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THE WORLD BANK

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**PUBLIC DISCLOSURE AUTHORIZED**

Loan Committee - TURKEY - Karakaya Hydroelectric  
Power Supplement



1059570

A1990-229 Other #: 142 Box # 213406B

Turkey - Karakaya Hydropower Project - Loan Committee Project File

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THE WORLD BANK INTERNATIONAL FINANCE CORPORATION  
**OFFICE MEMORANDUM**

DATE July 11, 1984  
TO Files  
FROM Horst Eschenberg, Senior Loan Officer, EM2DA  
EXTENSION 3-2854  
SUBJECT TURKEY - Karakaya Hydropower Project (Loan 1844-TU)  
Supplemental Loan - Decision Memorandum

1. Mr. Clements called to convey Mr. Stern's comments on the above Decision Memorandum of June 14, 1984 and my supplemental memorandum to Mr. Clements of July 3, 1984. Mr. Stern concurred with the proposed approach on the following understanding:
  - (a) disbursements should be suspended if the Treasury should fail to make the required advance payment of local currency into the revolving fund covering one month's requirements;
  - (b) details of proposals for tariff action and institutional changes in TEK would be presented at the Loan Committee stage;
  - (c) no local currency financing would be provided under the loan.
  
2. Mr. Stern wondered why the Bank should finance a funding shortfall due to a decrease in the dollar value of an EIB loan. I explained to Mr. Clements that, because of a trade dispute between Turkey and the EEC, EIB is not in a position to lend to Turkey.

Cleared and cc: Mr. Clements (SVPOP)

Distribution

Messrs. Stern (SVPOP), Wapenhans, Reitter, Hasan (EMNVP), Picciotto (EMP), Stoutjesdijk, Asfour (EM2), Gregory, Dewey (EMP), Hittmair (CTRVP), K. Jones (EMP), Dherse (EISVP), Rajagopalan (PPD), Baneth (EPD), Rovani, Mejia (EGY), Goodland (PPD), Chaffey, Roy (EM2), Barahona (LOA), Swahn (EDC), Reekie, Schroeder, Roa, Posada, I. Johnson (EMP), Reichelt (EM2)  
Mesdames Krueger (VPERS), Meek-Foote (EMP), Hunt (LEG), El Khatib (EM2)

H Eschenberg:zv

7/9

~~EK~~ RC file

✓ a) This looks OK

b) I don't understand why we should fund the EIB shortfall.

EEC-Turkey trade dispute precludes any EIB lending to Turkey at this time

What's their problem? How do we justify that?

✓ c) on local cost, OK, but provided that Region will suspend disbursements the first time GOT misses its monthly payment.

Mr. Eschenberg informed.

RC  
7/10/69

## OFFICE MEMORANDUM

DATE July 3, 1984

TO Mr. Richard Clements, Senior Operations Adviser, SVPOP

FROM Horst Eschenberg, Senior Loan Officer, EM2DA

EXTENSION 3-2854

SUBJECT TURKEY - Karakaya Hydroelectric Project (Loan No. 1844-TU)  
Supplemental Loan - Decision Memorandum

1. You requested additional information on the above.

Cost Overrun

2. As mentioned in the Issues Paper of April 20, 1984, the latest project cost estimate prepared in April 1984 leaves a foreign exchange funding shortfall for the Karakaya Hydro Project of \$111.7 million. The two principal causes of this shortfall are:
  - (a) a net increase of the foreign exchange costs of the project of \$68.7 million (12 percent) - attributable mainly to a price increase of the civil works contract to which the Bank agreed. The price increase resulted from a renegotiation of the construction contract in 1981 following the withdrawal of a Turkish contractor from the construction joint venture. Also, a decrease of the US dollar equivalent of the Swiss franc costs of the project due to exchange rate fluctuation is taken into account;
  - (b) a net decrease of \$43 million in the available financing due principally to a decrease of the dollar value of a European Investment Bank loan of ECU 85 million (from \$110 million in 1980 to \$76.6 million in 1984). A detailed comparison of the foreign exchange costs and financing plans as appraised in 1980 and 1984 is shown at Annexes 1, 2 and 3.

Local Cost Financing

3. The Loan Agreement (Article III, Section 3.01(c)) for the Karakaya Hydropower Project (1844-TU) provides for a revolving fund into which the Borrower is required to deposit or cause to be deposited by the first of each month an amount sufficient to meet local currency payments for the cost of the project for the subsequent three months. While local currency payments for the project have been satisfactory and have been made when due, the project revolving fund has not been maintained at covenanted levels in recent years. We are concerned that with anticipated sharp increases in local currency requirements during the balance of the construction period local currency funding may become a problem. According to cash flow estimates prepared by DSI in May 1984, monthly requirements of TL funds will amount to between

TL 1.3 and TL 1.6 billion plus physical contingencies during the period July 1984 to December 1985. This is about six times the amount required monthly during 1983. In view of the tight budget situation in Turkey we do not consider it necessary to insist on premobilization of funds for three months' expenditures in the project's revolving fund. However, it is proposed that agreement be reached with the Turkish Government during negotiations as follows:

Section 3.01(c) of the loan agreement would be amended to provide for payment into the revolving fund on a monthly basis so that on the first day of each month, there would be available in the fund amounts of TL sufficient to meet payments due by DSI during that month. Also agreement would be reached, and confirmed in a side letter, on the estimated monthly local currency funding requirements.

#### Proposed Financing Plan

4. The proposed foreign exchange financing plan includes \$6.7 million to be provided by the Government. Of this amount \$2.1 million would be ineligible for Bank financing because it would cover contingencies for equipment which was not procured in accordance with Bank guidelines. We will propose to include the eligible balance of the foreign exchange requirements under Bank or Colender financing.

Attachments

Cleared with and cc: Ms. Hunt (LEG)

CSchroeder/HEschenberg:zv

## TURKEY

## LOAN 1844-TU

## KARAKAYA HUDROPOWER PROJECT

Comparison of Foreign Exchange Costs and  
Financing Plans as Appraised in 1980 and 1984  
(Millions of US Dollars)

	1980 <u>Appraisal</u> (SAR No. 2848)	1984 <u>Appraisal</u> (Annexes 2 & 3)	<u>Difference</u>
<u>Foreign Exchange Costs /1</u>			
Total (1980-88)	480.4		
Less: Indirect for. exch. (1980-88)	29.6		
Subtotal - Direct for. exch. (1980-88)	<u>450.8</u>		
Sunk costs (Pre-1980)	<u>121.5</u>		
Total - Direct Foreign Exchange	<u><u>572.3</u></u>	<u><u>641.0</u></u>	<u><u>68.7</u></u>
<u>Foreign Exchange Financing Plan /1</u>			
Total (1980-88)	480.4		
Less: Indirect for. exch. (1980-88)	29.6		
Subtotal - Direct for. exch. (1980-88)	<u>450.8</u>		
Sunk costs (Pre-1980)	<u>121.5</u>		
Available Financing	<u>572.3</u>	529.3	43.0
Financing Gap	<u>-</u>	<u>111.7</u>	<u>(111.7)</u>
Total - Direct Foreign Exchange	<u><u>572.3</u></u>	<u><u>641.0</u></u>	<u><u>68.7</u></u>

/1 Excluding Financial Charges during construction.

