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**Report No. P-3563-TU**

REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT OF THE  
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
TO THE  
EXECUTIVE DIRECTORS  
ON A  
PROPOSED LOAN  
IN AN AMOUNT EQUIVALENT TO US\$55.2 MILLION  
TO THE TURKIYE PETROLLERI ANONIM ORTAKLIGI  
WITH THE GUARANTEE OF THE REPUBLIC OF TURKEY  
FOR A  
THRACE GAS EXPLORATION PROJECT

June 6, 1983

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## CURRENCY EQUIVALENTS

<u>Currency Unit</u>	<u>Jan. 1980 /1</u>	<u>Jan. 1981</u>	<u>January 1982</u>	<u>March 1983</u>
US Dollar -	TL 70.0	TL 91.00	TL 127.00	TL 195.00
Turkish Lira -	US\$ 0.014	US\$ 0.011	US\$ 0.008	US\$ 0.005

/1 Since January 1980, the rate is being adjusted for the differential inflation between Turkey and its major trading partners. TL 190/\$1 was used for Parts III and IV of this report.

## FISCAL YEAR

Republic of Turkey      March 1 to February 28 (through 1981)  
                                 March 1 to December 31 (1982)  
                                 January 1 to December 31 (from 1983)

## WEIGHTS AND MEASURES

1 Metric Ton	=	1,000 Kilograms (kg)
1 Metric Ton	=	2,204 Pounds (lbs)
1 Meter	=	3.28 Feet
1 Kilometer	=	0.621 Miles
1 Cubic Meter	=	35.5 Cubic Feet (cft)
1 Barrel (Bbl)	=	0.159 Cubic Meter
1 Metric Ton of Oil (25° API)	=	6.7 Barrels
1 Normal Cubic Meter	=	33.42 Standard Cubic Feet of Natural Gas
1 kcal (Kilocalorie)	=	3.97 British Thermal Units (BTU)
1 ha (Hectare)	=	2.47 Acres
kW (Kilowatt)	=	1,000 Watt
MW (Megawatt)	=	1,000 kW
kWh (Kilowatt hour)	=	1,000 Watt hours
GWh (Gigawatt hour)	=	1,000,000 kWh
MMSCF	=	Million Standard Cubic Feet
MMSCFD	=	Million Standard Cubic Feet per Day
BCF	=	Billion Cubic Feet
TCF	=	Trillion Cubic Feet
MMT	=	Million Metric Tons
TOE	=	Tons of Oil Equivalent
MMTOE	=	Million Metric Tons of Oil Equivalent

## GLOSSARY AND ABBREVIATIONS

API	-	American Petroleum Institute
DSI	-	State Hydraulic Works
GDPA	-	General Directorate of Petroleum Affairs
IPRAS	-	Istanbul Petroleum Refining Company
MENR	-	Ministry of Energy and Natural Resources
MTA	-	Mineral Exploration and Research Institute
SEE	-	State Economic Enterprise
SPO	-	State Planning Organization
TEK	-	Turkish Electricity Authority
TKI	-	Turkish Coal Enterprise
TPAO	-	Turkiye Petrolleri Anonim Ortakligi
TPK	-	Turkish Petroleum Company
TSKB	-	Industrial Development Bank of Turkey

TURKEY

THRACE GAS EXPLORATION PROJECT

Loan and Project Summary

Borrower: Turkiye Petrolleri Anonim Ortakligi (TPAO)  
Guarantor: Republic of Turkey  
Amount: US\$55.2 million (including capitalized front-end fee).  
Terms: Seventeen years including four years of grace, with standard variable interest rate.

Project

Description:

The project objective is to assess the hydrocarbon potential of the borrower's licenses in the Thrace basin and to help strengthen the borrower's ability to design and implement an integrated basin-oriented exploration program. The project includes completion of infill seismic mapping of the entire licensed areas, detailed seismic lines on structures of interest for drilling, drilling of 11 wells, rehabilitation of three drilling rigs and technical assistance, studies and training.

Project Benefits and Risks:

The volume of gas that the project could potentially make available would have a significant impact on Turkey's balance of payments and on the energy use patterns of consuming industries in the highly industrialized Istanbul environs. While exploration always involves risks, on balance the overall project risk is small, because the minimum size discovery required to provide an acceptable rate of economic return is less than one-tenth the size of the most probable anticipated discoveries. The geological risk is manageable because the basin has proven hydrocarbon production and the proposed exploration program maximizes the possibility of finding new reserves. The economic risk is also small since the basin is near the largest industrial market in Turkey and the cost of transmission of even small additional quantities of gas would be quite low.

<u>Estimated Project Costs:</u>	<u>----- US\$ Million Equivalent -----</u>		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
Seismic Data Aquisition & Interpretation	4.1	3.6	7.7
Drilling			
1. Rig Rehabilitation	0.0	7.0	7.0
2. Drilling (11 wells)	21.5	20.1	41.6
3. Well completion	3.1	1.9	5.0
Testing Equipment	0.0	2.0	2.0
Technical Assistance	0.7	2.5	3.2
Studies	0.5	2.7	3.2
Training	0.0	1.5	1.5
<u>Total Base Cost 1/</u>	<u>29.9</u>	<u>41.3</u>	<u>71.2</u>
Physical Contingencies	6.6	5.8	12.4
Price Contingencies	7.3	8.0	15.3
<u>Total Project Cost</u>	<u>43.8</u>	<u>55.1</u>	<u>98.9</u>
Front-End Fee	0.0	0.1	0.1
<u>Total Financing Required</u>	<u>43.8</u>	<u>55.2</u>	<u>99.0</u>
<u>Financing Plan</u>			
IBRD	0.0	55.2	55.2
TPAO and Government	43.8	0.0	43.8
<u>Total</u>	<u>43.8</u>	<u>55.2</u>	<u>99.0</u>

<u>Estimated Bank Disbursements</u>	<u>-----US\$ Million -----</u>			
	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
<u>IBRD FY</u>				
Annual	10.1	26.2	17.0	1.9
Cumulative	10.1	36.3	53.3	55.2

Rate of Return: Not applicable.

Appraisal Report: 4433-TU, dated June 2, 1983.

Map: Nos. IBRD 17111 and 17135.

1/ Excludes taxes and duties from which the project is exempt.

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

REPORT AND RECOMMENDATION OF THE PRESIDENT OF THE IBRD  
TO THE EXECUTIVE DIRECTORS ON A PROPOSED LOAN TO  
THE TURKIYE PETROLLERI ANONIM ORTAKLIGI  
FOR A THRACE GAS EXPLORATION PROJECT

1. I submit the following report and recommendation on a proposed loan to the Turkiye Petrolleri Anonim Ortakligi (TPAO) with the guarantee of the Republic of Turkey for the equivalent of US\$55.2 million (including the capitalized front-end fee) to help finance seismic surveys, rehabilitation of drilling rigs, exploration drilling, studies, technical assistance and training. The loan would have a term of 17 years including 4 years' grace at the standard variable interest rate.

PART I - THE ECONOMY 1/

2. A report entitled "Turkey: Policies and Prospects for Growth" (No. 2657a-TU) and the Postscript thereto, were distributed to the Executive Directors in December 1979 and March 1980, respectively. Updating of economic prospects has since been undertaken through the continuing work on structural adjustment loans (SALs) to Turkey and several special economic missions. The report of a mission to evaluate the investment program and entitled "Turkey: Public Sector Investment Review" (No. 3472-TU) was distributed to the Executive Directors in December 1981. The report of a mission to review Turkey's industrialization and trade strategy entitled "Turkey: Industrialization and Trade Strategy" (No. 3641-TU), was distributed to the Executive Directors in March 1982. The report of a mission to review energy sector policies entitled "Turkey: Issues and Options in the Energy Sector" (No. 3877-TU) was distributed to the Executive Directors in March 1983. Missions to review recent economic developments and analyse the medium-term prospects, and to study the agricultural sector and the financial system visited Turkey at various times in 1982. Their findings are reflected in this section.

3. Turkey is about as big as France and Germany combined, with a population of around 46 million and an estimated GNP per capita of \$1540. The density of population is low (78 per square kilometer of agricultural land), and about 45 percent live in urban centres. Although population growth is below the median for middle-income countries (2.2 percent per annum), and despite rapid economic growth in the mid-1970s as well as substantial emigration of workers (to Western Europe and more recently, to the Middle

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1/ Parts I & II are substantially the same as Parts I & II of the President's Report on the Second Agricultural Credit Project (P-3593-TU), dated May 25, 1983.

East), the employment situation has deteriorated steadily with an unemployment rate currently about 16 percent. There is, however, little or no absolute poverty, although income distribution is relatively skewed. There are also considerable regional differences and large rural-urban disparities. Recent data indicate a probable worsening in income distribution, especially of wage and salary earners, and a sharp real decline in the minimum wage. Educational enrollments have expanded greatly but the rate of adult literacy remains relative low (60 percent in 1975).

#### Development Strategy Prior to 1980

4. Turkish development strategy during the 1960s and 1970s aimed at rapid growth through high rates of investment with the main emphasis on industrialization. Import substitution was favored over exports, with State Economic Enterprises (SEEs) playing an important role in the industrialization strategy as well as in regional development. These policies, supported by agricultural expansion and growing workers' remittances, helped to bring about a favorable growth record throughout the First and Second Plan periods (1963-72). A continuation of these policies in the face of the various exogenous shocks of the 1970s, including the rise in world oil prices and stagflation in the OECD economies, helped to maintain growth well into the 1970s, but finally proved unsustainable.

5. To maintain its growth momentum in the Third Plan (1973-77), Turkey financed a large part of its investment and import requirements through reserve decumulation and heavy external borrowing, particularly short-term. The rapid GNP growth, averaging around 7.7 percent per year in 1973-76, came to an abrupt halt in mid-1977 as the massive external debt burden led to a sharp deterioration in creditworthiness, severe shortages of imports and disruptions in industrial production with a rise in urban unemployment; GNP growth slowed down sharply to 4.0 percent in 1977 and to a negative figure in 1979. At the same time, domestic inflation accelerated from 24 percent in 1977 to an average of 64 percent in 1979.

6. By the end of 1979, the rate of domestic inflation had reached over 100 percent and had become an issue of critical importance. Although international price increases and domestic cost-push factors influenced the inflationary process, a substantial monetary expansion was the main cause. The monetary imbalances originated mainly from the Government's budget deficits and the huge financing requirements of the SEEs. Political and social unrest aggravated the economic difficulties. It was in these exceptional circumstances that the January 1980 reform measures were adopted.

#### The Government's New Policy Priorities and Actions

7. The Government's program for stabilization and restructuring of the Turkish economy was initiated in January 1980 and is now entering its fourth year. The program has involved policy measures which have effects both in the short- and medium-term. In an effort to stabilize the crisis situation, a series of urgent measures were introduced to restrict domestic demand. These measures included enforcing tight credit ceilings by the Central Bank, reducing the budget deficit through expenditure control and increased taxation, and restraining growth of wages and salaries. Over the medium-term, the program is designed to restore a better balance between the public and private sectors of the economy and achieve sustainable growth. The key

elements of this program are: the adoption of a realistic and flexible exchange rate and incentives to encourage producers to export; deregulation of interest rates to reflect market conditions and encourage private savings; the strengthening of public finances through tax reform; measures to improve institutional efficiency in key sectors; a rationalization of the public investment program; and a reform of the SEEs designed to reduce their burden on the budget and improve their efficiency.

8. The adjustment program, which has been supported by the Bank through three structural adjustment loans, involves far-reaching changes affecting all facets of the Turkish economy. It entails substantial changes in attitudes, institutions, and the legal and policy framework, all of which take time and face considerable resistance. In view of the severity of the crisis, and the urgent need to bring down inflation and stabilize the balance of payments as quickly as possible, the Government accepted the need for a temporary sacrifice of growth and social objectives. Drastic structural changes were made in the operation of the exchange rate regime, the tax system, interest rate policy, export strategy, the SEE sector and public investment policy.

9. The implementation of the program is being carried out by a military regime which assumed power in September 1980 following a period of sustained unrest, terrorism and deterioration in the parliamentary process. This Government, like previous military regimes in 1960-61 and 1971-73, has emphasized its commitment to restore civilian rule. A Consultative Assembly was set up to draft a new constitution, which was overwhelmingly endorsed in a nationwide referendum in November 1982. New election and party laws are expected to be promulgated soon, and parliamentary elections are scheduled for November 1983.

#### Effects of the Structural Adjustment Process -- 1980-83

10. The Turkish economy has shown an impressive response to the program launched in 1980, and in many cases actual performance has met or exceeded the Government's own targets. Real GNP, after falling for two consecutive years, expanded by 4.2 percent in 1981 and 4.4 percent in 1982. Growth has been mainly export-led, with less than one quarter of the growth in 1982 due to domestic demand. Demand for consumption increased by 3 percent while fixed investment grew at a modest 4.1 percent (both in real terms) in 1982, and depletion of inventories helped to expand supply. Public investment grew significantly slower than private investment, thus reversing the trend of previous years. However, unemployment continued to grow in 1981 and 1982, as employment opportunities did not increase fast enough to absorb the expansion of the labor force.

11. Through a combination of fiscal, monetary and income policies, the Government has been remarkably successful in reducing the rate of inflation. After peaking at 107 percent in 1980, the annual average rate of increase in the wholesale price index declined to 37 percent in 1981 and around 25 percent in 1982, which was the program target. However, the degree of credit restraint needed to reduce inflation this rapidly has had a marked effect on liquidity in the economy and has helped to maintain interest rates at high real levels.

12. Commercial bank interest rates which were deregulated in July 1980 have increased substantially; with inflation gradually coming down, they are

now markedly positive in real terms. As a result, total bank deposits increased by 72 percent in 1980 over 1979, and in 1981 this trend accelerated, with total deposits growing by 104 percent and time deposits by 263 percent. Growth in deposits slowed somewhat in 1982, and the bankruptcy in late June 1982 of a major non-bank financial institution shook depositor confidence and was followed by a shift of funds into the larger banks. While the Government has averted an immediate crisis in the banking sector, additional actions to reform and strengthen the financial sector as a whole are urgently required. The Government is at present preparing a new banking law which aims to strengthen the equity position and management of banks.

13. While positive real interest rates have provided an incentive to save, they have also meant high borrowing costs. The current real interest rate for non-preferential credits is about 28 percent. These high interest rates, together with the limited availability of credit, have led to considerable liquidity problems for the private business sector, particularly for businesses supplying the domestic market. The banks have taken steps to lower rates on deposits and the Government has reduced the tax on interest received from banks with the aim of reducing interest on credit. But the liquidity problem of the private business sector is compounded by under-capitalization which had been encouraged by easy access to cheap bank credit in the past. Tax changes and other measures are under preparation to encourage the corporate sector to raise paid-up capital to levels commensurate with those in other countries.

