate*	*Actual as % of Appraisal estimate*
Total project costs	569.90	605.36	
Loan amount		218.0	

Cumulative Estimated and Actual Disbursements

	FY88	*FY89*	*FY90*	*FY91*	*FY92*	*FY93*	*FY94*	*FY95*	*FY96*	*FY97*	*FY98*
Appraisal estimate	24.40	46.20	81.00	120.20	159.40	189.80	206.00	214.80	218.00	218.00	218.00
Actual (US$M)	21.00	37.50	47.90	76.10	104.60	135.60	158.90	174.80	184.50	196.90	218.00
Actual as % of appraisal	86	81	59	63	66	71	77	81	85	90	100

Date of final disbursement: July 31, 1998

Project Dates

	Original	*Actual*
Identification	Early 1985	Early 1985
Preparation	1985	1985-1986
Appraisal	3/87	5/87
Negotiations	9/87	10/87
Board Presentation	12/1/87	12/1/87
Signing	12/10/87	12/10/87
Effectiveness	2/23/88	2/23/88
Midterm Review		9/1/94
Project Completion	12/31/94	3/31/98
Closing date	12/31/95	1/31/98

Staff Inputs (staff weeks)

	Actual Weeks	*Actual US$000*
Preparation through appraisal	38	78
Appraisal	16	35
Negotiations through Board Approval	11	24
Supervision	149	468
Total	215	526

Annex A

Mission Data

	Date (month/year)	*No. of persons*	*Staff days in field*	*Specialization represented*[d]	*Performance rating*[e]		*Types of Problems*[f]
					Implementation Status	Development objectives	
Through appraisal			15				
Appraisal thru Board approval	5-12/87	2	16	F,2E, Ec			
Supervision 1	2/88	2	5	F,E	1	1	Coll.
Supervision 2	4/88	2	5	F,E	1	1	Per.
Supervision 3	7/88	2	5	F,E	1	1	Coll. UFW.
Supervision 4	6/89	2	6	E	2	1	Coll. UFW. Acc.
Supervision 5	11/89	2	6	E	2	1	Coll. UFW. Acc.
Supervision 6.	4/90	2	6	F, E	2	1	Des. Turn. Drght. Acc
Supervision 7	6/90	2	3	F, E	2	1	Des. Acc
Supervision 8	5/91	2	6	F, E	2	1	UFW, Coll., Acc
Supervision 9	6/92	2	14	E, 2F	2	2	Tar. Coll. UFW, Acc
Supervision 10	12/92	4	12	E, F	2	2	Tar. Coll. UFW, Acc
Supervision 11	5/93	3	20	B-F-Env	2	2	Tar. Coll. UFW, Acc
Supervision 12	11/93	2	12	F, E	3	3	UFW, Tar. Coll. Turn. Acc.
Supervision 13	7/94	2	4	F, E	U	U	UFW, Tar. Coll. Turn. Acc.
Supervision 14	9/94	2	15	F, E	U	U	UFW, Tar. Turn. Acc.
Supervision 15	2/95	2	7	F, E	S	S	UFW. Tar.Turn. Acc.
Supervision 16	2/96	2	7	F, E	S	S	UFW. Tar. Acc.
Supervision 17	9/96	2	10	F, E	S	S	UFW, Tar. Acc.
Supervision 18	9/97	2	7	F, 2E	S	S	Tar. Acc.
Completion	3/98	2	8	F, E	S	S	Tar. Acc

[d] E = Sanitary Engineer, F = Financial Analyst, Env = Environmentalist, Ec = Economist.

[e] 1 = Minor problems, 2 = Moderate problems, 3 = Major Problems, S = Satisfactory, U = Unsatisfactory

[f] Des. = Design disagreement; Turn. = Turnover of management, UFW = Too high unaccounted-for water, Coll = Too low collection of bills, Tar = Too low tariff, Por = Procurement, Drght = Drought, Low sales, Acc. = Accounting Insufficiency.

Annex A

Basic Data Sheet

TURKEY ANKARA SEWERAGE PROJECT (LOAN 3151-TU)

Key Project Data *(Amounts in US$ million)*

	Appraisal estimate	*Actual or current estimate*	*Actual as % of Appraisal estimate*
Total project costs	556.8	597.2	
Loan amount			

Cumulative Estimated and Actual Disbursements

	FY90	*FY91*	*FY92*	*FY93*	*FY94*	*FY95*	*FY96*	*FY97*	*FY98*
Appraisal estimate	4.50	21.80	49.20	80.00	110.80	134.80	153.80	101.80	107.00
Actual (US$M)		1.59	6.45	9.17	15.11	21.94	44.56	81.87	100.70
Actual as % of appraisal		7.3	13.0	11.5	13.6	16.3	29.0	80.8	94.2
Date of final disbursement:									

Project Dates

	Original	*Actual*
Identification		June 1988
Appraisal		February 1989
Negotiations		October 1989
Board Presentation	December 1989	December 21, 1989
Signing	February 1990	August 16, 1990
Effectiveness	May 1990	January 23,1991
Project Completion	November 1998	November 1998
Closing date	December 31, 1998	February 28, 1999

Staff Inputs (staff weeks)

	Actual Weeks	*Actual US$000*
Negotiations through Board Approval	18.0	5.6
Supervision	278.7	215.9
Completion[g]	23.0	5.2
Total	319.7	221.11

g. Estimate.