(1858P)

## TURKEY

## LOAN 1844-TU

## KARAKAYA HYDROPOWER PROJECT

Comparison of Project Cost Estimate as  
Appraised in 1980 and as Revised in March 1984  
(In millions)

	1980 Appraisal Estimate			March 1984 Revised Estimate		
	1983 and Before	1984-87	Total	1983 and Before	1984-88	Total
1. Access Roads, Permanent Village, Highway and Railway Relocation	TL 3,558.8 US\$ 8.3	477.7 2.1	4,036.5 10.4	7,601.7 .3	12,525.7 6.2	20,127.4 6.5
2. Civil and Hydraulic Works	TL 5,421.3 US\$ 130.9 US\$ - /b	2,477.3 77.2 - /b	7,898.6 208.1 - /b	7,720.3 /a 138.5 /a 8.7 /b	38,111.4 /a 202.1 /a 12.1 /b	45,831.7 /a 340.6 /a 20.8 /b
3. Turbines, Electrical Equipment	TL 260.2 SwF 465.0	37.5 -	297.7 465.0	432.5 464.4	42.2 -	474.7 464.4
4. Engineering, Administration	TL 323.7 US\$ .1 SwF 13.3	210.2 1.5 6.8	533.9 1.6 20.1	3,260.7 - 21.7	2,453.0 - 16.9	5,713.7 - 38.6
5. Land Appropriation, Human Resettlement	TL 8,987.1	3,236.2	12,223.3	12,633.0	16,193.9	28,826.9
Base Line Costs (1-5)	TL 18,551.1 US\$ 139.3 US\$ - /b SwF 478.3	6,438.9 80.8 - /b 6.8	24,990.0 220.1 - /b 485.1	31,648.2 /a 138.8 /a 8.7 /b 486.1	69,326.2 /a 208.3 /a 12.1 /b 16.9	100,974.4 /a 347.1 /a 20.8 /b 503.0
Physical Contingencies	TL 2,519.6 US\$ 23.6 US\$ - /b SwF 15.3	1,064.9 15.8 - /b .3	3,584.5 39.4 - /b 15.6	- - - -	6,843.8 /a 21.5 /a 1.3 /b 5.4	6,843.8 /a 21.5 /a 1.3 /b 5.4
Price Contingencies	TL 3,595.3 US\$ 10.7 US\$ - /b	3,496.0 7.6 - /b	7,091.3 18.3 - /b	- - -	22,947.6 /a 13.4 /a .8 /b	22,947.6 /a 13.4 /a .8 /b
Totals	TL 24,666.0 US\$ 173.6 US\$ - /b SwF 493.6	10,999.8 104.2 - /b 7.1	35,665.8 277.8 - /b 500.7	31,648.2 138.8 /a 8.7 /b 486.1	99,117.6 /a 243.2 /a 14.2 /b 22.3	130,765.8 /a 382.0 /a 22.9 /b 508.4
Total Local Cost	US\$ 431.0	157.2	588.2	337.0	296.0	633.0
Total Direct Foreign Costs	US\$ 464.7	107.6	572.3	387.6	253.4	641.0
Total Project	US\$ 895.7	264.8	1,160.5	724.6	549.4	1,274.0

/a Excluding withholdings for taxes on foreign costs payable in TL.

/b Withholdings for taxes on foreign costs payable in TL.

(1858P)

## TURKEY

## LOAN 1844-TU

## KARAKAYA HYDROPOWER PROJECT

Tentative Foreign Exchange Financing Plan  
(In millions)

		1983 and Before	1984	1985	1986	1987	1988	Subtotal 1984-88	Total
<b>Existing Loans:</b>									
IBRD Loan 1844-TU - Highway Relocation & Civil Works	US\$	49.4	42.1	27.2	1.3	-	-	70.6	120.0
EIB (ECU 85m) - Civil Works		43.0	16.5 /a	17.1 /a	-	-	-	33.6 /a	76.6
Italian Government Loans - Civil Works		23.7	36.3	-	-	-	-	36.3	60.0
Swiss Loans - Civil Works (SwF 27.1m)		16.8	-	-	-	-	-	-	16.8
Turkish Funds - Civil Works		5.9	-	-	-	-	-	-	5.9
Total - Relocation and Civil Works	US\$	138.8	94.9	44.3	1.3	-	-	140.5	279.3
Swiss Loans - Turbines & Electrical Equipment (SwF 464.4m)		237.6	-	-	-	-	-	-	237.6
- Engineering Services (SwF 12.9 + 2.7 = 15.6m)		6.9	1.2 /b	-	-	-	-	1.2 /b	8.1
Turkish Funds - Engineering Services (SwF 8.6m + US\$0.127m)		4.3	-	-	-	-	-	-	4.3
Total Existing Loans	US\$	387.6	96.1	44.3	1.3	-	-	141.7	529.3
<b>Financing to be Provided:</b>									
IBRD - Civil Works	US\$	-	-	53.3	36.5	1.7	-	91.5	91.5
- Engineering Services (SwF 7.7m) /b		-	-	1.9	1.6	-	-	3.5	3.5
Italian Government - Civil Works		-	-	55.2	38.1	1.7	-	95.0	95.0
Turkish Funds - Civil Works		-	-	-	-	10.0	-	10.0	10.0
- Turbines & Electrical Equipment (SwF 4.6m)		-	-	-	-	1.2	-	1.2	1.2
- Engineering Services (SwF 7.3m)		-	.6 /b	-	.2 /b	2.1 /b	-	2.1 /b	2.1
						1.2 /b	1.4 /b	3.4 /b	3.4
Total Financing To Be Provided	US\$	-	.6	55.2	38.3	16.2	1.4	111.7	111.7
Total Direct Foreign Exchange Costs	US\$	387.6	96.7	99.5	39.6	16.2	1.4	253.4	641.0

/a At January 1, 1984 exchange rate of ECU 1.0 = US\$0.82.

/b At January 1, 1984 exchange rate of US\$1.0 = SwF 2.18.