14. There has been encouraging progress in the fiscal area. The budget deficit was reduced from 4.6 percent of GNP in 1980 to 1.2 percent in 1982. Government expenditures as a percentage of GNP declined from 22.6 percent in 1981 to 21.5 percent in 1982, but the impact on the deficit was offset by a slower growth in revenues than programmed. The SEE accounts showed a marked improvement, with net profits climbing to 0.5 percent of GNP in 1982 from 0.1 percent in 1981 and their financing requirements falling from 8.8 percent of GNP in 1981 to 5.7 percent in 1982. Moreover, supplementary appropriations were cancelled. Public sector borrowing requirements dropped from a level of 6.5 percent of GNP in 1981 to 5.2 percent in 1982.

15. On the external account, the flexible exchange rate policy under which the Turkish lira has been adjusted daily since May 1981, together with the new export-oriented policies, led to an unprecedented export growth in 1981 when exports amounted to \$4.7 billion, or 62 percent higher in dollar terms than the 1980 level. Increases were concentrated in manufactured goods which experienced a rise of nearly 120 percent; product groups with the largest increases included textiles, clothing, cement, iron/steel, and non-electrical equipment, with the Middle East becoming an increasingly important market. Exports in 1982 reached \$5.75 billion, about 22 percent increase over 1981, despite a significant decline in export prices, particularly prices of agricultural products. As in the previous year, manufactured exports were the major source of expansion, as exporters continued to make inroads into the Middle East.

16. A new and rapidly growing source of foreign exchange is income earned from construction contracts (with a gross value of around \$11 billion in 1982) in the Middle East and North African countries. These activities are also



expected to add to the normal flow of worker remittances, which remained strong throughout 1981, although declining slightly in 1982, reflecting the appreciation of the US dollar vis-a-vis European currencies as well as the impact of the recession in Western Europe.

17. Imports declined in dollar terms by 2.3 percent in 1982 compared to 1981, due mainly to weaker prices of oil and raw material imports, a stronger US dollar, a reduction in stocks and the elimination of a risk premium previously paid by Turkish importers. As a result of these developments, the current account balance showed a significant improvement in 1981 and 1982, with the deficit reduced from 5.6 percent of GNP in 1980 to 3.5 percent in 1981 and about 1.7 percent in 1982, well below program targets. By the end of 1981, outstanding external disbursed debt amounted to \$17.5 billion equivalent or about 30 percent of GNP. Multilateral agencies and official bilateral sources accounted for about two-thirds of the total outstanding. Of the total, only 12 percent constituted short-term debt, a marked contrast to the position in 1978 when short-term debt accounted for half of total outstanding debt.

18. A modest pickup of growth (4.8 percent) is anticipated in 1983 concurrent with a slowdown of inflation (to about 20 percent), based on a slight recovery in private investment and higher capacity utilization rates. The current account deficit is expected to decrease to \$870 million in 1983 from \$1 billion in 1982, representing a slight fall in relation to GNP (1.5 percent as against 1.7 percent). These results are based on a 17 percent projected growth in exports, a marginal improvement in workers' remittances, (both predicated on a revival of growth in the industrial economies) and a 13 percent growth in imports (required by the upturn in domestic demand).

#### Medium-term Prospects

19. It is expected that the draft Fifth Five-Year Development Plan (1984-1988) will be completed by mid-1983. Projections prepared by the recent Economic Mission indicate the need for a continuation of the stabilization program until 1985, which can be followed by a growth strategy aiming at about 6-6.5 percent per annum GDP growth consistent with a manageable balance of payments.

20. Two basic assumptions on the sustainability of export growth and on fiscal discipline have guided the projections. The continued growth of exports is based on the view that conditions that have made possible the 1981-82 upsurge are not temporary. Specifically, it assumes continuation of a flexible exchange rate policy, export incentives and import liberalization. Secondly, it also assumes that the monetary and fiscal policy restraints will not be relaxed to a point that will revive inflation, thus disrupting the basic shift in development strategy.

21. The projections of key economic variables for the period 1983-1990 are presented in Table below. Merchandise exports are projected to continue to grow at 9.5 percent in real terms into the late 1980s on the basis of a continuation of present policies for export promotion. Such a scenario would also require improvement in the pace of import liberalization in order to reduce the profit bias against exports.

Turkey - Projection of Selected Economic Indicators, 1981-90

	Units	1981	1982	1983	1985	1990	Average Annual Real Growth Rate			
		Actual	Estimate	Program	Projected		1981	1982	1982-85	1985-90
GDP	1980 TL b	4518	4717	4943	5455	7349	4.4	4.4	5.0	6.1
Consumption	"	3611	3757	3943	4310	5716	1.9	4.1	4.7	5.8
Fixed Investment	"	898	924	977	1129	1617	4.2	3.0	4.9	7.4
Exports of Goods	Current \$ m	4703	5746	6800	9811	21505	79.0	23.0	8.6	9.5
Imports of Goods	"	8933	8735	9697	12825	27433	10.2	-4.1	7.7	9.1
Trade Balance	"	-4230	-2989	-2897	-3014	-5928				
Current Account Balance	Current \$ m	-2089	-1035	-870	-485	-1757				
Ratios										
Investment/GDP	%	24.7	22.3	22.2	22.7	24.0				
Savings/GDP	%	18.9	19.0	19.4	20.7	21.9				
Exports of Goods/GDP	%	8.9	10.5	10.6	11.6	13.5				
Current Account Deficit/GDP	%	-3.5	-1.7	-1.5	-0.8	-1.8				
Debt Service Ratio a/	%	13.8	24.2	20.6	20.6	18.1				
Public Fixed Investment/ Total Fixed Investment	%	60.9	60.6	60.3	57.5	50.0				

a/ Total Debt Service including Debt Relief ± Exports of Goods and NFS plus Workers' Remittances.

Source: State Planning Organization and IBRD Projections.

22. Merchandise imports are projected to grow slowly in real terms through 1984 and then to pick up from 7-8 percent to an average of a little over 9 percent for the 1985-90 period in line with the growth of demand.

23. The current account balance, under these assumptions, would show a decreasing deficit for 1982-85 as stabilization curtails imports while encouraging exports. As growth sets in, the trend would be reversed for the 1985-90 period, and Turkey's current account deficit would increase again. The terminal year 1990 would show a deficit of \$1.8 billion as compared to a 1985 projected deficit of \$485 million.

24. The projected capital account would remain manageable throughout the projection period given the need to restrain the growth of debt and maintain a reasonable debt service ratio. This would permit Turkey to meet the amortization and interest payments arising from the \$9.6 billion of debts rescheduled between 1978-82 and maintain an exchange reserve equivalent to two months' imports.

25. Consistent with this scenario, the projections indicate a GDP growth of 5 percent per annum for 1982-85 (stabilization period), and a higher figure of 6.1 percent per annum for 1985-90 (growth period). Achievement of these growth rates will be necessarily dependent on the growth of the productive sectors, namely agriculture and manufacturing. The achievement of sectoral growth will depend to a large extent on the Government's determination to render the public sector more efficient and to create a more favorable investment climate for the private sector.

26. The medium-term scenario presented above assumes an increasingly important role for private sector investment in line with the policy of rationalizing public sector investment in the manufacturing sector. Accordingly, private investment is expected to grow at an average annual rate of 9.6 percent during 1982-85 and 11 percent during 1985-90. As a corollary, the growth of public investment will slow down from a high of 7.8 percent per annum in real terms during 1980-82 to a more moderate 5.0 percent during 1982-85 and eventually to 4.4 percent per annum for 1985-90. This is consistent with the framework of achieving the medium-term goal of an equal balance in the ratio of private and public fixed investment by 1990.

### Creditworthiness

27. At the end of 1978, Turkey faced an overwhelming debt burden of \$7.5 billion in short-term debt and \$6.8 billion of medium- and long-term debt. Turkey was faced with service payment obligations (mostly on short-term debt) of \$5.1 billion (including arrears), or nearly three times the value of merchandise exports in 1977. Following the resolution of the 1978 debt crisis, Turkey pursued a very conservative policy of external borrowing which was restricted almost entirely to long-term borrowing. Much of this was arranged through the OECD Consortium for Turkey and was extended on concessional terms. Also, between 1978-1980 Turkey rescheduled some \$9.6 billion of outstanding obligations through a series of rescheduling arrangements concluded with official and commercial creditors. Approximately \$6.0 billion of short-term debt, including \$2.6 billion in convertible Turkish lira deposits and bankers credits and \$1.2 billion of non-guaranteed suppliers credits, were consolidated into medium-term loans or partially converted into Turkish lira obligations. As a result of these measures, short-term debt as a percentage of total debt outstanding fell from 51 percent in 1978 to 12.5 percent in 1981. Inflows were mostly from official sources -- major creditors being the OECD countries, the World Bank and the IMF. Of the total debt outstanding at end-1981, 87 percent constituted medium- and long-term debt. Based on the growth scenario outlined earlier, debt outstanding and disbursed as a percent of GDP is projected to rise from 28 percent in 1981 to 31 percent in 1982 and then fall to 29 percent in 1985 and 26 percent in 1990.

28. Debt service obligations are likely to be high over the coming years. Accordingly, the debt service ratio is projected to increase to 24.2 percent in 1982 from about 14 percent in 1981 as a result of a large repayment of previously rescheduled debt under the earlier OECD agreements. Projections beyond 1982 show a decline of the debt service ratio to 19.4 percent in 1984, an increase to 20.6 percent in 1985 (again on account of repayments of rescheduled debt), and then a fall to 18.1 percent in 1990. The debt burden should remain manageable, provided current policies are successfully implemented, the export drive is sustained, and Turkey continues to receive further international support from private and official donors.

29. On all aspects of economic analysis, the IMF and the Bank have coordinated closely with each other, and Turkey continues to be in good standing with the IMF. A three-year standby arrangement in an amount equivalent to SDR 1,250 million was approved by the IMF's Board and became effective on June 18, 1980. Under the arrangement, Turkey has thus far made ten purchases totalling SDR 1,060 million. The present standby is to expire on June 17, 1983 and a one year extension is being sought by the Turkish authorities.

PART II - BANK GROUP OPERATIONS IN TURKEY

30. Through May 31, 1983 the Bank/IDA have lent \$3,939 million to Turkey, through 71 projects. Agriculture accounts for 18 percent of funds lent, industry and DFCs for 34 percent, power for 13 percent, structural adjustment and program loans for 26 percent, and urban development, transportation, education and tourism for the remaining 9 percent. As of March 31, 1983, IFC commitments to Turkey totalled about \$236 million, of which about \$82 million were still held by IFC. Annex II provides a summary statement of Bank loans, IDA credits and IFC investments as of March 31, 1983, with notes on the status of ongoing projects.

31. The execution of Bank-financed projects in the public sector has been slow, due in part to weak management, limited coordination amongst ministries, staffing problems, and the serious external and domestic financial crisis from 1977 to 1979. There has been notable improvement since September 1980. Nevertheless, problems persist in many cases, reflecting difficulties in staffing the public sector at current salaries, over-centralized bureaucratic structures, and continuing constraints on the availability of local funds. The implementation of private sector projects has generally been more satisfactory. Recently, however, the high interest rates for working capital combined with depressed domestic demand and reluctance of investors to take the foreign exchange risk, have led to slow commitments under DFC lending. Disbursements average 53 percent of appraisal estimates (excluding structural adjustment loans) as compared to 55 percent for Tunisia and 45 percent for Morocco.

32. Bank lending is aimed at supporting Turkey's medium-term objectives of redirecting the Turkish economy towards a development path placing more reliance on market forces and adopting a more outward-oriented strategy. These objectives also include increasing domestic savings and reorienting a restrained public investment program to reflect the Government's priorities of completing ongoing projects faster and emphasizing quick-yielding new investments with positive balance of payments impact. The main vehicle for the Bank's operational discussions with the Government has been the structural adjustment lending (SAL) program. Three SALs have so far been approved, and a fourth is scheduled for consideration by the Executive Directors on June 23, 1983.

33. Agriculture, industry, transportation and energy will continue to be the key sectors for project lending. In agriculture, projects are expected to emphasize irrigation, credit, and reform of the extension and research services. In industry (including DFCs), the emphasis will be on the promotion of exports, employment, and increasing operational efficiency. Energy projects underway are for power generation based on domestic hydro and lignite resources, as well as enhanced oil recovery and oil and gas exploration. Future projects will emphasize both the oil/gas and coal/lignite sub-sectors. In addition, transportation projects will focus on developing the infrastructure to facilitate exports and improve the efficiency of operations. Projects for industrial training, urban and regional development and public utilities may supplement these efforts.

34. The close macroeconomic and sector dialogue established with the Government in recent years is expected to be pursued. The economic and sector work undertaken recently includes studies of the agricultural and financial

sectors. Topics likely to be covered in the future include a review of the next five-year development plan, employment, SEEs, transportation and the agro-industrial subsector.

35. This is the fifth loan to Turkey to be presented to the Executive Directors this fiscal year. Other projects being processed include: technical assistance to SEEs, industrial training, agricultural extension, gas development, fertilizer production and rehabilitation of the paper industry.

36. The Bank Group's share of the estimated total external debt was 9 percent in 1981, and is expected to grow to about 17 percent by 1985; its share of total debt service payments is projected to increase from about 13 percent in 1981 to about 14 percent in 1985.

37. IFC has invested in synthetic yarns, pulp and paper, glass, aluminum, iron and steel products, meat processing, motor bicycle engines, truck manufacture, piston rings and cylinder liners, and tourism. It has also invested in the Turkish Industrial Development Bank of Turkey (TSKB). New investment opportunities are being pursued.

### PART III - THE ENERGY SECTOR AND THE PETROLEUM SUBSECTOR

#### Energy Resources

38. Turkey has substantial untapped hydropower and lignite resources, as well as more limited, but still important, oil, gas and coal resources and geothermal potential. Hydropower with potential economic viability is estimated at about 29,500 MW and corresponds to an annual production of about 100,000 GWh under average hydrological conditions. Only 10 percent has been developed so far, but this is projected to rise to about 30 percent over the next 10 years with the completion of hydropower generating plants under construction or planned. There are also a large number of sites suitable for small hydropower schemes of up to 20 MW. Proven recoverable petroleum reserves are about 16 million tons. However, potential reserves that may become economically recoverable with enhanced oil recovery techniques, which are currently being tested, could be as high as 30 million tons. Proven recoverable gas reserves are about 450 billion standard cubic feet (about 10 MMTOE). The first significant domestic gas production is expected to begin in 1985; production in 1980 was very small. Coal production has also been declining as operations move to deeper, less accessible seams; in 1980 production was 3.6 million tons (2.4 MMTOE). Proven reserves of economically recoverable and usable asphaltite and shale oil are insignificant. Proven and probable lignite reserves are about 7.5 billion tons, but about half of this is of extremely low quality (950-1,000 kcal/kg). Production in 1982 was about 17.7 million tons, equivalent to about 3.8 million tons of oil.