Annex A

Mission Data

	Date (month/year)	No. of persons	Staff days in field	Specialization represented[h]	Performance rating[i]	
					Implementation Status	Development objectives
Through appraisal					1	1
Appraisal through Board approval	4/88-11/89	2		F,E	1	1
Supervision 1	5/91	0			1	1
Supervision 2	10/91	2		F,E	1	1
Supervision 3	5/92	3		F,F,E	1	1
Supervision 4	5/93	3			2	2
Supervision 5	12/93	2		F,E	2	1
Supervision 6	6/94	3			2	2
Supervision 7	10/94	2		F,E	U	S
Supervision 8	5/96	2		F,E	U	U
Supervision 9	9/96	2		F,E	U	S
Supervision 10	2/97	2		F,E	S	S
Supervision 11	12/97	2		F,E	S	S
Completion	10-11/98	3		F,E,C	S	S

Other Project Data

FOLLOW-ON OPERATIONS

Operation	*Loan no.*	*Amount (US$ million)*	*Board date*
Bursa Water and Sanitation Project	3565		1993
Antalya Water Supply and Sanitation Project	3893		1995
Cesme-Alacati Water Supply and Sewerage Project	4315		1998
Emergency Flood Recovery Project	43880		1998

[h] C = Consultant, F = Financial Analyst; E = Engineer

i. 1 = No significant problems, 2 = Moderate problems

Annex B

Comments from Kreditanstalt fur Wiederaufbau

Dear Sirs,

Thank you for the conveying of the audit report on the Ankara Sewerage Project. The report reached our offices only on June 13, for which reason we could not send our brief comments before now. Anyway, we hope the comments reach you in time.

Except from minor points, we fully agree with the conclusions drawn and the recommendations made in the PAR. Our comments concern the following items:

para 4.2, 4.4 and 4.5:
Since in paras 4.4 and 4.5 it is stated that the share of wastewater that is treated is 85% (which according to our judgement seems to be rather on the high side - 70% in our opinion would be closer to reality), to avoid a contradiction in para 4.2 we would propose to change the wording in the third line slightly so that it reads: "Raw sewage discharges into the Ankara river and its tributaries were eliminated to a large extent".
para 4.7:
In the last sentence we would propose to mention that ASKI's introduction of automatic adjustments of the tariff to the cost-of-living index was the result of a covenant of KfW in it's loan for the Biogas Power Plant within ASKI's wastewater treatment plant.
para 4.9:
While we agree with the analysis made regarding the financial situation of ASKI, we would regard ASKI's sustainability as satisfactory, given that it charges cost-covering and inflation-indexed tariffs.

We found the cross-cutting lessons very noteworthy and would look forward to discuss these issues with you in the near future.

Best wishes,
Christian Lütke Wöstmann

Comments from Iller Bankasi

İLLER BANKASI
GENEL MÜDÜRLÜĞÜ

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KANALİZASYON DAİRESİ BAŞKANLIĞI

45503

15.1.6.2000

FROM : **İLLER BANKASI GENEL MÜDÜRLÜĞÜ**
ANKARA
TURKEY
Fax: 00 90/312/312 29 89

TO : **The WORLD BANK**
1018 H Street N.W.
Washington D.C. 20433
U.S.A
Fax : 00 1 202 522 3123

ATTENTION TO : Mr. Ridley Nelson

Subject : Draft Performance Audit Report

Reference : Your letter dated as 25.5.2000

Dear Sir,

In the below paragraph we are submitting our comments on the Draft Performance Audit Report related with the İzmir Water Supply and Sewerage Project, İstanbul Water Supply and Sewerage Project and Ankara Sewerage Project;

Page-1 "Sector Background"
It is stated that " İller Bank is at present funding water and sewerage works with a total value of US$6 billion but its annual investment funding is only about US$0.26 billion with average completion periods above 20 years."
The total approximate investment cost of the water and sewerage projects of İller Bankası is around US$6 billion. Our annual investment funding (for the year 2000) is about US$0.36 billion except the municipal contributions. If we include municipal contributions this value goes up to US$0.42 billion. For the water works average completion period of the water projects is around 4 year whereas for the sewerage projects it is 32 years.

Page-16 "The Need for New Financial Policies in the Sector"

In response to the first paragraph, we should state that İller Bankası deals with the water projects of Municipalities having less than 100.000 population. İller Bankası deals with the water projects as a whole. It means that water projects include water resource determination, if necessary water treatment, water storage and water distribution. Therefore municipalities take over the complete system and there is no fragmentation.
In the second paragraph, it is stated that "İller Bank finances three quarters of its lending over terms of 15 to 25 years at no interest." İller Bankası apply two kinds of credits as "Short Term" and "Long Term" credits. For the short term credits the period is 1 year and the interest rate is the commercial interest rate plus 2 percent which is valid in the money market in Turkey. For the long term credits the period is maximum 5 year and the interest rate is 50 percent. The municipal projects are financed by 3 different financial source; the first is the municipal contribution (changes between 10-30 % according to the population of the municipality), the second is long term credits (In recent years it covers about 50-70 % of the total finance) as explained above and the third is the grant which comes from the "Municipalities Fund" of the General Budget Tax Revenues. After 1993 this fund was taken into the scope of General Budget and since than every year approximately 10-15 % of this fund has been allocated to the use of İller Bankası. Therefore this grant portion of the project finance currently is around 20-25 % of the total finance requirement.

Page-17, "The Need for Institutional Sector Policies"- Section 5.12
A Reorganisation Study has been initiated by İller Bankası in order to increase financial and technical capability of the Bank. Since the beginning of this study, several meetings both in Washington D.C. and Ankara have been organised between the competent authorities of the Bank and the World Bank and mutual opinion exchange has been realised. The results of this opinion exchange and the World Bank opinion of transforming İller Bankası into two separate parts and the opinion of other organisations and governmental agencies of Turkey will be taken into account within the ongoing Study of Reorganisation of İller Bankası.

Best Regards,

İrfan ÖNAL
General Director

Rıfat UĞRAR
Deputy General Director