(1858P)

*Mr. Stern*

Received: 6/18/84  
Comments by c.o.b.: 6/27

THE WORLD BANK  
DECISION MEMORANDUM TRANSMITTAL SHEET

TO: Distribution  
DATE: June 12, 1984  
FROM: James Chaffey, Division Chief, EM2DA Chairperson, Decision Meeting  
COUNTRY/PROJECT: TURKEY - Karakaya Supplemental Loan

Issues Paper Date: April 20, 1984	Decision Meeting Date: May 30, 1984	Loan Committee Date: Sept. 28, 1984	Scheduled Board Presentation Date: Dec. 11, 1984	Yellow Cover Review: Waived <input type="checkbox"/> Not Waived <input checked="" type="checkbox"/>
Estimated Costs: Total: \$1274.0m Foreign: \$ 641.0m	Proposed Loan/Credit Amount: \$95 million	Amount in Approved Lending Program: \$100 million (SAP)	Amount and Source of Co-Financing: Italy \$10-20 million	

1. DECISIONS SOUGHT

2. SPECIAL FEATURES

Special Action Program Project.

The riparian issue will need to be reviewed before Loan Committee, in the light of the results of the model of the Euphrates river flows.

3. SECTOR POLICY ISSUES

(a) List Problem Projects in sector:

There are five problem projects in other sectors and one in the power sector (Afshin-Elbistan Thermal Power Station and Lignite Mine).

(b) List major covenants not in compliance:

(c) List major sector policy issues covered. Use simple descriptions, e.g., prices, staffing, maintenance, etc.

Pricing.

DISTRIBUTION

1. Mr. Stern, SVPO, through RVP *(initial)* (3 copies with Issues Paper and Project Brief)
2. Standard Distribution: *R*  
(Distribution as shown on page 2, of attached memorandum)

## OFFICE MEMORANDUM

DATE June 14, 1984

TO Distribution

FROM Horst Eschenberg, Senior Loan Officer, EM2DA

EXTENSION 3-2854

SUBJECT TURKEY - Supplemental Loan for Karakaya Hydropower Project (Loan 1844-TU)  
Decision Memorandum

1. A Decision Meeting was held on May 30, 1984, chaired by Mr. Chaffey, to discuss the Issues Paper, on the above project, dated April 20, 1984. The meeting was attended by representatives from EMP, EM2 and EGY (see attached attendance list). The recommendations contained in the Issues Paper were approved with modifications and clarifications as described below.

Co-financing

2. Regarding co-financing the mission reported that, while the Government would prefer to have a Bank loan covering the entire additional foreign exchange cost of the project, DSI management saw no difficulty with getting additional cofinancing from Italian sources. Representatives of the Italian Development Cooperation Department had expressed interest in providing additional financing for the project. It was agreed that efforts should be made to obtain cofinancing for the project and that we should inform the Turkish authorities accordingly.

Local Cost Financing

3. It was agreed that the Turkish authorities should be advised of Bank concern about significantly higher levels of local funds being required for completion of the project. Given current constraints on availability of local funds in Turkey, it was agreed that the Bank should not insist on advances into the revolving fund, established under the original loan, covering three months expenditure, but that assurances regarding the supply of local funds should be obtained from the Turkish Government. It was agreed that consideration of some local currency financing may be warranted under the Special Action Program.

Tariffs

4. It was agreed that it would be appropriate to discuss the Government's outstanding action on power sector investment planning and financing in the context of the Bank's discussions on energy strategy, but the recommendation of the Issues Paper that the problem of power tariffs should be addressed in the context of the discussion of the Energy Strategy Paper and SAL V was not accepted. The issue of adequate power tariffs should be addressed under every loan proposed for the sector. Therefore, implications for tariffs of the cash generation covenant agreed under the ongoing Karakaya loan, need to be drawn to the attention of the authorities.

Riparian Issue

5. Project staff explained that consultants are in the process of rerunning the model of the Euphrates river flow and that the issue would be reviewed in the light of the results. In the meantime, it was agreed to continue processing as outlined in Mr. Chaufournier's memorandum to Mr. Stern of April 17, 1984. Copies of the relevant memoranda to and from Mr. Stern are attached.

Archeological Sites

6. Finally regarding the project's impact on archeological sites it was agreed that financing in the order of \$200,000, should be offered to the authorities to help identify and recover valuable archeological artifacts.

Attachments

Cleared with and cc: Messrs. Chaffey (EM2), Reekie, Schroeder (EMP),  
Mejia (EGY).

Distribution

Messrs. Chaufournier, Reitter, Hasan (EMNVP), Picciotto (EMP),  
Stoutjesdijk, Asfour (EM2), Gregory, Dewey, Ljung (EMP),  
Hittmair (CTRVP), K. Jones (EMP), Dherse (EISVP),  
Rajagopalan (PPD)(5), Baneth (EPD)(2), Rovani (EGY)(3),  
Goodland (PPD), Roa (EMP), Roy (EM2), Barahona (LOA),  
Swahn (EDC), Posada, I. Johnson (EMP), Reichelt (EM2).  
Mesdames Krueger (VPERS), Meek-Foote (EMP), Hunt (LEG)(2), El Khatib (EM2).

HEschenberg:zv

Attendance List

TURKEY - Karakaya Supplemental Loan

J. Chaffey	EM2DA
H. Eschenberg	EM2DA
A. Mejia	EGYOP
I. Johnson	EMPPE
L. Meek-Foote	EMPPE
A. Posada	EMPPE
R. Reekie	EMPPE
A. Roa	EMPPE
C. Schroeder	EMPPE

## OFFICE MEMORANDUM

DATE April 13, 1984

TO Mr. E. Stern, SVPOP

FROM R. Chaufourier, Vice-President, EMENA

EXTENSION 3-2676

SUBJECT **TURKEY - Proposed Supplemental Loan to Loan 1844-TU for  
the Karakaya Hydroelectric Project  
International Riparian Issue**

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1. In 1980 the Bank approved Loan 1844-TU to assist with the construction of the Karakaya Hydroelectric Project on the upper basin of the Euphrates River. Additional external financing was provided by Switzerland, EIB and Italy. The project at present faces a foreign currency shortfall, estimated at about US\$100 million, due basically to an increase in the foreign exchange cost of the project and to exchange rate fluctuations which have reduced sharply the value of the EIB loan. After the initial delay of two years, project implementation is now proceeding well and the Bank has been approached for additional financing. A supplemental loan of \$100 million has been included in the proposed FY85 lending program. A recent supervision mission has gathered sufficient information to complete an appraisal. Further Bank involvement is desirable mainly to ensure efficient completion of the project. Upon completion, the project would generate about 7350 GWh per annum, the equivalent of about 1.6 million tons of imported oil, valued at about \$290 million in 1983 prices. The purpose of this memorandum is to bring to your attention the international riparian issue that is likely to be raised again if we proceed with the supplementary project, and our proposals for dealing with it.