#### Energy Consumption and Supply

39. Total energy consumption was about 33 million tons of oil equivalent (TOE) in 1980, of which commercial energy consumption amounted to 26 million TOE. Petroleum made up the most significant share of primary commercial energy consumption (60 percent), with lignite (18 percent), hard coal (10 percent), hydropower (11 percent) and imported electricity providing the balance. Overall, 23 percent of final commercial energy consumption was in

the form of electricity. Non-commercial energy production (primarily fuelwood, but also other biomass) was also an important energy source, especially for the household sector. Per capita energy consumption is likely to rise rapidly during the balance of the 1980s, in parallel with rising per capita income. To meet rising energy requirements, Turkey launched a massive program in the late 1970s to increase the domestic production of electricity and lignite. This program has stretched the implementation capabilities of the public energy agencies and spread their resources over too many projects, with resulting delays in implementation.

#### Organization of the Energy Sector

40. The energy sector in Turkey is characterized by the dominance of Government-owned enterprises and agencies. The Ministry of Energy and Natural Resources (MENR) is responsible for the development of energy resources. Under MENR, the Turkish Coal Enterprise (TKI), the Turkish Petroleum Corporation (TPAO), and the Mineral Exploration and Research Institute (MTA) have responsibility for the extraction of fossil fuels and radioactive minerals. Identification, design and construction of hydro projects is entrusted to the State Hydraulic Works (DSI). The Turkish Electricity Authority (TEK) is responsible for generation, transmission, and since November 1982 also for distribution of almost all the electricity sold in Turkey. The General Directorate of Petroleum Affairs (GDPA) is the operating arm of the MENR responsible for implementing the Petroleum Law.

#### Energy Sector Policies

41. Throughout the 1970s the Government's efforts to maintain domestic energy prices led to increasingly serious economic problems. The low wellhead prices set for domestic petroleum production became a major deterrent to exploration and development by international oil companies. At the same time, the policy of holding domestic petroleum product prices constant in local currency terms, despite accelerating domestic inflation and rising world prices for energy, led to rapidly increasing demand for petroleum and rapidly increasing imports. Similarly, prices for hard coal, lignite and, to a lesser extent, electricity, the other major primary energy sources for Turkey, were also held down, causing serious financial losses to TKI and reduced profits to TEK. The low prices also discouraged the adoption of effective conservation measures. The policy of energy subsidies was largely abandoned after the financial and political crises of late 1979 and early 1980, and since then most prices of petroleum products have been raised to international levels and have been maintained at those levels by regular adjustments.

42. The Government is in the process of developing a program for the conservation of energy resources by encouraging their more efficient use in existing and new industrial enterprises. Energy efficiency programs and legislation are being evaluated. Legislation has been passed allowing for tax credits for various types of investments in energy efficiency improvements.

#### The Petroleum Subsector

43. The high degree of dependence on imported petroleum is a dominant factor in Turkey's pattern of energy consumption. Petroleum production reached a peak of 3.6 million tons in 1969, and then declined slowly to about 2.3 million tons in 1982 as existing sources were depleted and not replaced by new discoveries. Imports rose at a rate of 20 percent per year between 1970

and 1978, from 4.3 to 14.3 million tons. The oil import bill grew rapidly, surpassing total export earnings in 1980. However, increases slowed substantially as foreign exchange constraints limited Turkey's import capabilities and as economic activity declined. Turkey currently produces only about 14 percent of its oil consumption, down from 47 percent in 1970; in 1982, imports amounted to about 13.9 million tons. Oil production is expected to continue declining over the next few years in the absence of significant new discoveries. However, if the large-scale enhanced recovery projects involving the two major fields (Bati Raman and Raman) are successful, this decline could be reversed towards the end of the decade.

44. Until recently, little attention had been given to examining alternative resources that would help reduce the energy gap. Gas production, which is currently negligible, is expected to increase to about 50 million standard cubic feet per day (MMSCFD), or over 0.4 MMTOE per year, when the Hamitabat field is fully developed in 1986. Once a pipeline is constructed, additional gas discoveries could be brought to market rapidly. By 1990, annual production levels of one to two MMTOE (or 125-250 MMSCFD of gas) appear to be reasonable, and there is a small possibility that production levels could be as high as 4.0 MMTOE (500 MMSCFD of gas) per year if 5 trillion cubic feet (TCF) of recoverable gas reserves were to be proven. This would contribute significantly to the reduction of Turkey's energy deficit.

#### Petroleum Institutions

45. The Turkish Petroleum Corporation (TPAO), which was established in 1954, was given responsibility for oil exploration and for production, importation, refining, transportation and marketing of oil. Petrol Ofisi is the state economic enterprise that distributes and retails most of the products refined and imported by TPAO and its affiliates. In addition to its petroleum exploration and production activities, TPAO owns and operates two refineries: the first processes crude oil produced by TPAO in Southeast Turkey, while the second processes imported crude oil; a new refinery is under construction near Ankara. TPAO also has a majority interest in six subsidiaries and equity in four other companies; the activities of these firms include refining and downstream operations. In conjunction with the Bank loans to TPAO in FY81, a detailed action program was agreed under which TPAO was to transfer responsibility for importing petroleum and for refining and marketing imported petroleum and petroleum products. While TPAO has been relieved of responsibility for importing oil, which was an important objective of the agreed reorganization, responsibility for refineries that process imported oil has not yet been transferred. The plan for restructuring TPAO was absorbed into the broader SEE Reform Law which was passed in May 1983. The new law sets up five petroleum institutions under a holding company, the Turkish Petroleum Company (TPK). These institutions cover: (a) petroleum exploration and production; (b) petroleum refining; (c) oil and gas pipelines; (d) marine transport; and (e) wholesale and retail product distribution. The Borrower has agreed that the formal restructuring would be completed by June 30, 1984 (Loan Agreement, Section 4.06(a)).

#### Petroleum and Gas Pricing Policy

46. Since 1979, petroleum product prices have been periodically increased to reflect world market prices. For oil produced from wells drilled after 1979, crude oil prices have been fixed at international levels which would

provide incentives for exploration by private companies in Turkey. The Government has yet to adopt an official system for pricing natural gas either at the well head or at the point of consumption. Until a distribution system is established to supply gas for fertilizer and power plants, the Government is encouraging nearby industries to utilize gas by offering small discounts. During negotiations, it was agreed that the price of gas would be based on the cost to the economy of fuel oil delivered at the same location (Guarantee Agreement, Section 3.02).

### Petroleum Geology of Turkey

47. Turkey's proximity to the large Middle East producing areas would perhaps appear to favor it as an exploration prospect. Indeed, several major oil companies operating in the Gulf States have at one time or another undertaken exploration activities in Turkey, the most active of which were in close proximity to the Iraq and Syrian producing areas, i.e. in Southeast Turkey. There has also been some activity in the Thrace Basin in western Turkey, but very little in the remaining parts of the country. Although some notable successes were achieved, it gradually became clear that very large oil fields were unlikely to be present in Turkey: by Middle Eastern standards, the oil fields that were discovered were small and complex, rendering exploration and production difficult and expensive.

48. A complete review of the geological data available to date indicates that among the many basins in Turkey, only two areas contain significant hydrocarbon potential. The first, Southeast Turkey, has been fully explored with the exception of Hakkari, where additions to reserves are expected from infill drilling and enhanced recovery. The second, in Thrace, is likely to develop into an important hydrocarbon (primarily gas) producing area. While several other areas contain some geological elements favorable for oil and gas generation, exploration is rendered difficult due to adverse topography, rapid changes in the composition of prospective geological formations and the generally small size of anticipated trapping structures.

### Turkey's Exploration Strategy

49. Turkey's strategy for exploration, previously limited to expanding TPAO's activities, has been evolving rapidly in the past few years. It now emphasizes an extended role for private investment in exploration and development of the country's potential through legal, administrative and price reforms, through decreasing the amount of acreage that TPAO can hold, and through encouraging TPAO to look for joint ventures. It has also encouraged TPAO to operate within its financial and staff capacities, and to focus more of its energies in those areas in which it has a comparative advantage, such as in natural gas and heavy oil development.

50. By the beginning of 1983, five foreign companies held 66 licenses (some in joint-venture agreements with local companies) covering 3.1 million ha, local private companies held 44 licenses covering 1.9 million ha, and TPAO held 155 licenses covering 7.4 million ha. Thus, between 1974 and 1982, TPAO's licensed area decreased from over 90 percent to about 60 percent of the total licensed area. Furthermore, TPAO will soon have to reduce its licensed holding again, since the new Petroleum Law which was enacted in March 1983 has a provision to reduce the maximum allowable number of licenses that TPAO can hold in each district from 16 to 12. Four of the new foreign exploration



groups are actively engaged in gathering new seismic data. Exploration drilling has not yet taken place, but is expected to start by early 1984.

51. TPAO has also been indicating to all interested investors that most concession areas presently under its jurisdiction are available for joint ventures. TPAO has a joint venture program with Shell in two license areas, and Shell is planning to drill two wells in these blocks in 1983. One offshore joint venture to drill two wells in the Bay of Iskenderun was implemented, but no oil was found. In addition, TPAO has just concluded negotiations with three other foreign companies for joint ventures. While none of these agreements include a commitment to drill at this stage, they will all require the foreign partners to undertake significant exploration data acquisition programs at their expense. Other companies have also expressed interest, but were not willing to go beyond exchanging letters of intent with TPAO until the new Petroleum Law was passed. TPAO plans a major promotion effort to develop additional joint ventures now that the legislation has been enacted.

52. TPAO's own exploration strategy has been closely tied to its budget allocations. Starting in the late 1970s when TPAO acquired a number of drilling rigs, exploration drilling began to expand so rapidly that its geologists and geophysicists found it increasingly difficult to provide adequate support. However, by late 1982, wildcat exploration drilling was substantially curtailed by budget controls. The 1983 program calls for only 10 wildcat exploration wells, down from about twice that number in 1982. This has forced TPAO to set clear priorities on its exploration program. The focusing of its exploration program on the development of Turkey's natural gas potential reflects TPAO's comparative advantage in this area relative to foreign companies. The Bank has reviewed the exploration strategy and considers it appropriate. The current level of exploration investment is consistent with TPAO's prospects and its technical and financial capabilities. During negotiations, it was agreed that TPAO would review its exploration programs annually with the Bank and would take the Bank's comments into consideration before implementing them (Loan Agreement, Section 4.05).

#### The Bank's Role in the Sector

53. The energy work of the Bank in Turkey has included identification of structural issues encompassing the entire energy sector and the narrower-focused issues of the individual subsectors. The structural issues were reviewed in detail during the Energy Assessment mission of 1981. The key topics highlighted were the effectiveness of energy institutions, energy conservation and energy planning. The recommendations of the mission contained in the Energy Assessment Report (No. 3877-TU) were discussed with the Government in November 1982. An energy action program dealing with these topics is being developed under the proposed Fourth Structural Adjustment Loan.

54. The subsector-specific issues have been addressed through project lending. Prior to 1979, the Bank lending in the energy sector consisted mainly of projects for electric power. Issues related to the electricity subsector have been reviewed in the Staff Appraisal Report of the Third TEK Transmission Project (Report No. 4407-TU, dated May 31, 1983). The Bank's involvement in the petroleum subsector started in FY79 in response to the Government's recognition of the critical importance of petroleum imports in

the country's balance of payments. During this review of the petroleum subsector, two priority areas of attention were identified: (i) the need to provide a transfer of advanced technology to develop existing resources; and (ii) the problems of effectively expanding exploration activity in the country.

55. Turkey had already identified substantial quantities of heavy oil as well as significant gas resources, but did not possess the advanced technology required to develop them. To provide for this transfer of technology, an engineering loan was approved in FY79 (S-13-TU) to finance a comparative study which evaluated alternative technologies for increasing the production of the Bati Raman oil field, the largest oil field in Turkey. This study was followed by the Bati Raman Enhanced Oil Recovery Field Demonstration Project (1917-TU), which is helping to finance the field trials of the CO<sub>2</sub> injection method, the technology chosen to increase production. While project implementation started slowly due primarily to initial delays in equipment procurement, it is now proceeding smoothly, with the initial testing expected to begin in mid-1984. A number of international oil companies have shown interest in lending personnel for the technology panel that will review the initial results and advise on an optimum strategy. It is believed that the results will show that the process is still profitable at current petroleum prices.

56. The Bank review also identified the need to reevaluate the production potential of the Hamitabat gas field in Thrace, a field which had been discovered in 1971 and left undeveloped for almost a decade. As a result, the second component of Loan 1917-TU was designed to test the usefulness of advanced fracturing techniques to increase its gas production potential to a point where development would become economically viable. The reservoir fracturing tests of the field demonstrated that sufficient gas could be produced to justify the construction of a transmission pipeline to deliver the gas to large consumers. As a result, TPAO is developing the field and planning a transmission pipeline. It is also expanding its gas exploration program in the Thrace Basin.

57. Until 1979, petroleum exploration was de facto closed to the private sector, and the state oil company had not adequately focused its own exploration program on high potential areas. In its policy dialogue with the Government, the Bank has placed major emphasis on the need for strategies for stimulating private sector involvement in petroleum exploration, and the Government has taken a number of important measures including, on the one hand, encouraging foreign companies by fixing wellhead oil prices at international levels and allowing companies to export up to 35 percent of their new oil and, on the other hand, providing more opportunities to foreign companies by getting TPAO to reduce its acreage holdings and encouraging it to enter into joint ventures on the acreage it continues to hold. These new policies have been instrumental in improving the exploration climate. Between 1978 and 1980, no new exploration activities were undertaken by foreign companies. Today, five new foreign oil companies have obtained exploration licenses and have undertaken substantial seismic work; three are planning to drill exploration wells in 1984. In the last year TPAO has also negotiated agreements with three companies for joint venture projects. The new Petroleum Law should further improve the investment climate for foreign oil companies. While the process of attracting foreign oil companies is now well underway, it has not produced concrete results as fast as the Bank had originally anticipated, largely due to the current petroleum market situation which has greatly reduced the level of exploration undertaken by international companies.