2. Karakaya is a non-water consumptive project once the reservoir is filled. It, therefore, does not raise technical questions of long-term sharing of water with the two lower riparians, Syria and Iraq. It does, however, involve the need to ensure that, during the initial filling of the reservoir, the interests of the downstream riparians are not adversely affected. This matter was thoroughly studied during the preparatory stages of Loan 1844-TU, following a request by Iraq for the Bank's good offices to help achieve a just and equitable solution between the riparian countries on the division of the Euphrates waters. Turkey's filling and operational proposals for Karakaya were evaluated by the Bank in 1974 using a simulation model of the Euphrates river which had been developed by consultants. The evaluation showed that if Turkey maintains an average discharge of at least 500 m<sup>3</sup>/sec, as the Euphrates passes from Turkey into Syria near Birecik, this would ensure that:

- (a) the existing requirements of downstream riparians for power generation and irrigation, including reasonable growth in these requirements during 1975-1985, would be met;
- (b) the Karakaya reservoir could be filled within a period of three to seven months, depending on the point in time in the year filling starts; and

- (c) the Turkish hydroelectric power plants on the Euphrates (Keban, upstream of Karakaya, and Karakaya) could be operated for maximum energy output.

3. In 1979, Turkey's Minister of Energy stated officially to Parliament that during construction, initial filling and operation of Karakaya, the monthly average flow of the Euphrates waters would not fall below 500 m<sup>3</sup>/sec at Birecik; any shortfalls in any monthly average would be made up in the next month. He also announced that this "Rule of 500" would be adhered to by Turkey unless abnormal hydro-meteorological conditions existed, and as long as Turkey had not developed a project involving large consumptive use of the Euphrates waters in its territory. Turkey also formally represented to the Bank that for the purpose of Loan 1844-TU, the Bank could rely on this policy statement regarding the international riparian aspects of the project. Since consumptive use was limited to initial filling of the Karakaya reservoir, and since in the opinion of the Bank, the "Rule of 500" agreed upon by Turkey would adequately protect the downstream riparians, the Bank considered, in accordance with OMS No. 2.32, para. 4(c), that it was appropriate to participate in the financing of the project. The loan was approved on May 15, 1980.

4. On May 20, 1980 the Bank received a telex from the Iraqi authorities requesting the Bank to consider deferring financing of the Karakaya project until equitable agreement was reached amongst the riparian countries involved, on the use of the Euphrates waters. In a telex dated May 30, 1980, the Bank maintained its position on the grounds that it had received no substantiated and quantified comments from Iraq on the proposed "Rule of 500" <sup>1/</sup>. By telex dated June 11, 1980, Iraq reiterated its objections to the project. Moreover in a telex dated June 8, 1980 to their Executive Director in the Bank, the Syrian authorities objected to Bank financing of projects on the Euphrates in Turkey before a treaty on sharing the river waters between the riparian countries had been concluded. The Bank responded by referring to the relevant sections in the President's and Staff Appraisal Reports. On August 22, 1981, Iraq communicated further objections to the financing of Karakaya until a final agreement was reached among the riparian countries on the sharing of the Euphrates waters. The Bank's answer (December 29, 1981) questioned the soundness of the technical objections presented by Iraq, but acknowledged that the riparian problem had reached a stage where no meaningful technical analysis could be carried out by the Bank without a firming up of the data by the riparian countries concerned. The Bank stated that no Bank initiative could substitute for direct tripartite talks between the three riparian countries. The Bank expressed anew its willingness to provide technical assistance if all three riparians requested it.

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<sup>1/</sup> The telex of May 30, 1980 was not as clear as it might have been in stating that observance of the "Rule of 500" is important only during the initial filling of the reservoir as the project consumes water only during this stage. Lines 16 through 19 read — ".....we determined that as Karakaya is not a water consumptive project, the interest of downstream riparians, including Iraq, would be protected during reservoir filling and after if reservoir is operated under rule of 500....."

5. To date Turkey has observed the "Rule of 500". However, contracts have recently been awarded for the civil works for the construction of the Ataturk dam on the Euphrates river downstream of Karakaya. This is to be a large multi-purpose project for power and irrigation and hence potentially a large consumptive user of the Euphrates waters in the sense indicated in Turkey's 1979 official statement. However, the Ataturk dam is not expected to be completed before the early 1990s (and could be much later), about seven or eight years after the projected completion of the filling of the Karakaya reservoir, which is now scheduled for 1986/87.

6. The Legal Department has examined the issue (see attached memorandum) and suggests that since work has commenced on the Ataturk project, Turkey may no longer consider itself obligated to observe the "Rule of 500", since the commitment was conditional (i.e. "until such time as Turkey develops a project involving large consumptive use of the Euphrates waters in its territory"). The Legal Department goes on to propose that the technical data should be updated to assure that the conclusions remain valid.

7. We are, therefore, proposing to do the following:

- (i) update the data and analysis on which the "Rule of 500" was based. We consider it likely that this will show that the "Rule of 500" is still appropriate. Updating is expected to take about two months; and
- (ii) upon completing the updating, ask the Turkish authorities to give assurances that they will adhere to the "Rule of 500," or such other rule as the analysis may suggest, until the initial filling of the Karakaya reservoir has been completed.

8. Provided we obtain this commitment from Turkey I am satisfied that the Karakaya project will not be harmful to the interests of the other riparians. This is the position we would take if objections were raised by the other riparians. Do you agree?

**Attachment**

Cld. with and cc: Messrs. Hassan (LEG), Reekie (EMP)  
cc: Messrs. Hussain (OPSVP), Shihata (VPG), Stoutjesdijk (EM2), Picciotto,  
Finzi (EMP), Chaffey (EM2), Fish (EGY), Eschenberg (EM2),  
Posada (EMP)  
Ms. Hunt (LEG)

APosada/HEschenberg/JChaffey:zv



# Record Removal Notice

<b>File Title</b> Turkey - Karakaya Hydropower Project - Loan Committee Project File		<b>Barcode No.</b>  1059570		
<b>Document Date</b> 02 March, 1984	<b>Document Type</b> Memorandum			
<b>Correspondents / Participants</b> To: Mr. James Chaffey, Division Chief, EM2DA and Mr. Robert Reekie, Division Chief, EMPPE From: Elizabeth Hunt, Counsel, LEGEM (through Mr. Sherif O. Hassan, Chief Counsel)				
<b>Subject / Title</b> TURKEY - Proposed Supplemental Loan for the Karakaya Hydroelectric Power Project; the Euphrates Riparian Issue				
<b>Exception(s)</b> Attorney-Client Privilege				
<b>Additional Comments</b>		The item(s) identified above has/have been removed in accordance with The World Bank Policy on Access to Information or other disclosure policies of the World Bank Group.		
		<table border="1"><tr><td><b>Withdrawn by</b> Sherrine M. Thompson</td><td><b>Date</b> June 27, 2022</td></tr></table>	<b>Withdrawn by</b> Sherrine M. Thompson	<b>Date</b> June 27, 2022
<b>Withdrawn by</b> Sherrine M. Thompson	<b>Date</b> June 27, 2022			

THE WORLD BANK INTERNATIONAL FINANCE CORPORATION  
OFFICE MEMORANDUM

DATE: April 19, 1984

TO: Mr. Roger Chaufournier, RVP, EMENA

FROM: Ernest Stern, SVP, Operations *ES*

SUBJECT: TURKEY: Karakaya Hydroelectric Project Supplemental Loan  
International Riparian Issue

I agree that we should first update the data and analysis on which the "Rule of 500" was based and that we then seek an assurance from the Turkish authorities that they will adhere to that rule if still valid, or such other rule as the analysis may suggest.