58. The subsector planning dialogue has helped refocus TPAO's exploration program on high priority prospects consistent with its limited exploration budget. The Petroleum Exploration Project (Loan 1916-TU) was designed to assist TPAO find better leads for its exploration undertakings, primarily through basin studies, geophysical (seismic) surveys, and the drilling of a few key exploration wells in Southeast Turkey. Initial project implementation was slow, and a review of the first round of geophysical surveys and basin studies showed that the results did not meet original expectations. This new technical information contributed to the reevaluation of TPAO's exploration priorities and the shift to gas. In view of the upgrading of the gas potential of the Hamitabat field and the subsequent gas finds at nearby locations, it was agreed to expand the scope of the activities supported by Loan 1916-TU to include further exploration in the Thrace Basin. This has enabled TPAO to expand its seismic data acquisition program in 1983 in order to provide detailed seismic coverage of the locations to be drilled in 1984 under the proposed project.

59. Turkey has yet to produce any significant commercial quantities of gas, and is in the beginning stages of formulating a gas development strategy. Foreign companies have shown no interest in exploring for or developing gas reserves, partly because of the lack of an official gas utilization policy and available marketing infrastructure. The essential steps to rectify this situation include making an inventory of the total available supplies of gas in the Thrace Basin and providing the infrastructure and contractual framework to enable companies to profitably distribute gas to consumers. The proposed gas exploration project and the gas distribution project to be appraised in the near future would support such a policy. Additional gas discoveries in the Thrace Basin and the development of the infrastructure required to move the gas from Thrace to the market would also provide incentives to private companies to participate in gas exploration in Thrace.

#### PART IV - THE PROJECT

##### Project History

60. Exploration for hydrocarbons in Thrace has, to date, led to the discovery of one medium sized gas field (Hamitabat) and two small oil fields (Map IBRD 17111). However, oil and gas shows have been encountered in numerous previous exploration wells in many areas of the basin. Despite these encouraging indications, past exploration activities were slow and sporadic, and until recently, no systematic exploration strategy had been developed. Recently, however, successful exploration drilling by TPAO has firmly demonstrated the hydrocarbon potential of the basin. Furthermore, many geological structures have been identified which appear to have closures that may contain trapped hydrocarbons. TPAO holds 14 licenses in the Thrace Basin. Although other private companies hold an additional 14 licenses, at this time TPAO is the only active operator. While large gaps remain in the exploration coverage of TPAO's licenses, a provisional assessment of their hydrocarbon potential has been undertaken. There is a high probability that additional reserves (on the order of 1 TCF of gas) could be present in the immediate vicinity of Hamitabat. The gas potential of all of TPAO's licenses could be several TCF.

61. The project was identified in November 1982 and appraised in January 1983. Loan negotiations were held in Washington from May 10 to May 20, 1983. The Turkish delegation was led by Mr. Tunc Bilget, Chief Financial and Economic Counselor of the Turkish Embassy in Washington, and included representatives of the Ministry of Energy and Natural Resources, the Ministry of Finance, and TPAO. The main features of the loan and project are provided in the loan and project summary and in Annex III.

#### Project Objectives and Description

62. The project's main objective is to assess the hydrocarbon potential of TPAO's licenses in the Thrace Basin. The second is to strengthen TPAO's ability to design and implement an integrated basin-oriented exploration program. In order to arrive at a reliable estimate of the total hydrocarbon potential of the Thrace Basin, about 30 new exploration wells would need to be drilled. Of these, 75 to 80 percent would be directed towards testing the Hamitabat, Ceylan and Osmancik reservoirs which are known to be gas bearing in the Umurca and Hamitabat fields. The rest would be directed towards the evaluation of the oil prospects in the reef area in the northern part of the basin.

63. The project, which would cover the first stage of such an evaluation, would include the completion of a full seismic grid on all of TPAO's Thrace licenses, detailed infill seismic mapping of areas with structures of particular importance and the drilling of wells to test about one-third of the most promising structures. Drilling would be restricted to four of the most promising license areas. It is expected to be completed in three years.

64. The proposed project comprises the following components:

- (i) Seismic Surveys and Seismic Interpretation: Approximately 1800 line-km of seismic surveys would be undertaken to complete the coverage of all of TPAO's license areas and clearly identify specific drilling locations.
- (ii) Exploration Drilling: The drilling component would include the drilling and testing of 11 exploration wells. Casing, cementing and testing would be required for all wells drilled. Completion and production testing would be required for all wells that encounter significant volumes of hydrocarbons. It is estimated that five wells would need to be completed for production testing. The engines and mud processing equipment of TPAO's three heavy duty drilling rigs would be upgraded.
- (iii) Studies: Two major categories of studies would be required:
  - (a) geological and sedimentological studies; and
  - (b) development studies to determine the optimum method of developing new fields.
- (iv) Technical Assistance, to supplement TPAO's staff in areas where TPAO does not have adequate specialized personnel.

- (v) Training, including courses on drilling technology, mud engineering, cementing of high-pressure gas wells, testing and completion procedures, advanced seismic acquisition, processing and interpretation, financial management and foreign language training.

A Staff Appraisal Report (No. 4433-TU) dated June 2, 1983, and entitled "Thrace Gas Exploration Project", is being distributed separately to the Executive Directors.

65. Since petroleum exploration programs are subject to modifications as new information becomes available, the components of the project could be significantly altered during the implementation period. Accordingly, TPAO has agreed that the exploration and development programs would be submitted to the Bank for its review and agreement on an annual basis, and any revision to such program would require the Bank's agreement. Furthermore, for each well financed from the loan, TPAO would present a geological prognosis, benefit-risk analysis and well drilling program for the Bank's approval (Loan Agreement, Section 3.06).

#### Project Implementation

66. Seismic data acquisition would be carried out by an international specialized contractor under the supervision of qualified TPAO personnel. The seismic data would be processed in TPAO's new seismic center which is to be commissioned during 1983, along with the approximately 700 line-km of seismic data for the Thrace Basin that is being acquired under Loan 1916-TU. A limited amount of specialized processing may have to be carried out outside Turkey. TPAO would be responsible for seismic mapping (aimed at defining drillable prospects), interpretation and compilation of seismic data and mapping important horizons throughout the basin in order to arrive at an early ranking of the licensed areas.

67. TPAO now has sufficient experienced personnel to supervise seismic data acquisition and carry out data interpretation and mapping. A Thrace Basin project group, headed by an experienced geologist, has already been formed in the exploration department. TPAO also intends to hire consultants, as required, to assist in these tasks. The above arrangements are considered satisfactory.

68. Drilling would be carried out by TPAO rigs and TPAO personnel; specialized services would be performed by appropriate firms, which would also train TPAO personnel. TPAO is fully capable of implementing the exploration drilling program in the Thrace Basin. It has demonstrated its capability over the last ten years by successfully drilling and completing 23 deep wells in the Hamitabat gas field. Its performance has generally been up to international industry standards. The use of TPAO's rigs is the most cost-effective method of implementing the project. TPAO's full charge-back cost of rig operation and maintenance for implementing the project (about \$19 million) is only 60 percent of the estimated cost after international competitive bidding. The size of TPAO's drilling department would not be increased above the level required to continue its long-term program for exploration in Thrace.

69. To ensure that the drilling program is carried out satisfactorily, TPAO would hire, on terms and conditions satisfactory to the Bank, specialized firms to perform all the well services (e.g. cementing, testing, electric logging) and train its staff in the above tasks (Loan Agreement, Section 3.02).

#### Implementation Schedule

70. Initial seismic data acquisition required in the implementation of the proposed project is being financed under Loan 1916-TU as part of the 1983 seismic program. The seismic program under this project would be carried out during the 1984 and 1985 seasons (from April to October). The necessary rig rehabilitation program would be initiated during the second half of 1983 in order to permit the drilling program to start in early 1984. Drilling of 11 wells would be carried out over 1984-86.

#### Project Cost

71. The cost of the project is estimated at \$98.9 million, including contingencies. Physical contingencies have been calculated at 10 percent for the seismic program and 25 percent for drilling. Price contingencies, for both foreign and local costs, have been calculated at 8.0 percent for 1983, 7.5 percent for 1984, 7.0 percent for 1985 and 6.0 percent for 1986 onwards. The project is exempted from custom duties and taxes. The Bank loan, including the front-end fee, would amount to \$55.2 million or 56 percent of total project costs. The project would account for about 14 percent of TPAO's investment program (\$723.0 million equivalent) over the period 1983-86.

#### Procurement and Disbursement

72. International competitive bidding procedures, in accordance with Bank guidelines, would be followed in the procurement of seismic contractors, rig rehabilitation equipment, casings, tubings, drilling bits, wellheads, mud products, rig parts and completion equipment (altogether about \$40 million worth of equipment and services). Limited international tendering procedures would be followed where only a few suppliers are capable of providing the goods and services. This would be the case for casing accessories, special case bits, API quality cement and additives, liner hangers, special chemicals, completion equipment, stimulation products, cementing, logging and testing services, stimulation services and production testing materials (altogether approximately \$8 million worth of equipment and services). Direct shopping through TPAO's procedures would be followed for language laboratory equipment, rig spare parts and other drilling equipment contracts not exceeding \$250,000 each, estimated in the aggregate to cost about \$2 million. Consultants and technical assistance personnel would be recruited in accordance with Bank guidelines. The Bank loan would finance the full foreign costs of the following items: (i) equipment and materials for rehabilitation and drilling of eleven wells; (ii) services required for logging and cementing, completing and testing the wells; (iii) seismic data acquisition and interpretation program; and (iv) technical assistance and training. In addition, the full cost of the proposed studies would be financed.

73. Advance contracting would be applied for the rig rehabilitation equipment in order to enable TPAO to commence drilling activities in early-1984, which is possible if orders for the equipment are placed by June 1983. No retroactive financing would be required.

### Ecology and Safety

74. The seismic and drilling operations would take place in a sparsely populated agricultural area. Geophysical survey lines and drilling locations would be selected with a view to avoiding close proximity to habitation and water wells, if and when they are present. All international water zones including surface water would be protected by following international oil well drilling standards. TPAO would contain and clean up any contamination that originated above the surface from drilling mud pits.

75. Exploration drilling in high-pressure gas zones entails some risks of blowouts and possibly fire. The risk is minimized by using blowout preventers and sophisticated equipment introduced in the mud logging unit to monitor traces of gas coming out of the hole. TPAO is fully aware of the risks involved, and has maintained an excellent safety record in recent years by adhering to API standards.

### TPAO's Financial Condition

76. TPAO's balance sheet (not consolidated with that of its subsidiaries) is strong, with a debt-equity ratio of 8:92. The low indebtedness of TPAO is explained by the absence of development projects in recent years. The long term investments represent, for the most part, TPAO's equity in its subsidiaries. The main weakness is its negative working capital, with the current ratio at 0.85. This is explained mostly by the unavailability of long-term domestic financing. As a result, TPAO had to use its working capital to finance part of the local cost of its investments. The main creditor affected was the Government, as TPAO deferred payment on part of the amounts due for petroleum taxes; thus the lack of working capital has not affected its overall operations and TPAO was able to achieve broadly its investment targets in the past two years. The Government has agreed to assist TPAO to solve its liquidity problem through appropriate financial measures including the finding of local sources of long-term financing (Guarantee Agreement, Section 2.02).

77. TPAO's exploration and production activities have been profitable in recent years, and on average TPAO was able to finance about 60-80 percent of its exploration and petroleum investment program from internal sources. In recent years, the petroleum tax has increased from 19 percent of sales in 1979 to 29 percent in 1982. The exploration and production activities have very little indebtedness. The bulk of the long-term debt is represented by two Bank loans, 1916-TU and 1917-TU.

### Financial Prospects

78. Because the exploration and production activities are to be separated from the import-based activities during 1983, financial projections were prepared for TPAO's exploration and production activities. TPAO has agreed to (i) maintain separate accounts for the exploration and production activities and not transfer funds from such accounts to the accounts of any of its other activities; and (ii) conduct all transactions between its production and refining units at market prices (Loan Agreement, Section 4.04).

79. The exploration and production activities are expected to be financially sound until at least 1986. Profits are expected to remain at the level of TL 6-11 billion (\$30-60 million) over 1983-86; the debt-equity ratio also would remain satisfactory through end-1986, taking into account the scope of operations included under exploration and production activities. Bank forecasts indicate that TPAO could suffer losses after 1986. However, this is unlikely to occur, since there are excellent possibilities that gas sales would increase because of additional gas discoveries in Thrace, and further that the tests (expected at end-1984) under Loan 1917-TU will demonstrate the feasibility of producing substantially larger quantities of oil from the Bati Raman field. In fact, it is likely that these two factors will play an overwhelming role in TPAO's future, and will have a critical influence on the growth of its earning power throughout the 1990s.

80. TPAO's ability to take on new debt burdens and attract cofinancing along with Bank financing would, of course, be dependent primarily on the ability of new projects to generate adequate earnings to service this debt. Therefore, to ensure satisfactory financial performance TPAO would:

- (i) finalize its annual investment program and the corresponding financing plan by October 31 of each year and furnish them to the Bank for review and comment (Loan Agreement, Section 5.07);
- (ii) agree not to incur any new long-term debt unless a reasonable forecast of its revenues and expenditures shows that its aggregated projected net revenues for each full fiscal year are at least twice the aggregated projected debt service requirements (Loan Agreement, Section 5.06);
- (iii) maintain a long-term debt to equity ratio not greater than 1:1;
- (iv) maintain a current ratio not less than 1.0;
- and (v) maintain a working capital level equivalent to at least two months of estimated operating expenses (Loan Agreement, Section 5.05). Furthermore, should TPAO's accounts receivable exceed the equivalent of two months of sales, the Government would provide, or cause TPAO to be provided with, the amount by which such receivables exceed such sales, at an interest rate not greater than the average rate TPAO receives on its outstanding receivables (Guarantee Agreement, Section 2.02).

#### Accounting, Finance and Audit

81. TPAO's accounting records are kept in accordance with Turkey's National Uniform Accounting Code as well as the relevant provisions of the Petroleum Law and Regulations. In accordance with its statutes, TPAO's accounting records are examined by two auditors who report to the Board on a bi-annual basis, and to the shareholders annually. In addition, the Governmental Auditing Committee (in the office of the Prime Minister) performs a continuous audit and submits its findings to the State Economic Enterprise subcommittee of the Parliament. Lastly, the Board of Tax Examiners in the Ministry of Finance has since 1980 conducted annual audits in accordance with the Bank's requirements. These procedures are acceptable.

82. Until recently, the financial function was given little importance by TPAO in the planning process, and its capital budgeting and investment planning capability needs to be strengthened. TPAO is already receiving assistance in these areas. The services of a financial adviser familiar with the procedures used by oil companies in capital budgeting and financial planning are to be provided under the proposed project.



### Project Risks and Benefits

83. The risks of the project have been identified and have been taken into consideration in the project design. The geological risk is manageable because the Thrace Basin has proven hydrocarbon production and the exploration program, as designed jointly by the Bank and TPAO, maximizes the probability of finding new reserves. The technical risk is small because the drilling conditions are well understood and the proposed project has included the strengthening of TPAO through the introduction of external technical support for specialized operations of the drilling program. The economic risk is small because the basin is near the largest industrial market in Turkey; hence the costs of distributing additional gas supplies to this market will be quite low after the trunk pipeline needed for the development of existing reserves is completed. Finally, the overall project risk is small because the minimum size discovery required to provide an acceptable economic rate of return is less than one-tenth the expected size of the anticipated discoveries.

84. The geological risk is that insufficient volumes of hydrocarbons will be found to justify the exploration expense. There are excellent prospects of finding 2 TCF of recoverable reserves (about 50 million TOE) in the basin as a whole, and about half that amount in this exploration project. This would be in addition to the proven recoverable reserves of over 0.4 TCF. To minimize the geological risks, the design of the proposed project has included the following provisions: (i) exploration drilling would be limited to only four of the most promising of TPAO's 14 licenses in the basin; (ii) most of the drilling would be focussed on the Hamitabat-Umurca gas trend, which has proven productive potential; (iii) the entire Thrace exploration program would be reassessed on an annual basis so that significant new data that might alter the program would be reviewed as it becomes available; (iv) all locations would be evaluated with detailed infill seismic lines and fully mapped before drilling is approved; and (v) substantive additional basin geophysical studies would be undertaken before drilling is considered in new gas plays.

85. Exploration projects have too great a variance in possible outcomes with too wide a range of probabilities associated with each, to lend themselves conveniently to economic rate of return calculations. Instead the critical factor in benefit-cost analysis is the minimum size of discovery that is needed to obtain an acceptable economic rate of return to a combined exploration and development program (i.e. the minimum discovery that would pay for the program). The minimum size will, of course, depend to some extent on the timing of the discovery, the cost of developing it, and the distance from the discovery to the trunk line of the gas distribution network. However, if the cost of developing the field is similar to that of Hamitabat, and most of the infrastructure is already in place due to the development of the proven Hamitabat gas field, then a new field with as little as 0.11 TCF of recoverable gas reserves would be adequate to provide a 15 percent rate of return to the entire project. This should be compared to an expected outcome of the exploration program (the outcome with a 50 percent probability) of an addition to reserves of approximately 1.1 TCF, about ten times the minimum quantity required to give the project an acceptable internal rate of return.

86. However, in the final analysis the project is justified not so much because the risks are small, but because potential benefits to the Turkish economy are large. The volumes of gas that this project could potentially make available would have a dramatic impact on the balance of payments and on

the energy use patterns of the potential consuming industries in the highly industrialized Istanbul environs. It is for this reason that the project constitutes a priority component in Turkey's energy program.

PART V - LEGAL INSTRUMENTS AND AUTHORITY

87. The draft Loan Agreement between the Turkiye Petrolleri Anonim Ortakligi and the Bank, the draft Guarantee Agreement between the Republic of Turkey and the Bank, and the Report of the Committee provided for in Article III, Section 4(iii) of the Articles of Agreement of the Bank are being distributed to the Executive Directors separately. The draft Loan and Guarantee Agreements conform to the normal pattern of loans for petroleum exploration projects and their more important features have been included in Part IV of this report. Special features of the Loan Agreement are referred to in the text and listed in Section III of Annex III. There would be no special conditions of effectiveness.

88. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Bank.

PART VI - RECOMMENDATION

89. I recommend that the Executive Directors approve the proposed loan.

A. W. Clausen  
President  
by  
Moeen A. Qureshi

Attachments

June 6, 1983  
Washington, D.C.

TABLE 3A  
TURKEY - SOCIAL INDICATORS DATA SHEET

AREA (THOUSAND SQ. KM.)	TURKEY				REFERENCE GROUPS (WEIGHTED AVERAGES - MOST RECENT ESTIMATE) <sup>a</sup>	
	1960	/b	1970	MOST RECENT /b ESTIMATE /b	MIDDLE INCOME EUROPE	INDUSTRIALIZED MARKET ECONOMIES
TOTAL	780.6					
AGRICULTURAL	377.4					
GNP PER CAPITA (US\$)	320.0		580.0	1470.0	2323.9	10328.2
ENERGY CONSUMPTION PER CAPITA (KILOGRAMS OF COAL EQUIVALENT)	249.6		488.4	770.9	2107.4	7277.7
POPULATION AND VITAL STATISTICS						
POPULATION, MID-YEAR (THOUSANDS)	27509.0		35321.0	44858.0	.	.
URBAN POPULATION (PERCENT OF TOTAL)	29.7		38.4	47.4	47.9	78.0
POPULATION PROJECTIONS						
POPULATION IN YEAR 2000 (MILLIONS)				67.1	.	.
STATIONARY POPULATION (MILLIONS)				108.5	.	.
YEAR STATIONARY POPULATION IS REACHED				2075	.	.
POPULATION DENSITY						
PER SQ. KM.	35.2		45.2	56.2	83.3	138.6
PER SQ. KM. AGRICULTURAL LAND	73.9		92.0	116.2	155.4	509.7
POPULATION AGE STRUCTURE (PERCENT)						
0-14 YRS.	41.2		41.0	39.0	31.1	22.7
15-64 YRS.	55.2		54.3	56.5	61.2	65.7
65 YRS. AND ABOVE	3.5		4.7	4.5	7.7	11.6
POPULATION GROWTH RATE (PERCENT)						
TOTAL	2.8		2.5	2.4	1.6	0.8
URBAN	6.1		5.1	4.5	3.5	1.4
CRUDE BIRTH RATE (PER THOUSAND)	42.8		38.3	32.2	23.6	14.5
CRUDE DEATH RATE (PER THOUSAND)	15.6		12.7	9.6	9.2	9.3
GROSS REPRODUCTION RATE	3.1		2.7	2.1	1.6	0.9
FAMILY PLANNING						
ACCEPTORS, ANNUAL (THOUSANDS)	..		65.6	66.6/c	.	.
USERS (PERCENT OF MARRIED WOMEN)	5.3/d		8.2	38.0/e	..	..
FOOD AND NUTRITION						
INDEX OF FOOD PRODUCTION						
PER CAPITA (1969-71=100)	96.0		100.0	110.0	116.0	111.1
PER CAPITA SUPPLY OF						
CALORIES (PERCENT OF REQUIREMENTS)	115.1		110.5	115.8/f	125.1	130.8
PROTEINS (GRAMS PER DAY)	85.1		80.2	82.7/g	92.7	97.1
OF WHICH ANIMAL AND PULSE	25.0		22.9	24.9/h	35.9	61.3
CHILD (AGES 1-4) MORTALITY RATE	50.0		31.2	21.0	9.2	0.5
HEALTH						
LIFE EXPECTANCY AT BIRTH (YEARS)	50.5		56.6	61.8	67.6	73.8
INFANT MORTALITY RATE (PER THOUSAND)	189.5		147.5	122.6	65.1	11.3
ACCESS TO SAFE WATER (PERCENT OF POPULATION)						
TOTAL	..		52.0	75.0/g	..	..
URBAN	..		51.0	70.0/g	..	..
RURAL	..		53.0	80.0/g	..	..
ACCESS TO EXCRETA DISPOSAL (PERCENT OF POPULATION)						
TOTAL	..		..	..	..	..
URBAN	..		..	20.0/g	..	..
RURAL	..		..	..	..	..
POPULATION PER PHYSICIAN	2799.6		2227.6	1762.5/f	1105.4	620.7
POPULATION PER NURSING PERSON	7492.4/d		1883.8	922.6/f	634.4	246.9
POPULATION PER HOSPITAL BED						
TOTAL	600.5/h		490.3	503.6/f	286.8	122.0
URBAN	340.8/h		313.4	311.0/f	192.0	140.6
RURAL	5098.5/h		5912.2	..	..	..
ADMISSIONS PER HOSPITAL BED	..		20.2	22.3/f	20.0	17.7
HOUSING						
AVERAGE SIZE OF HOUSEHOLD						
TOTAL	5.7/i		5.9	..	..	..
URBAN	..		..	..	..	..
RURAL	..		..	..	..	..
AVERAGE NUMBER OF PERSONS PER ROOM						
TOTAL	2.4/i		2.2	..	..	..
URBAN	2.0/i		1.9	..	..	..
RURAL	2.7/i		..	..	..	..
ACCESS TO ELECTRICITY (PERCENT OF DWELLINGS)						
TOTAL	29.0		41.1	57.0/j	..	..
URBAN	..		78.2	..	..	..
RURAL	2.0		18.0	..	..	..

TABLE 3A  
TURKEY - SOCIAL INDICATORS DATA SHEET

	TURKEY			REFERENCE GROUPS (WEIGHTED AVERAGES - MOST RECENT ESTIMATE) <sup>/a</sup>	
	1960 <sup>/b</sup>	1970 <sup>/b</sup>	MOST RECENT ESTIMATE <sup>/b</sup>	MIDDLE INCOME EUROPE	INDUSTRIALIZED MARKET ECONOMIES
<b>EDUCATION</b>					
ADJUSTED ENROLLMENT RATIOS					
PRIMARY:					
TOTAL	75.0	110.0	105.0	102.4	101.7
MALE	90.0	124.0	115.0	107.1	103.9
FEMALE	58.0	94.0	96.0	99.0	103.6
SECONDARY:					
TOTAL	14.0	27.0	34.0	60.2	88.4
MALE	20.0	38.0	46.0	66.4	83.4
FEMALE	8.0	15.0	22.0	54.0	84.2
VOCATIONAL ENROL. (% OF SECONDARY)	17.7	13.7	17.5/ <sup>f</sup>	31.6	18.2
PUPIL-TEACHER RATIO					
PRIMARY	45.8	37.8	29.6/ <sup>f</sup>	25.8	20.3
SECONDARY	19.3	27.6	22.8	22.2	16.1
ADULT LITERACY RATE (PERCENT)	38.0	51.3	60.3/ <sup>j</sup>	75.9	98.9
<b>CONSUMPTION</b>					
PASSENGER CARS PER THOUSAND POPULATION	1.7	3.9	11.5/ <sup>g</sup>	51.0	338.4
RADIO RECEIVERS PER THOUSAND POPULATION	49.1	87.7	97.6	157.2	1021.7
TV RECEIVERS PER THOUSAND POPULATION	0.0	1.8	70.7	123.7	403.6
NEWSPAPER ("DAILY GENERAL INTEREST") CIRCULATION PER THOUSAND POPULATION	51.3	41.0	88.5	112.3	331.2
CINEMA ANNUAL ATTENDANCE PER CAPITA	1.1	6.7	1.9	4.0	3.6
<b>LABOR FORCE</b>					
TOTAL LABOR FORCE (THOUSANDS)	13782.1	15828.8	19400.5	.	.
FEMALE (PERCENT)	40.2	37.0	36.4	36.6	36.0
AGRICULTURE (PERCENT)	78.5	67.7	53.5	38.7	6.2
INDUSTRY (PERCENT)	11.5	12.1	12.8	25.9	37.8
<b>PARTICIPATION RATE (PERCENT)</b>					
TOTAL	50.1	44.8	43.2	44.5	45.4
MALE	58.7	55.7	54.3	56.3	58.9
FEMALE	41.2	33.6	31.9	32.8	32.4
ECONOMIC DEPENDENCY RATIO	0.9	1.0	1.0	0.9	0.8
<b>INCOME DISTRIBUTION</b>					
PERCENT OF PRIVATE INCOME RECEIVED BY					
HIGHEST 5 PERCENT OF HOUSEHOLDS	33.0/ <sup>d</sup>	32.8/ <sup>k</sup>	..	..	..
HIGHEST 20 PERCENT OF HOUSEHOLDS	61.0/ <sup>d</sup>	60.6/ <sup>k</sup>	56.5/ <sup>e</sup>	..	43.0
LOWEST 20 PERCENT OF HOUSEHOLDS	4.2/ <sup>d</sup>	2.9/ <sup>k</sup>	3.5/ <sup>e</sup>	..	5.5
LOWEST 40 PERCENT OF HOUSEHOLDS	10.6/ <sup>d</sup>	9.4/ <sup>k</sup>	11.5/ <sup>e</sup>	..	16.5
<b>POVERTY TARGET GROUPS</b>					
ESTIMATED ABSOLUTE POVERTY INCOME LEVEL (US\$ PER CAPITA)					
URBAN	..	..	342.0	..	..
RURAL	..	..	270.0	..	..
ESTIMATED RELATIVE POVERTY INCOME LEVEL (US\$ PER CAPITA)					
URBAN	..	..	..	..	..
RURAL	..	..	220.0	406.6	..
ESTIMATED POPULATION BELOW ABSOLUTE POVERTY INCOME LEVEL (PERCENT)					
URBAN	..	..	..	..	..
RURAL	..	..	..	..	..

.. Not available  
. Not applicable.

NOTES

/a The group averages for each indicator are population-weighted arithmetic means. Coverage of countries among the indicators depends on availability of data and is not uniform.

/b Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961; for 1970, between 1969 and 1971; and for Most Recent Estimate, between 1978 and 1980.

/c 1974; /d 1963; /e 1973; /f 1977; /g 1976; /h 1962; /i 1965; /j 1975; /k 1968.

## DEFINITIONS OF SOCIAL INDICATORS

Notes: Although the data are drawn from sources generally judged the most authoritative and reliable, it should also be noted that they may not be internationally comparable because of the lack of standardized definitions and concepts used by different countries in collecting the data. The data are, nonetheless, useful to describe orders of magnitude, indicate trends, and characterize certain major differences between countries.

The reference groups are (1) the same country group of the subject country and (2) a country group with somewhat higher average income than the country group of the subject country (except for "High Income Oil Exporters" group where "Middle Income North Africa and Middle East" is chosen because of stronger socio-cultural affinities). In the reference group data the averages are population weighted arithmetic means for each indicator and shown only when majority of the countries in a group have data for that indicator. Since the coverage of countries among the indicators depends on the availability of data and is not uniform, caution must be exercised in relating averages of one indicator to another. These averages are only useful in comparing the value of one indicator at a time among the country and reference groups.

## AREA (thousand sq.km.)

**Total** - Total surface area comprising land area and inland waters; 1979 data.  
**Agricultural** - Estimate of agricultural area used temporarily or permanently for crops, pastures, market and kitchen gardens or to lie fallow; 1979 data.