Before we seek such assurances we should, however, be satisfied that the standard conditions for financing cost overruns are met, in particular (i) that the Government is unable to finance the additional costs or to obtain additional contributions on satisfactory terms from other lenders, and (ii) that the causes of the overrun are due to exceptional circumstances beyond the control of the Government.

cc: Messrs. Husain, Shihata, Picciotto, ~~Chaffey~~

6/27

COUNTRY OPERATIONAL DATA

COUNTRY: TURKEY GNP PER CAPITA: 1330 TERMS: 4/17  
 LAST CPP: 08/09/83 LOCAL COSTS FINANCING: NO  
 COST SHARING BANK: % EXTERNAL: %

	FY84		FY85		FY86		FY87		FY88		TOTAL	
	BANK	IDA	BANK	IDA								
\$MILLIONS	794		730		800		850		850		4024	
NUMBER	6		5		6		7		6		30	

APPROVED THRU 05/31 BY LOAN COMMITTEE 2 YEAR PROGRAM (REVIEW GROUP)  
 -\$MILLIONS IBRD IDA IBRD IDA  
 -NUMBER 6 6 1280.0

## FY84-85 COUNTRY LENDING PROGRAM

FISCAL YEAR	PROJECT	NAME	DEC. SUBMITTED	MEMO BY LC	APPRVD BOARD APPROVAL	IBRD	IDA
FY84							
	5TUREE04	INDUSTRIAL TRAINING	YES	YES	3/27/84A	36.8	
	5TURIY01	TECH.ASST.TO SEES	YES	YES	3/27/84A	7.6	
	5TURAR01	AGR.EXTN.& APPLD.RESRCH.	YES	YES	4/17/84A	72.2	
	5TURAI05	IAEE IRRIGATION	YES	YES	6/05/84A	115.3	
	5TURIH03	HIGHWAYS II	YES	YES	6/07/84A	186.4	
	5TURMY02	SAL V	NO	YES	6/14/84A	376.0	
	SUBTOTAL					794.3	
FY85							
	5TURPH09	KARAKAYA SUP.(SAP)	YES	NO	12/11/84	110.0	
	5TURAA01	AGR.SECTOR LOAN I	NO	NO	2/26/85	300.0	
	5TURPH10	HYDROPOWER(SIR DAM)	NO	NO	4/01/85	120.0	
	5TURPP05	ELBISTAN SUP	NO	NO	4/01/85	100.0	
	5TURDS03	SYKB (LAB.INT.IND)	NO	NO	6/01/85	100.0	
	SUBTOTAL					730.0	
	TOTAL					1524.3	

## OFFICE MEMORANDUM

DATE April 20, 1984

TO Mr. A. Roa, Acting Division Chief, EMPPE

FROM C. Schroeder and A. Posada, EMPPE

EXTENSION 32604 and 32610

SUBJECT TURKEY - Supplemental Loan for Karakaya Hydro-  
power Project (Loan 1844-TU)  
- ISSUES PAPER

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1. In accordance with terms of reference dated February 23, 1984, we visited Turkey during the period March 18 - April 2, 1984 to reappraise the Karakaya Hydropower Project in preparation of a Supplemental Loan which would be made during FY85 as part of the Bank's Special Action Program. The information obtained during the mission makes it possible to process the Supplemental Loan in accordance with the attached timetable (Annex 1) on the basis of a President's Memorandum (rather than a President's Report and Appraisal Report) as for other, similar financing operations (e.g., Loan 1561 YU - 1983; Loan 879 NI - 1975).

2. The Project (construction of an 1800 MW hydropower dam) and sectoral context have been described in detail in the Project Brief of January 27, 1984. During our mission we found that organization of construction, available construction equipment and implementation program are now excellent and that it should be possible to meet the current construction schedule, which calls for the start of reservoir impounding in May 1986, without major problems provided the very important TL funds needed for the project during the next 24 months will be available as required.

#### Issues and Recommendations

3. The following issues affecting the project require decisions:
- (i) financing plan, co-financing and supplemental loan amount;
  - (ii) international riparian issue;
  - (iii) project impact on archeological sites;
  - (iv) sectoral issues.

#### Financing Plan, Co-financing and Supplemental Loan Amount

4. The latest project cost estimate leaves an estimated foreign exchange funding shortfall of US\$111.7 million, including US\$102.7 million for relocation (highway, railroad) and civil works (Annex 2, page 1). Since the precise amount of the additional foreign exchange funds required to complete the project will depend on the extent to which the assumed physical and price contingencies will materialize and also on the exchange rates which will

prevail at the time of disbursement of the existing loans, it seems appropriate that the Bank should finance only a portion of the shortfall, the balance (which may or may not be fully required) being covered by an additional stand-by credit facility from the Italian Government and/or by Turkish Government funds. The Italian Government has already made available facilities amounting to US\$60 million for the civil works contract with the Italian contractors and is likely to agree to an additional facility of another US\$10-20 million. However, the Turkish Treasury has indicated that it would prefer the Bank to provide the additional financing required for the project in its entirety, and without recourse to any of the other co-financiers.