**GNP PER CAPITA (US\$)** - GNP per capita estimates at current market prices, calculated by same conversion method as World Bank Atlas (1978-80 basis); 1960, 1970, and 1980 data.

**ENERGY CONSUMPTION PER CAPITA** - Annual consumption of commercial energy (coal and lignite, petroleum, natural gas and hydro-, nuclear and geothermal electricity) in kilograms of coal equivalent per capita; 1960, 1970, and 1979 data.

## POPULATION AND VITAL STATISTICS

**Total Population, Mid-Year (thousands)** - As of July 1; 1960, 1970, and 1980 data.

**Urban Population (percent of total)** - Ratio of urban to total population; different definitions of urban areas may affect comparability of data among countries; 1960, 1970, and 1980 data.

## Population Projections

**Population in Year 2000** - Current population projections are based on 1980 total population by age and sex and their mortality and fertility rates. Projection parameters for mortality rates comprise of three levels assuming life expectancy at birth increasing with country's per capita income level, and female life expectancy stabilizing at 77.5 years. The parameters for fertility rate also have three levels assuming decline in fertility according to income level and past family planning performance. Each country is then assigned one of these nine combinations of mortality and fertility trends for projection purposes.

**Stationary population** - In a stationary population there is no growth since the birth rate is equal to the death rate and also the age structure remains constant. This is achieved only after fertility rates decline to the replacement level of unit net reproduction rate, when each generation of women replaces itself exactly. The stationary population size was estimated on the basis of the projected characteristics of the population in the year 2000, and the rate of decline of fertility rate to replacement level.

**Year stationary population is reached** - The year when stationary population size will be reached.

## Population Density

**Per sq. km.** - Mid-year population per square kilometer (100 hectares) of total area; 1960, 1970 and 1979 data.

**Per sq. km. agricultural land** - Computed as above for agricultural land only; 1960, 1970 and 1979 data.

**Population Age Structure (percent)** - Children (0-14 years), working-age (15-64 years), and retired (65 years and over) as percentages of mid-year population; 1960, 1970, and 1980 data.

**Population Growth Rate (percent)** - total - Annual growth rates of total mid-year population for 1950-60, 1960-70, and 1970-80.

**Population Growth Rate (percent)** - urban - Annual growth rates of urban populations for 1950-60, 1960-70, and 1970-80.

**Crude Birth Rate (per thousand)** - Annual live births per thousand of mid-year population; 1960, 1970, and 1980 data.

**Crude Death Rate (per thousand)** - Annual deaths per thousand of mid-year population; 1960, 1970, and 1980 data.

**Gross Reproduction Rate** - Average number of daughters a woman will bear in her normal reproductive period if she experiences present age-specific fertility rates; usually five-year averages ending in 1960, 1970, and 1980.

**Family Planning - Acceptors, Annual (thousands)** - Annual number of acceptors of birth-control devices under auspices of national family planning program.

**Family Planning - Users (percent of married women)** - Percentage of married women of child-bearing age (15-44 years) who use birth-control devices to all married women in same age group.

## FOOD AND NUTRITION

**Index of Food Production per Capita (1969-71=100)** - Index of per capita annual production of all food commodities. Production excludes seed and feed and is on calendar year basis. Commodities cover primary goods (e.g. sugarcane instead of sugar) which are edible and contain nutrients (e.g. coffee and tea are excluded). Aggregate production of each country is based on national average producer price weights; 1961-65, 1970, and 1980 data.

**Per capita supply of calories (percent of requirements)** - Computed from energy equivalent of net food supplies available in country per capita per day. Available supplies comprise domestic production, imports less exports, and changes in stock. Net supplies exclude animal feed, seeds, quantities used in food processing, and losses in distribution. Requirements were estimated by FAO based on physiological needs for normal activity and health considering environmental temperature, body weights, age and sex distribution of population, and allowing 10 percent for waste at household level; 1961-65, 1970 and 1977 data.

**Per capita supply of protein (grams per day)** - Protein content of per capita net supply of food per day. Net supply of food is defined as above. Requirements for all countries established by USDA provide for minimum allowances of 60 grams of total protein per day and 20 grams of animal and pulse protein, of which 10 grams should be animal protein. These standards are lower than those of 75 grams of total protein and 23 grams of animal protein as an average for the world, proposed by FAO in the Third World Food Survey; 1961-65, 1970 and 1977 data.

**Per capita protein supply from animal and pulse** - Protein supply of food derived from animals and pulses in grams per day; 1961-65, 1970 and 1977 data.  
**Child (ages 1-4) Death Rate (per thousand)** - Annual deaths per thousand in age group 1-4 years, to children in this age group, for most developing countries data derived from life tables; 1960, 1970 and 1980 data.

## HEALTH

**Life Expectancy at Birth (years)** - Average number of years of life remaining at birth; 1960, 1970 and 1980 data.

**Infant Mortality Rate (per thousand)** - Annual deaths of infants under one year of age per thousand live births; 1960, 1970 and 1980 data.

**Access to Safe Water (percent of population)** - total, urban, and rural - Number of people (total, urban, and rural) with reasonable access to safe water supply (includes treated surface waters or untreated but uncontaminated water such as that from protected boreholes, springs, and sanitary wells) as percentages of their respective populations. In an urban area a public fountain or standpost located not more than 200 meters from a house may be considered as being within reasonable access of that house. In rural areas reasonable access would imply that the housewife or members of the household do not have to spend a disproportionate part of the day in fetching the family's water needs.

**Access to Excreta Disposal (percent of population)** - total, urban, and rural - Number of people (total, urban, and rural) served by excreta disposal as percentages of their respective populations. Excreta disposal may include the collection and disposal, with or without treatment, of human excreta and waste-water by water-borne systems or the use of pit privies and similar installations.

**Population per Physician** - Population divided by number of practicing physicians qualified for medical school at university level.

**Population per Nursing Person** - Population divided by number of practicing male and female graduate nurses, assistant nurses, practical nurses and nursing auxiliaries.

**Population per Hospital Bed** - total, urban, and rural - Population (total, urban, and rural) divided by their respective number of hospital beds available in public and private general and specialized hospital and rehabilitation centers. Hospitals are establishments permanently staffed by at least one physician. Establishments providing principally custodial care are not included. Rural hospitals, however, include health and medical centers not permanently staffed by a physician (but by a medical assistant, nurse, midwife, etc.) which offer in-patient accommodation and provide a limited range of medical facilities. For statistical purposes urban hospitals include WHO principal/general hospitals, and rural hospitals, local or rural hospitals and medical and maternity centers. Specialized hospitals are included only under total.

**Admissions per Hospital Bed** - Total number of admissions to or discharges from hospitals divided by the number of beds.

## HOUSING

**Average Size of Household (persons per household)** - total, urban, and rural - A household consists of a group of individuals who share living quarters and their main meals. A boarder or lodger may or may not be included in the household for statistical purposes.

**Average number of persons per room** - total, urban, and rural - average number of persons per room in all urban, and rural occupied conventional dwellings, respectively. Dwellings exclude non-permanent structures and unoccupied parts.

**Access to Electricity (percent of dwellings)** - total, urban, and rural - Conventional dwellings with electricity in living quarters as percentage of total, urban, and rural dwellings respectively.

## EDUCATION

## Adjusted Enrollment Ratios

**Primary school** - total, male and female - Gross total, male and female enrollment of all ages at the primary level as percentage of respective primary school-age populations; normally includes children aged 6-11 years but adjusted for different lengths of primary education; for countries with universal education enrollment may exceed 100 percent since some pupils are below or above the official school age.

**Secondary school** - total, male and female - Computed as above; secondary education requires at least four years of approved primary instruction; provides general, vocational, or teacher training instructions for pupils usually of 12 to 17 years of age; correspondence courses are generally excluded.

**Vocational enrollment (percent of secondary)** - Vocational institutions include technical, industrial, or other programs which operate independently or as departments of secondary institutions.

**Pupil-teacher ratio** - primary, and secondary - Total students enrolled in primary and secondary levels divided by numbers of teachers in the corresponding levels.

**Adult literacy rate (percent)** - Literate adults (able to read and write) as a percentage of total adult population aged 15 years and over.

## CONSUMPTION

**Passenger Cars (per thousand population)** - Passenger cars comprise motor cars seating less than eight persons; excludes ambulances, hearses and military vehicles.

**Radio Receivers (per thousand population)** - All types of receivers for radio broadcasts to general public per thousand of population; excludes unlicensed receivers in countries and in years when registration of radio sets was in effect; data for recent years may not be comparable since most countries abolished licensing.

**TV Receivers (per thousand population)** - TV receivers for broadcast to general public per thousand population; excludes unlicensed TV receivers in countries and in years when registration of TV sets was in effect.

**Newspaper Circulation (per thousand population)** - Shows the average circulation of "daily general interest newspaper", defined as a periodical published primarily to recording general news. It is considered to be "daily" if it appears at least four times a week.

**Cinema Annual Attendance per Capita per Year** - Based on the number of tickets sold during the year, including admissions to drive-in cinemas and mobile units.

## LABOR FORCE

**Total Labor Force (thousands)** - Economically active persons, including armed forces and unemployed but excluding housewives, students, etc., covering population of all ages. Definitions in various countries are not comparable; 1960, 1970 and 1980 data.

**Female (percent)** - Female labor force as percentage of total labor force.

**Agriculture (percent)** - Labor force in farming, forestry, hunting and fishing as percentage of total labor force; 1960, 1970 and 1980 data.

**Industry (percent)** - Labor force in mining, construction, manufacturing and electricity, water and gas as percentage of total labor force; 1960, 1970 and 1980 data.

**Participation Rate (percent)** - total, male, and female - Participation or activity rates are computed as total, male, and female labor force as percentages of total, male and female population of all ages respectively; 1960, 1970, and 1980 data. These are based on ILO's participation rates reflecting age-sex structure of the population, and long time trend. A few estimates are from national sources.

**Economic Dependency Ratio** - Ratio of population under 15 and 65 and over to the total labor force.

## INCOME DISTRIBUTION

**Percentage of Private Income (both in cash and kind)** - Received by richest 5 percent, richest 20 percent, poorest 20 percent, and poorest 40 percent of households.

## POVERTY TARGET GROUPS

The following estimates are very approximate measures of poverty levels, and should be interpreted with considerable caution.

**Estimated Absolute Poverty Income Level (US\$ per capita)** - urban and rural - Absolute poverty income level is that income level below which a minimal nutritionally adequate diet plus essential non-food requirements is not affordable.

**Estimated Relative Poverty Income Level (US\$ per capita)** - urban and rural - Rural relative poverty income level is one-third of average per capita personal income of the country. Urban level is derived from the rural level with adjustment for higher cost of living in urban areas.

**Estimated Population Below Absolute Poverty Income Level (percent)** - urban and rural - Percent of population (urban and rural) who are "absolute poor".

TURKEY - COUNTRY DATA

Population: 45.5 million (1981)  
GNP Per Capita: US\$1540 (1981)

Indicator	Amount (million US\$ at current prices) 1981	Average Annual Increase (%) (at constant 1980 prices)			Share of GDP at Market Prices (%) (at current prices)			
		1965-70	1970-75	1975-80	1965	1970	1975	1980
<b>NATIONAL ACCOUNTS</b>								
Gross domestic product /a	57,655	6.6	7.5	2.8	100.0	100.0	100.0	100.0
Agriculture	11,903	3.1	4.4	2.7	30.7	26.4	26.2	21.4
Industry /b	14,218	9.5	9.5	2.8	16.6	17.2	18.0	28.6
Services	28,130	8.2	8.0	3.7	42.9	46.5	46.0	44.3
Consumption	46,717	5.8	7.0	2.7	84.6	82.8	85.2	81.8
Gross investment	14,392	11.7	12.9	0.6	16.7	20.1	23.3	26.4
Exports of goods and NFS	6,372	7.9	7.3	4.4	6.1	5.8	6.1	7.1
Imports of goods and NFS	9,826	11.2	13.8	-3.1	7.4	8.7	14.5	15.2
Gross national savings	12,317	11.6	11.9	2.4	15.8	18.8	18.1	18.3

	Amount (million US\$ at current prices)	Average Annual Increase (%) (at constant 1980 prices)		Composition of Merchandise Trade (%) (at current prices)		
		1972-75	1975-80	1972	1975	1980
		<b>MERCHANDISE TRADE /c</b>				
Merchandise exports	4,703	-6.1	2.8	100.0	100.0	100.0
Primary	2,413	-6.3	4.0	72.6	64.1	64.0
Industrial products	2,290	-5.8	0.9	27.4	35.9	36.0
Merchandise imports	8,933	11.2	1.2	100.0	100.0	100.0
Agriculture and livestock	125	27.9	-23.8	2.2	4.3	0.7
Mining and quarrying	221	17.4	6.8	1.2	1.6	1.8
Petroleum	3,878	5.4	11.0	9.9	17.1	48.8
Machinery and equipment	1,996	14.0	-12.1	45.0	35.6	18.2
Other industrial products	2,713	9.9	4.5	41.7	41.4	30.5

	1977	1978	1979	1980	1981
<b>PRICES AND TERMS OF TRADE</b>					
GDP deflator (1980 = 100)	20.2	29.0	49.4	100.0	141.9
Exchange rate	18.0	24.3	31.1	76.0	111.2
Export price index	63.8	63.0	78.2	100.0	99.3
Import price index	61.2	61.2	71.9	100.0	109.3
Terms of trade index	104.3	102.9	108.8	100.0	90.6

	As % of GDP (at current prices)			
	1965	1970	1975	1980
<b>PUBLIC FINANCE</b>				
Current revenue	15.0	22.6	22.0	19.8
Current expenditure	10.0	11.8	12.6	11.5
Surplus (+) or deficit (-)	-2.0	-2.3	-0.4	-4.8
Investment expenditure	4.7	5.7	4.2	3.9
Transfers	5.0	7.5	5.5	9.2
Foreign financing	1.8	1.6	0.3	0.2

	1965-70	1970-75	1975-80
<b>OTHER INDICATORS</b>			
GNP growth rate (%)	6.8	7.7	2.6
GNP per capita growth rate (%)	4.1	5.0	0.3
ICOR	2.9	2.9	5.7
Marginal savings rate (%)	28.2	19.5	30.8
Import elasticity	1.7	1.8	-1.3

/a At market prices; components are expressed at factor cost and will not add due to exclusion of net indirect taxes and subsidies.  
/b Includes mining and quarrying, manufacturing, and electricity, gas, and water.  
/c In accordance with Turkish Government's specifications, which are not compatible with SITC's.

**TURKEY - BALANCE OF PAYMENTS, EXTERNAL CAPITAL, AND DEBT /a**  
(million US\$ at current prices)

Population: 45.5 million (1981)  
GNP Per Capita: US\$1540 (1981)

	1970	1977	Actual				Estimate	Projected			
			1978	1979	1980	1981	1982	1983	1984	1985	1986
<b>BALANCE OF PAYMENTS</b>											
Net exports of goods & NFS	342	3880	1984	2442	4658	3476	-2021	-1960	-1788	-1771	-1956
Exports of goods & NFS	754	2556	3075	3247	4102	6416	7620	8894	10613	12523	14545
Imports of goods & NFS	1096	6436	5059	5689	8760	9892	9641	10853	12402	14293	16501
Workers' remittances	273	982	983	1694	2071	2490	2187	2350	2450	2622	2779
Net transfers	91	12	-	-	-	-	-	-	-	-	-
Current account balance	-58	-3572	-1741	-1771	-3207	-2089	-1035	-870	-693	-485	-602
Direct private investment	92	169	147	200	148	129	125	127	131	144	158
Public M&LT (gross) /b	271	997	1017	4321	2354	2188	2076	1690	1593	1487	1671
Amortization on M&LT /b	-146	-234	-336	-414	-434	-545	-1230	-1105	-1258	-1783	-2040
Public M&LT (net) /b	125	763	681	3907	1920	1643	846	585	335	-296	-369
Other capital /c	27	2074	1061	-2410	1642	983	264	130	29	924	1151
Change in reserves (- = increase)	-186	566	-148	74	-503	-667	-200	28	199	-288	-339
International reserves	612	726	874	800	1303	1970	2076	2049	1850	2138	2477
Reserves as months of imports	7	1	2	2	2	2	2	2	2	2	2

	Actual							
	1972	1977	1978	1979	1980	1981		
<b>GROSS DISBURSEMENTS</b>								
Gross disbursements of M&LT loans			372	759	857	4198 /d	2279	2116
Official grants			-	-	-	-	-	300
Concessional			261	193	228	588	812	522
Bilateral			139	100	129	406	749	499
IDA			4	19	8	3	-	-
Other multilateral			118	74	91	179	63	23
Non-concessional			111	566	629	3610 /d	1466	1294
Official export credits			1	47	133	250	288	355
IBRD			25	146	165	277	313	454
Other multilateral			27	5	35	15	150	162
Private /d			58	368	296	3068 /d	715	323

<b>EXTERNAL DEBT</b>							
Debt outstanding and disbursed	2450	4293	6322	10942	13415	13804	
Official	2273	3657	5489	7189	8281	8906	
IBRD	92	512	648	890	1158	1546	
IDA	99	181	188	190	189	188	
Other	2082	2964	4653	6109	6934	7172	
Private	177	636	833	3753 /e	5134	4898	
Debt outstanding including undisbursed	3560	7128	9879	14620	16807	17093	

<b>DEBT SERVICE</b>							
Total debt service /e	224	363	428	627	1001	1168	
Payments	161	196	264	403	405	510	
Interest	63	167	164	224	596	658	
Total debt service as % exports of goods + NFS + workers' remittances	11.8	10.3	10.6	12.7	16.2	13.1	
Total debt service as % GNP	1.3	0.8	0.9	0.9	1.7	2.0	
Average interest rate on new loans (%)	4.4	7.7	6.9	11.3	6.5	7.9	
Official	4.5	7.7	5.6	3.5	5.5	5.3	
Private	6.8	7.8	8.2	13.6	10.6	15.4	
Average maturity of new loans (years)	22.1	11.6	13.3	11.1	17.4	15.0	
Official	26.0	12.7	15.2	25.1	16.6	16.3	
Private	11.0	9.2	7.6	7.1	6.4	4.5	

<b>BANK GROUP EXPOSURE (%)</b>							
IBRD DOD/total DOD	3.7	11.9	10.2	8.1	8.6	11.2	
IBRD disbursements/total gross disbursements	6.7	19.1	18.4	6.5	13.7	25.0	
IBRD debt service/total debt service /e	5.1	17.2	19.2	16.8	13.3	14.0	
IDA DOD/total DOD	3.9	4.2	3.0	1.7	1.4	1.4	
IDA disbursements/total gross disbursements	1.1	2.5	0.9	0.1	-	-	
IDA debt service/total debt service /e	0.4	0.6	0.5	0.4	0.3	0.2	

As % of Debt Outstanding  
at End of Most Recent  
Year (1981)

<b>TERMS STRUCTURE</b>	
Maturity structure of debt outstanding (%)	
Maturities due within 5 years	37.4
Maturities due within 10 years	76.4
Interest structure of debt outstanding (%)	
Interest due within first year	6.5

/a All entries on external debt are defined as in the Bank's Debtor Reporting System (only public and private guaranteed debt).  
/b Includes private guaranteed and non-guaranteed debt, debt relief, and grants.  
/c Includes errors and omissions, and for projected years it includes net IMF, short-term, and unidentified capital inflows.  
/d Includes \$2,638 million of consolidated short-term debt.  
/e Takes account of debt relief due to debt rescheduling, and excludes interest on short-term debt and private non-guaranteed.

STATUS OF BANK GROUP OPERATIONS IN TURKEY

STATEMENT OF BANK LOANS AND IDA CREDITS  
(As of March 31, 1983)

Loan Number	Year	Borrower	Purpose	Amount (\$ millions)		
				Bank	IDA	Undisbursed
Thirty-three loans and fourteen credits fully disbursed				1493.0	177.4	
883-TU	1973	Republic of Turkey	Ceyhan Aslantas	44.0		8.5
1023-TU	1974	TEK/TKI	Elbistan Power	148.0		6.8
1130-TU	1975	Republic of Turkey	Rural Development	75.0		18.7
1248-TU	1976	Agriculture Bank of Turkey (TCZB)	Agriculture Credit	54.3		26.8
1258-TU	1976	State Pulp and Paper Industry (SEKA)	Newsprint	70.0		1.6
1265-TU	1976	Republic of Turkey	Livestock III	21.5		6.1
1310-TU	1976	Republic of Turkey	Tourism	26.0		15.1
1379-TU	1977	DYB	Industry	70.0		7.0
1585-TU	1978	Republic of Turkey	Northern Forestry	86.0		50.8
1586-TU	1978	Republic of Turkey	Livestock IV	24.0		18.2
1606-TU	1978	Republic of Turkey	Erdemir Steel Stage II	95.0		34.2
1741-TU	1979	Republic of Turkey	Ports Rehabilitation	75.0		37.0
1742-TU	1979	Republic of Turkey	Grain Storage	85.0		81.5
1748-TU	1979	TSKB	Industry	60.0		16.6
1754-TU	1979	TSKB	Private Sector Textiles	65.0		39.5
1755-TU	1979	SYKB	Private Sector Textiles	15.0		10.8
S-15-TU	1979	Republic of Turkey	Ankara Air Pollution Control	6.0		5.1
1844-TU	1980	Republic of Turkey	Karakaya Hydropower	120.0		95.7
1847-TU	1980	Republic of Turkey	Sumerbank Cotton Textiles	83.0		75.2
1862-TU	1980	Republic of Turkey	Livestock V	51.0		47.2
1916-TU	1980	Republic of Turkey	Petroleum Exploration	25.0		23.0
1917-TU	1980	Republic of Turkey	Oil Recovery	62.0		47.1
1952-TU	1981	Republic of Turkey	Labor Intensive Industry	40.0		36.2
1967-TU	1981	Republic of Turkey	Second Fruit and Vegetables	40.0		39.5
1985-TU	1981	Republic of Turkey	Fertilizer Industry Rehabilitation	110.0		100.3
1998-TU	1981	Republic of Turkey	State Industrial Enterprise Finance	70.0		65.2
2093-TU	1982	TSKB	Export-Oriented Industries	100.0		99.8
2094-TU	1982	Republic of Turkey	Erzurum Rural Development	40.0		38.2
2131-TU	1982	Republic of Turkey	Second Fertilizer Rehabilitation	44.1		44.1
2137-TU	1982	Republic of Turkey	Highway	71.1		69.8
2158-TU	1982	Republic of Turkey	Third Structural Adjustment	304.5		104.5
2159-TU	1982	TSKI	Istanbul Sewerage	<u>88.1</u>		<u>86.4</u>
Total				3761.6	177.4	<u>1356.5</u>
of which has been repaid				<u>386.2</u>	<u>8.1</u>	
Total now outstanding				3375.4	169.3	
Amount sold				3.6		
of which has been repaid				<u>3.6</u>		
				- 0 -	- 0 -	
Total now held by Bank and IDA /a				<u>3375.4</u>	<u>169.3</u>	
Total undisbursed				<u>1356.5</u>	<u>- 0 -</u>	<u>1356.5</u>

/a Prior to exchange adjustments.



STATUS OF BANK GROUP OPERATIONS IN TURKEY

STATEMENT OF IFC INVESTMENTS  
(As of March 31, 1983)

Fiscal Year	Obligor	Type of Business	Amount (\$ Millions)		
			Loan	Equity	Total
1964	TSKB	DFC	-	0.92	0.92
1966	SIFAS I	Nylon Yarn	0.90	0.47	1.37
1967	TSKB II	DFC	-	0.34	0.34
1969	TSKB III	DFC	-	0.41	0.41
1969	SIFAS II	Nylon Yarn	1.50	0.43	1.93
1970	Viking I	Pulp and Paper	2.50	0.67	3.17
1970	ACS	Glass	10.00	1.58	11.58
1971	NASAS	Aluminum	7.00	1.37	8.37
1971	SIFAS III	Nylon Yarn	0.75	-	0.75
1971	Viking II	Pulp and Paper	-	0.12	0.12
1972	SIFAS IV	Nylon Yarn	-	0.52	0.52
1972	TSKB IV	DFC	-	0.43	0.43
1973	TSKB V	DFC	10.00	-	10.00
1973	Akdeniz	Tourism	0.33	0.27	0.60
1974	Borusan	Steel Pipes	3.60	0.43	4.03
1974	AKSA	Textiles	10.00	-	10.00
1975	Kartaltepe	Textiles	1.30	-	1.30
1975	Sasa	Nylon Yarn	15.00	-	15.00
1975	Aslan	Cement	10.60	-	10.60
1975	DOKTAS	Steel	7.50	1.37	8.87
1975	TSKB	DFC	25.00	1.23	26.23
1976	NASAS	Aluminum	1.58	-	1.58
1976	TSKB	DFC	25.00	-	25.00
1976	Asil Celik	Steel	12.00	2.20	14.20
1977	Borusan	Steel Pipes	-	0.06	0.06
1978	DOKTAS	Steel	-	0.09	0.09
1979	Ege Mosan	Engines for Mopeds	2.15	-	2.15
1979	ISAS	Motor Vehicles & Accessories	8.85	0.45	9.30
1979	Asil Celik	Steel	-	1.80	1.80
1979	Trakya Cam	Glass	33.15	2.84	35.99
1980	TSKB	DFC	-	1.09	1.09
1980/82	ISAS	Motor Vehicles & Accessories	-	1.20	1.20
1980	MENSA	Textiles and Fibers	4.0	-	4.0
1981	Kirklareli Cam Sanayii A.S.	Glass Tableware	13.09	-	13.09
1982	M.A.N. Motors	Motor Vehicles & Accessories	9.07	-	9.07
1982	TSKB	DFC	-	0.35	0.35
Total Gross Commitments			214.87	20.64	235.51
Less Cancellations, Terminations, Exchange Adjustments, Repayments and Sales			144.80	8.30	153.10
Total Commitments now held by IFC			70.07	12.34	82.41
Total Undisbursed			10.41	0.07	10.48

C. STATUS OF PROJECTS IN EXECUTION AS OF MARCH 31, 1983 1/

Ln. and Cr. Nos. 883/360 - Ceyhan Aslantas Multipurpose Project: US\$44 million loan and US\$30 million credit of March 22, 1973. Effective Date: March 20, 1974. Closing Date: December 31, 1983.

The project is expected to be substantially completed by the current Closing Date of December 31, 1983. As of March 31, 1983, about \$35.5 million has been disbursed of this \$44 million loan.

Ln. No. 1023 - Elbistan Lignite Mine and Power Project: US\$148 million loan of June 28, 1974. Effective Date: June 1, 1976. Closing Date: June 30, 1983.

Progress has been made on the power component in line with the measures recommended in February 1982. The civil works contracts have been renegotiated and additional contractors brought in. TEK has delegated site management to STEAG, a German project management firm. The main contractor, Foster Wheeler (FW), has revised the work plan taking into account the use of erection personnel being made available by the main equipment suppliers. The revised work plan concentrates maximum effort in completing Unit No. 1 by end 1984. Units No. 2, No.3 and No. 4 would follow at one year intervals. With the arrangements made through the US EXIM Bank, and the proposed reallocation of an additional US\$6.8 million from the IBRD loan, financing for the FW contract through end 1983 is assured. Social infrastructure and salary problems persist. The contract for operation and training for the mining component expires in July 1983. Decision on renewal has not been taken. The contract for mine consulting is continuing. TKI has not negotiated frame contracts for mine equipment maintenance. Maintenance of mine equipment is inadequate. TKI's ability to mine lignite in sufficient quantities to adequately supply the power station (17.6 million tons per year) will be assessed in connection with the appraisal of a supplemental loan tentatively scheduled for September 1983.

Ln. No. 1130 - Corum-Cankiri Rural Development: US\$75 million loan of June 23, 1975. Effective Date: January 22, 1976. Closing Date: June 30, 1984.

Satisfactory progress is being maintained except for delayed payment to contractors by DSI. The Bank has agreed to the Government's request for reallocation of proceeds so as to provide additional funds for short-term credit, which is expected to be sufficient to cover needs until a proposed second agricultural credit project, now scheduled for Board consideration in June 1983, becomes effective.

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1/ These notes are designed to inform the Executive Directors regarding the progress of projects in execution, and in particular to report any problems which are being encountered and the action being taken to remedy them. They should be read in this sense, and with the understanding that they do not purport to present a balanced evaluation of strengths and weaknesses in project execution.

Ln. No. 1248 - Agricultural Credit and Agro-industries: US\$54.3 million loan of May 5, 1976. Effective Date: May 11, 1977. Closing Date: June 30, 1984.

The supervised credit and ferryship components are fully disbursed and the study of TCZB organization and operations has been completed. Due to reluctance of sub-borrowers to assume foreign exchange risk and availability of other sources of credit without this risk, only 11 percent of the agro-industries component has been disbursed. The Government is considering proposals for dealing with this issue.