5. The latest cost estimates also show (Annex 2, page 3) that very important local (TL) funds will be required for the project during 1984 and 1985, far in excess of the funds required in previous years. The representatives of the various government agencies (DSI, SPO, Treasury) with whom the availability of local funds was discussed, all assured the mission that the funds required for the project would be made available as needed (by reallocation from other projects and out of a special fund "for the acceleration of investment projects"), but in light of the budget restrictions agreed between Turkey and the IMF there remains, nevertheless, some doubt whether local funds can be made available for the project in 1984 and 1985 to the extent required. Compared with actual 1983 TL expenditures reported by DSI as TL 12.2 billion (and by SPO as TL 9.3 billion after an initial SPO 1983 budget of TL 13.5 billion), the SPO budget for 1984 provides for only TL 4 billion local expenditures, whereas according to the latest project cost information obtained from DSI, local costs for 1984 are expected to amount to a total of TL 37.4 billion. While there may be some flexibility in the payments arrangements between DSI and other government agencies with regard to the TL costs of some of the items included in the TL 37.4 billion, such as highway and railway relocation work or of land appropriation and resettlement, this flexibility does not exist in the case of the cost of the civil and hydraulic works, estimated at TL 19.4 billion for 1984. It was for this reason that the Bank provided for the establishment of a Revolving Fund equal to three months' TL requirements in the Karakaya Loan Agreement (Loan 1844-TU, Section 3.01 (a) and (b)), but this fund now receives only sporadic credits and generally has a nil balance. While so far payments to the civil and hydraulic works contractor and engineering consultants have generally been made within contractual conditions, the monthly TL funding requirements for the civil and hydraulic works will increase rapidly now that dam concreting has started and are expected to triple between now and the end of the year. Should the TL funds available in 1984 for the civil and hydraulic works remain limited to those actually expended during 1983, and the contractor not be paid for his work, this could lead to a suspension of work and the project could be in serious jeopardy. It is not possible to foresee by how much the project could be delayed in this eventuality.

#### Recommendation

6. The mission recommends that the Turkish Government be informed that the Bank would be prepared to process a supplemental loan of US\$95 million for the project if the Government can provide formal assurances (possibly tied to

tranche release under SAL V) that it will be able to provide the local funds required for the project as and when needed, and if agreement can be reached on the following foreign exchange financing plan (for further details, see Annex 2):

	<u>Foreign Exchange Financing Plan</u>			
	<u>IBRD</u>	<u>Italian</u>	<u>Turkish</u>	<u>Total</u>
		<u>Gov't.</u>	<u>Gov't.</u>	
		<u>(US\$ Millions)</u>		
<u>Financing Gap for:</u>				
Relocation, Civil & Hydraulic Works	91.5	10.0	1.2	102.7
Turbines, Electrical Equipment	-	-	2.1	2.1
Engineering Services	3.5	-	3.4	6.9
Total	<u>95.0</u>	<u>10.0</u>	<u>6.7</u>	<u>111.7</u>
	====	====	===	=====

This financing plan implies that the Loan Agreement would be amended to provide for financing of up to 100% of foreign civil works expenditures (presently 45%) and of a portion of the existing foreign engineering services contract (presently not covered under the Loan Agreement).

#### International Riparian Issue

7. This issue has been addressed in a separate paper (memo R. Chaufournier to E. Stern dated April 13, 1984).

#### Environmental Matters - Project Impact on Archeological Sites

8. Although our information at the time of the original appraisal of the Karakaya Project was that there were no significant archeological sites in the area which will be flooded as a result of the project, the mission has been informed that there are presently several sites which are still being actively explored, some dating back to the 4th Millenium B.C. (Ur civilization), which will be submerged and which, according to the Middle East Technical University official responsible for coordinating the salvaging work, include artifacts which would be worth saving. Salvaging progress has been slow because available local funds are limited, but it seems that the flow of the local funds and the salvaging efforts could be speeded up in case of cooperation with an international organization such as the World Bank. While the Turkish Treasury has indicated informally that it sees no need for any Bank financing for this purpose, the responsible university officials have expressed great interest.

#### Recommendation

9. In view of the very limited time (less than three years) which remains before the archeological sites will be flooded, the mission recommends that the Turkish Government be:

- (a) requested to make available the relatively limited means needed to speed up salvaging operations in the dam area;
- (b) informed that the Bank would be prepared to make available an amount of, say, US\$200,000 (roughly corresponding to the lower Euphrates basin archeological salvaging budget for one year) out of the existing or supplemental loan to assist in these efforts.

#### Sectoral Issues

10. As mentioned in the Project Brief of January 27, 1984, Sections 4.05 and 4.06 of the Karakaya Loan Agreement which provide for the study and subsequent implementation of improvements of (a) the financial aspects related to the development of the power sector in Turkey and (b) the coordination of the development and investment plans of TEK, DSI and TKI have only been partially fulfilled so far. Similarly, TEK is experiencing difficulties in meeting the cash generation requirements for the power sector (Section 4.08 of LA 1844-TU) which were last discussed with the Turkish Government in 1983 in connection with the Third Transmission Loan to TEK (Loan 2322-TU). The preliminary results for 1983 indicate that the internal cash generation target for 1983 of 12% was met, but only because the covenanted monitoring formula permits the inclusion of working capital reductions resulting from increases of current liabilities. Present forecasts are that the target for 1984 of 21% will be reached only if an additional electricity rate increase of 20-30% is implemented in mid-1984.

#### Recommendation

11. Since the Bank will shortly discuss with the Turkish Government a Bank report on Electricity Planning and Investment in Turkey (Yellow Cover Report No. 5031-TU of March 30, 1984) and an Energy Sector Strategy Paper (Draft Report No. 4973-TU, February 29, 1984), which will be an appropriate framework for further dialogue on the sectoral issues covered in Sections 4.05, 4.06 and 4.08 of the Karakaya Loan Agreement, it is recommended that these issues be pursued in the context of these discussions and of SAL V rather than as part of the negotiations of the Karakaya Supplemental Loan.

cc: Messrs. Chaufournier, Picciotto, Stoutjesdijk, Hasan, Gregory, Finzi, Chaffey (4), Eschenberg, Elliott, K. Jones, Rajagopalan (PAS-8), Rovani (5), J. E. Lee, Goodland, Reekie, Roa, Barahona (LOA), Swahn (EDC), Prosser, Posada, I. Johnson, Schroeder  
Mmes. Hunt (LEG), El Khatib, El Saifi

EMENA, Division & Chron. Files

CJSchroeder/aci  
(1215P)

Form 711  
Rev. May 80

## EPCRA REGION PROJECT PROCESSING SCHEDULE

Country: TURKEY Project: KARAKAYA SUP. (SAP) As of: April 1984  
 Loan Officer: H. Eschenberg Project Officer: Schroeder/Posada

Action	Normal elapsed time *** (Working Days)	Month/Day/Year
1. Departure of Appraisal Mission		* 03/18/84
2. Return of Appraisal Mission		* 04/16/84
3. Circulation** of Issues Paper	Min. 5 days after No. 2	04/20/84
4. Decision Meeting	Min. 5 days after No. 3	05/23/84
5. Circulation** of Decision Memo (Including Decision on Responsibility for Project and Sector Sections of President's Report)	3 days after No. 4 /a	* 05/31/84
6. Draft (white) SAR to Programs & Legal	15** 21 days before No. 5	-NA
7. First Draft of President's Report, Project and Sector Sections	8 days before No. 5	08/14/84
8. Circulation of Yellow SAR and updated President's Report, Project and Sector Sections		* 08/24/84
9. First Draft Legal Document to Region	4 days after No. 8	08/30/84
10. Review of SAR and PR Project and Sector Sections	6 days after No. 8	09/04/84
11. "Change List" (or green) cleared by Projects and Circulated** to Programs (plus PR Project and Sector Sections, when drafted by Projects)	17 days after No. 8	09/11/84
12. LC Package to Projects Director	15 days after No. 8	09/18/84
13. LC Package to Programs Director	18 days after No. 8	09/20/84
14. LC Package to Regional Vice President	21 days after No. 8	09/25/84
15. Documents to Loan Committee	24 days after No. 8	* 09/28/84
16. Notice of Intention to negotiate	Min. 3 days after No. 15	10/03/84
17. Invitation to negotiate	Min. 3 days after No. 16	* 10/09/84
18. Start Negotiations		* 10/15/84
19. End Negotiations	5 days after No. 18	10/19/84
20. Draft (buff) SAR to Programs & Legal	8 days after No. 19	10/31/84
21. Final Agreement		* 11/09/84
22. Final Documents to Programs Director****	Min. 24 days before No. 21	11/05/84
23. Final Documents to Regional VP****	Min. 19 days before No. 21	11/12/84
24. Final Documents to VTO****	Min. 17 days before No. 21	11/14/84
25. Final Documents to Board	Min. 13 days before No. 21	11/20/84
26. Board Presentation		* 12/11/84

\* Date must match F&B Timetable (Form No. 47).  
 \*\* Circulation means in the hands of interested recipients.  
 \*\*\* Underlined if mandatory, otherwise use as guideline only.  
 \*\*\*\* Add one day when item 25 is in the 4th Quarter of FY

Key Interval:  
 Return AM (no. 7) to  
 Distribution of Yellow SAR (no. 8)

/a Expected delay due to mission travel.

TURKEY

LOAN 1844-TU

KARAKAYA HYDROPOWER PROJECT

Tentative Foreign Exchange Financing Plan  
(In millions)

		<u>1983 and</u>					<u>Subtotal</u>	
		<u>Before</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1984-88</u>	<u>Total</u>
<u>Existing Loans:</u>								
IBRD Loan 1844-TU - Highway Relocation & Civil Works	US\$	49.4	42.1	27.2	1.3	-	70.6	120.0
EIB (ECU 85m) - Civil Works		43.0	16.5 /a	17.1 /a	-	-	33.6 /a	76.6
Italian Government Loans - Civil Works		23.7	36.3	-	-	-	36.3	60.0
Swiss Loans - Civil Works (SwF 27.1m)		16.8	-	-	-	-	-	16.8
Turkish Funds - Civil Works		5.9	-	-	-	-	-	5.9
<b>Total - Relocation and Civil Works</b>	<b>US\$</b>	<b>138.8</b>	<b>94.9</b>	<b>44.3</b>	<b>1.3</b>	<b>-</b>	<b>140.5</b>	<b>279.3</b>
Swiss Loans - Turbines & Electrical Equipment (SwF 464.4m)		237.6	-	-	-	-	-	237.6
- Engineering Services (SwF 12.9 + 2.7 = 15.6m)		6.9	1.2 /b	-	-	-	1.2 /b	8.1
Turkish Funds - Engineering Services (SwF 8.6m + US\$0.127m)		4.3	-	-	-	-	-	4.3
<b>Total Existing Loans</b>	<b>US\$</b>	<b>387.6</b>	<b>96.1</b>	<b>44.3</b>	<b>1.3</b>	<b>-</b>	<b>141.7</b>	<b>529.3</b>
<u>Financing to be Provided:</u>								
IBRD - Civil Works	US\$	-	-	53.3	36.5	1.7	91.5	91.5
- Engineering Services (SwF 7.7m) /b		-	-	1.9	1.6	-	3.5	3.5
Italian Government - Civil Works		-	-	55.2	38.1	1.7	95.0	95.0
Turkish Funds - Civil Works		-	-	-	-	10.0	10.0	10.0
- Turbines & Electrical Equipment (SwF 4.6m)		-	-	-	-	1.2	1.2	1.2
- Engineering Services (SwF 7.3m)		-	.6 /b	-	.2 /b	2.1 /b	2.1 /b	2.1
						1.4 /b	3.4 /b	3.4
<b>Total Financing To Be Provided</b>	<b>US\$</b>	<b>-</b>	<b>.6</b>	<b>55.2</b>	<b>38.3</b>	<b>16.2</b>	<b>111.7</b>	<b>111.7</b>
<b>Total Direct Foreign Exchange Costs</b>	<b>US\$</b>	<b>387.6</b>	<b>96.7</b>	<b>99.5</b>	<b>39.6</b>	<b>16.2</b>	<b>253.4</b>	<b>641.0</b>

/a At January 1, 1984 exchange rate of ECU 1.0 = US\$0.82.

/b At January 1, 1984 exchange rate of US\$1.0 = SwF 2.18.

TURKEY

LOAN 1844-TU

KARAKAYA HYDROPOWER PROJECT

Direct Foreign Exchange Costs  
(In millions)

		1983 and Before	1984	1985	1986	1987	1988	Subtotal 1984-88	Total
1. Highway Relocation:									
Base Line Cost	US\$	.3	2.0	3.0	1.2	-	-	6.2	6.5
Physical Contingencies (8%)		-	.2	.2	.1	-	-	.5	.5
Price Contingencies /a		-	-	-	-	-	-	-	-
Total Contract	US\$	.3	2.2	3.2	1.3	-	-	6.7	7.0
2. Civil Works Contract (Contract No. 1):									
Base Line Cost /b	US\$	124.9	101.7	92.5	31.6	10.7	-	236.5	361.4
Physical Contingencies /b		-	9.2	8.5	3.4	1.2	-	22.3	22.3
Price Contingencies /c		124.9	110.9	101.0	35.0	11.9	-	258.8	383.7
Advance Payments		-	2.3	6.4	3.7	1.8	-	14.2	14.2
Less: Withholdings for Taxes (Payable in TL) /d		124.9	113.2	107.4	38.7	13.7	-	273.0	397.9
Total Contract (Net)	US\$	22.3	(14.9)	(7.4)	-	-	-	(22.3)	-
3. Turbines, Electrical Equipment									
Base Line Cost	SwF	464.4	-	-	-	-	-	-	464.4
Physical Contingencies (1%)		-	-	-	-	4.6	-	4.6	4.6
Price Contingencies /a		-	-	-	-	-	-	-	-
Total - Contracts Nos. 2 and 3	SwF	464.4	-	-	-	4.6	-	4.6	469.0
4. Engineering Services									
Base line Cost (incl. addendum under negotiation)	SwF	21.7	3.7	3.9	3.8	2.6	2.9	16.9	38.6
Physical Contingencies (5%)		-	.2	.2	.2	.1	.1	.8	.8
Price Contingencies /a		-	-	-	-	-	-	-	-
Total	SwF	21.7	3.9	4.1	4.0	2.7	3.0	17.7	39.4
	US\$	11.2 /e	1.8	1.9	1.8	1.2	1.4	8.1 /f	19.3
Total Direct Foreign Exchange Costs	US\$	387.6	96.7	99.5	39.6	16.2	1.4	233.4	641.0

/a Fixed contract price.