Ln. No. 1258 - Balikesir Newsprint: US\$70 million loan of May 21, 1976. Effective Date: October 15, 1976. Closing Date: December 31, 1982.

Although the Closing Date has not been extended, accounts are being kept open pending settlement of final payments. As of March 31, 1983, \$68.4 million, or 98 percent of the total loan amount, has been disbursed. A project completion report is under preparation.

Ln. No. 1265 - Livestock III: US\$21.5 million loan of May 26, 1976. Effective Date: February 25, 1977. Closing Date: March 31, 1984.

The Closing Date has been extended to March 31, 1984 to allow for utilization of the remaining \$6.8 million of undisbursed loan funds. Project implementation has been satisfactory. However, the increased availability of locally bred offspring of imported cattle at considerably cheaper prices than for comparable directly imported cattle, has caused a serious reduction in the demand for sub-loans. The Bank is currently considering a request from the Government for restructuring all three ongoing livestock projects to include financing for the foreign exchange component of loans for sheep and beef fattening in addition to dairying; locally bred improved cattle and sheep, as well as imported ones; and farm machinery and equipment, livestock housing, pasture and forage production, feeds and other inputs in addition to livestock.

Ln. No. 1310 - South Antalya Tourism Infrastructure: US\$26 million loan of July 9, 1976. Effective Date: March 1, 1978. Closing Date: December 31, 1983.

Project implementation is about two years behind schedule due to initial difficulties relating to land acquisition and project organization. At present most project works are either completed or under advanced implementation. The Closing Date has been extended for the first time by one year to December 31, 1983. As of March 31, 1983, \$10.8 million, or 42 percent of the total loan amount, has been disbursed.

Ln. No. 1379 - DYB (State Investment Bank of Turkey): US\$70 million loan of March 23, 1977. Effective Date: July 21, 1977. Closing Date: December, 31, 1982.

The Closing Date for this loan has not been extended, but the accounts are being kept open for settlement of final payments. As of March 31, 1983, the undisbursed balance of this loan is \$7.0 million.

Ln. No. 1585 - Northern Forestry: US\$86.0 million loan of June 5, 1978.  
Effective Date: October 30, 1978. Closing Date: March 31, 1986.

Overall physical achievements are about 60 percent of targets. Local funding, which is almost totally dependent on timber sales, has been inadequate due to a depression in the construction industry. Although equipment procurement is still behind schedule, proposals for foreign equipment procurement have been agreed, providing for initiation of remaining procurement in 1983/84 with completion of disbursement expected by early 1986. A management consultant to assist the project implementation is expected in Ankara shortly.

Ln. No. 1586 - Livestock IV: US\$24.0 million loan of June 5, 1978. Effective Date: October 31, 1978. Closing Date: June 30, 1985.

Implementation of the supervised credit program is extremely slow due in part to the increased availability of locally bred offspring of imported cattle at considerably cheaper prices than for directly imported cattle. A Government request for restructuring of all three ongoing livestock projects (see Loan No. 1265) is under consideration.

Ln. No. 1606 - Erdemir Stage II Steel: US\$95.0 million loan of June 30, 1978. Effective Date: July 30, 1979. Closing Date: June 30, 1983.

Inflation and the devaluation of the Turkish Lira have caused serious financial problems for the company. Proposals to tackle the situation are being considered by the company and the Government in consultation with the Bank. Implementation of the main components of the original project is one year behind schedule with additional delays now expected on some non-critical support facilities and several additional items recommended by consultants to improve productivity, quality, and efficiency. A financial plan prepared by the company is being reviewed. Extension of the Closing Date to permit utilization of the remaining loan funds is dependent upon development of a satisfactory financial plan.

Ln. No. 1741 - Ports Rehabilitation: US\$75 million of July 2, 1979.  
Effective Date: January 22, 1980. Closing Date: June 30, 1983.

Cumulative loan disbursements of \$38.0 million up to March 31, 1983 were only about 51 percent of the total loan amount due to initial delays in tendering, awarding contracts, appointing consultants for port planning study, and finalizing specifications of a 250-ton floating crane. Physical implementation is now progressing satisfactorily. Extension of the Closing Date is under consideration.

Ln. No. 1742 - Grain Storage: US\$85 million of July 2, 1979. Effective Date: January 21, 1980. Closing Date: June 30, 1985.

Prequalification procedures for silo construction contractors are in progress. The Government is currently examining the merits of possible adjustments in the project contents to take account of changes in relative prices and cost increases due to previous delays.

Ln. No. 1748 - TSKB XIII (Industrial Development Bank of Turkey): US\$60 million of July 12, 1979. Effective Date: October 25, 1979. Closing Date: September 30, 1983.

Delays in committing this loan have resulted due to sub-borrowers' reluctance to bear foreign exchange risk and cancellation of loan contracts because of financial distress caused by high interest rates and shortage of local currency. These financial problems which are endemic in the Turkish private sector have prevented TSKB's serious arrears position from improving. The current Closing Date of September 30, 1983 is not likely to be extended. As of March 31, 1983, about \$43.4 million has been disbursed.

Lns. Nos. 1754 and 1755 - TSKB (US\$65 million) and SYKB (US\$15 million) Private Sector Textiles loans of September 17, 1979. Effective Date: February 29, 1980. Closing Date: December 31, 1984.

A lower than anticipated level of commitments (about \$38 million or 55 percent of forecasts) still prevails due to depressed conditions in the textile industry and the sub-borrowers' reluctance to assume foreign exchange risk. Local consultancy service has been reorganized on schedule, as a private sector joint venture without further need of the Bank's financial support.

Ln. No. S-15 - Ankara Air Pollution Engineering: US\$6 million loan of December 12, 1979. Effective Date: April 4, 1980. Closing Date: December 31, 1983.

Out of the five components of this project, only two (Seyitomer Plant and Air Pollution Monitoring Equipment) have so far been partly implemented, representing US\$0.9 million or 15 percent of the total loan amount. The test results from the MTA pilot plant showed that investment in a larger scale pilot plant would not be warranted. The Alternative Technology Study will not be executed since no feasible processes exist for coke or hot briquetting manufacture based on Turkish lignite. The Gas Production Study will be implemented, but the cost for the study might be significantly higher than the appraisal estimate. Revision of the cost estimates and extension of the present Closing Date are under consideration.

Ln. No. 1844 - Karakaya Hydropower: US\$120 million loan of May 21, 1980. Effective Date: August 15, 1980. Closing Date: December 31, 1988.

Implementation after initial delays is now satisfactory. The cash generation covenant was not met for 1982, and is not likely to be met for 1983. This matter is now being pursued with the Government.

Ln. No. 1847 - Sumerbank Textiles Modernization and Rationalization:  
US\$83 million loan of May 28, 1980. Effective Date: February 27, 1981.  
Closing Date: June 30, 1984.

After initial delays of about one year due to delayed loan effectiveness and staffing problems of the project implementation unit, project implementation is now progressing satisfactorily and the costs are within appraisal estimates. The reorganization plan for the Cotton Textile Division was approved by the Sumerbank Board in March 1982. Recruitment of competent personnel for the Cotton Textile Division and the project implementation unit has been hampered by salary limitations on State Economic Enterprises. The situation is expected to improve after the passage of the SEE reform decree.

Ln. No. 1862 - Livestock V: US\$51 million loan of June 6, 1980. Effective  
Date: October 22, 1980. Closing Date: June 30, 1987.

Progress on the credit component for livestock development, with the exception of boilers, is extremely slow. The Government has decided not to implement the meat processing component due to changes in its investment priorities, and a request has been received to reallocate the funds. Implementation of the animal health and breeding components is reasonably satisfactory. A Government proposal for increasing the types of livestock credit eligible for financing (see Loan No. 1265) is under consideration.

Ln. No. 1916 - Petroleum Exploration Project: US\$25 million loan of  
November 24, 1980. Effective Date: June 30, 1981. Closing Date:  
December 31, 1984.

Project implementation is slow due to delay in contracting consulting services and initiating technical studies. Acceptable drilling locations have not yet been identified in southeast Turkey. The Bank has recently approved the Government's request to extend the scope of the loan to include the Thrace basin, which has been found to have a highly attractive potential for hydrocarbon exploration, and to reallocate a portion of the proceeds of the loan to finance computer equipment for higher quality seismic data processing needed for the Thrace program. Progress in separation of TPAO's import-related operations is also behind schedule because of its relation to the broader issues under consideration in the SEE reform legislation. Energy audits for five major industries are currently in progress.

Ln. No. 1917 - Bati Raman Enhanced Oil Recovery Field Demonstration Project:  
US\$62 million loan of November 24, 1980. Effective Date: June 30, 1981.  
Closing Date: December 31, 1984.

The project is about one year behind schedule due to initial delays in equipment procurement and delivery. Bids for the enhanced recovery studies for other fields are under review, and the studies are expected to start shortly. The fracturing of the Hamitabat gas field has been completed successfully and has demonstrated the feasibility of full commercial development of the field. Progress in separation of TPAO's import-related operations has also been delayed because of its relation to the broader issues under consideration for the SEE reform legislation.

Ln. No. 1952 - Labor Intensive Industry Project: US\$40 million loan of March 13, 1981. Effective Date: June 12, 1981. Closing Date: June 30, 1986.

A poor investment climate still continues to hamper loan utilization. As of January 31, 1983, subloans totalling \$16.8 million had been approved by SYKB.

Ln. No. 1967 - Second Fruit and Vegetable Project: US\$40 million loan of April 6, 1981. Effective Date: August 1981. Closing Date: June 30, 1986.

Project implementation is proceeding more slowly than projected, but should improve as a result of experience gained to date: all consultants have been engaged and are in place. Three of the four Regional Marketing Corporations will become operational as soon as TCZB's contribution is received in early May 1983.

Ln. No. 1985 - Fertilizer Rationalization and Energy Saving Project: US\$110 million loan of May 15, 1981. Effective Date: August 28, 1981. Closing Date: December 31, 1986.

The project components of AZOT and IGSAS are progressing satisfactorily. GUBRE, one of the three beneficiaries, has not yet signed a contract with an engineering company for project implementation because of changes proposed in the scope of the project by GUBRE management to further improve its economic viability.

Ln. No. 1998 - State Industrial Enterprise Finance Project: US\$70 million loan of June 3, 1981. Effective Date: August 27, 1981. Closing Date: December 31, 1986.

Project implementation is proceeding satisfactorily. The Bank is considering the Government's request for an extension of the deadline for completion of a study of DYB's future role.

Ln. No. 2093 - Export-Oriented Industries Project: US\$100 million loan of March 5, 1982. Effective Date: May 28, 1982. Closing Date: June 30, 1987.

Although the special task force for dealing with problem projects is now functioning relatively effectively, prolonged low capacity utilization rates in industry and high interest rates make a substantial improvement in arrears unlikely in the near future. Demand for direct foreign exchange fixed asset financing has been declining due to reduced private sector investment demand as a result of current economic conditions and the unwillingness of sub-borrowers to bear foreign exchange risk. The technical assistance program for potential exporters has been proceeding on schedule.

Ln. No. 2094 - Erzurum Rural Development Project: US\$40 million loan of March 5, 1982. Effective Date: November 24, 1982. Closing Date: June 30, 1987.

Since the loan became effective in November 1982, implementation has been on schedule for the irrigation, soil conservation, new roads, plant protection, and veterinary services components. However, progress is slow with extension services and recruitment of consultants, and it has proved difficult to recruit and retain a project manager in Erzurum.

Ln. No. 2131 - Second Fertilizer Rationalization Project: US\$44.1 million loan of May 13, 1982. Effective Date: April 13, 1983. Closing Date: June 30, 1987.

This loan became effective in April 1983. The Government has requested cancellation of Part A of the project which relates to GUBRE, one of the four beneficiary fertilizer manufacturing companies of the project, which is no longer interested in proceeding with its portion of the project. The total loan amount will accordingly be reduced from \$44.1 million to \$38 million to reflect this cancellation. The other project components are making satisfactory progress.

Ln. No. 2137 - Highway Rehabilitation Project: US\$71.1 million loan of May 13, 1982. Effective Date: August 13, 1982. Closing Date: June 30, 1987.

Progress continues to be good. All civil works and procurement contracts have been bid and feasibility studies have been completed for all the remaining road sections included in the loan.

Ln. No. 2158 - Structural Adjustment Loan III: US\$304.5 million loan of May 28, 1982. Effective Date: July 16, 1982. Closing Date: December 15, 1983.

This loan became effective in July 1982. The first tranche of the loan has been fully disbursed. Release of the second tranche has been authorized (May 1983).

Ln. No. 2159 - Istanbul Sewerage Project: US\$88.1 million loan of May 28, 1982. Effective Date: January 24, 1983. Closing Date: December 31, 1988.

This loan became effective in January 1983.



TURKEY

THRACE GAS EXPLORATION PROJECT

SUPPLEMENTARY PROJECT DATA SHEET

I. Timetable of Key Events

- (a) Time taken by Government to prepare project: Three months
- (b) Agency which prepared the Project: TPAO
- (c) Project first identified: November 1982
- (d) Date of Bank Appraisal Mission: January 1983
- (e) Negotiations completed: May 20, 1983
- (f) Planned date of effectiveness: October 31, 1983

II. Special Bank Implementation Actions

A substantial amount of supervision will be required to monitor TPAO's Thrace Basin evaluation and exploration activities.

III. Special Conditions

A. Agreement with the Guarantor

- (a) the price of natural gas would be based on prices of alternative energy resources (para. 46);
- (b) TPAO would receive assistance for taking measures to achieve and maintain a current ratio of at least 1.0 (paras. 76 and 80).

B. Agreement with the Borrower

- (a) Review with the Bank annually all of its exploration program and take into account Bank comments (para. 52).
- (b) Submit to the Bank on an annual basis the Thrace exploration and development program and any changes thereof for review and agreement (para. 65).
- (c) Present to the Bank for approval a geological prognosis, benefit-risk analysis and drilling program for each well to be financed under the project (para. 65).
- (d) Hire an experienced firm to perform all well services (para. 69).

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- (e) Maintain separate accounts for its exploration and production activities and not transfer funds from such accounts to other activities (para. 78).
- (f) Finalize its annual investment program and the corresponding financing plan by October 31 of each year and furnish them to the Bank for review and comment (para. 80)
- (g) Incur no new long-term debt unless the projected net revenues for each fiscal year are at least twice the projected debt service requirements (para. 80).
- (h) Maintain a long-term debt-equity ratio not greater than 1:1 and a current ratio not less than 1.0 (para. 80).
- (i) Maintain working capital equivalent to at least two months of estimated operating expenses (para. 80).