/b For details, see working paper file.

/c At contract formula (contract price x evolution of CPI x 0.9) - 1984: 2.3% x 0.9 = 2.07%; 1985: 7.0% x 0.9 = 6.3%; 1986: 11.9% x 0.9 = 10.71%; 1987: 17.0% x 0.9 = 15.3%. (Based on U.S. Government Council of Economic Advisors projections of 4.6% p.a. for 1985-86 and 4.5% for 1987.)

/d Actual up to December 31, 1983: 5.92%; projected 1984-87: 5.65%.

/e At historical average exchange rates for the years in which the costs were incurred.

/f At January 1, 1984, exchange rate of US\$1 = SwF 2.18.

TURKEY  
 LOAN 1844-TU  
 KARAKAYA HYDROPOWER PROJECT  
 Local (TL) Project Costs /a  
 (In millions)

		1983 and Before	1984	1985	1986	1987	1988	Total
1. Access Road, Permanent Village, Railway and Highway Relocation	TL	7,601.7	7,503.2	7,686.5	279.6	196.4	-	23,267.4
2. Civil and Hydraulic Works /b		7,720.3	19,435.5	22,043.3	9,790.6	4,363.6	-	63,353.3
3. Turbines, Electrical Equipment		432.5	37.1	7.2	8.4	1.7	-	486.9
4. Engineering, Administration		3,260.7	685.1	940.5	965.4	736.6	625.7	7,214.0
5. Land Appropriation, Human Resettlement		12,633.0	9,703.1	11,885.2	2,222.9	-	-	36,444.2
Total (1-5) - TL	TL	<u>31,648.2</u>	<u>37,364.0</u>	<u>42,562.7</u>	<u>13,266.9</u>	<u>5,298.3</u>	<u>625.7</u>	<u>130,765.8</u>
- US\$ Equivalent	US\$	<u>328.3</u>	<u>119.2</u>	<u>116.5</u>	<u>32.9</u>	<u>12.0</u>	<u>1.2</u>	<u>610.1</u>
6. Withholding for Taxes on Foreign Costs Payable in TL		8.7	5.6	5.6	2.2	.8	-	22.9
Total Local (TL) Project Costs	US\$	<u><u>337.0</u></u>	<u><u>124.8</u></u>	<u><u>122.1</u></u>	<u><u>35.1</u></u>	<u><u>12.8</u></u>	<u><u>1.2</u></u>	<u><u>633.0</u></u>

/a Local Project costs include physical and price contingencies. Price contingencies are based on the following inflation estimates:

TL - 25% for 1984; 20% for 1985; 15% p.a. thereafter.

US\$ - 4.6% p.a. for 1984-86; 4.5% p.a. thereafter (U.S. Government Council of Economic Advisors).

/b Price contingencies for the Civil and Hydraulic Works Contract are based on the contract formula (contract price x evolution of CPI x 0.9), taking into account the inflation rates in note (a).

April 1984  
 (1215P)

Sector : Power Date This Brief: January 27, 1984  
Project Code : 5TURPH09 Date Last Brief: N.A.  
Appraisal Date : 06/00/84 Loan Officer : H. Eschenberg  
Project Officer: A. Posada/C. Schroeder Power Adviser : J. J Fish

TURKEY

KARAKAYA SUPPLEMENTAL LOAN

Project Brief

MANAGEMENT SUMMARY

i. Turkey's economy is energy constrained; it is deficient in the supply of hydrocarbons from domestic sources but has considerable hydropower potential and extensive lignite deposits. The further development of these indigenous energy resources constitutes the core of Turkey's energy policy in its drive to reduce as much as possible reliance on imported fuel. In tune with this policy Turkey has actively studied plans for the development of the Euphrates Basin since 1962, and formulated projects for irrigation and water power using the waters of this international river. Three main hydropower projects are included in these plans, Keban, Karakaya, and Ataturk. Karakaya represents the second stage--after Keban (completed in 1983)--in the basin development program and like Keban does not involve abstraction of water from the river except for initial filling of the reservoir.

ii. The Bank's knowledge of the Turkish Power Sector can be considered adequate, and is fully described in a number of documents. The salient features of the sector are: inability to fully meet electricity demand at least until 1990; inefficiency in public sector organizations involved in the development and operation of the Turkish Power System; shortage of competent professional staff; inappropriate lignite and power pricing; heavy dependence on imported hydrocarbons; and inefficient investment program implementation. The Bank has endeavoured to address these sectoral and institutional problems through 6 loans and a technical assistance grant (five other loans were for projects in a private group concession), and IDA has granted three credits. Bank efforts have focussed on broad institutional policy actions on organization, integration of the power sector, and the introduction of accepted utility practices. In this context, the Bank has played a significant role in the consolidation of the power sector and in the creation of a national electric power authority. While progress has been made in some areas, overall improvement of the sector has been slow. Nevertheless, all distribution facilities are now being taken over by the national electric power authority (TEK), thus completing the consolidation of the sector under a single entity.

iii. The project involves the construction of an 1,800 MW hydropower dam downstream of Keban. It was appraised in 1976 and reappraised in 1979. A loan for US\$120 million was approved in 1980. Current plans are to complete the project in 1987. The major excavation work is now finished and placing of concrete for the arch-gravity dam is underway. All equipment has been manufactured and is at the project site.

iv. On the basis of an updated project cost estimate and a careful review of the construction schedule it is estimated that the foreign exchange funding has a US\$101.5 million shortfall. Furthermore, the foreign currency disbursement schedule for civil and relocation works, which represents the largest part of this shortfall (US\$93.5 million), indicates that foreign loans currently available will run out by the end of 1984. New funding arrangements will therefore have to be developed during 1984 in order not to cause delays in the construction of the project. A satisfactory mechanism must also be found for a regular and timely flow of local funds for the project.

v. Prior to loan approval in 1980, the Turkish Government issued a statement regarding Turkey's filling and operating proposals for Karakaya, which had been evaluated by the Bank through a model study and found adequate. Although Syria and Iraq disagreed and made their views known to the Bank, which commented thereon, it was felt nevertheless that both countries' riparian rights were protected as far as Karakaya was concerned by the above indicated statement, and the loan was approved. However, a new development has taken place since that time which involves the decision by Turkey to proceed with the construction of the Ataturk dam downstream of Karakaya, which will make heavy use of Euphrates waters for irrigation. Although Bank participation in the financing of this very large project is not under discussion at this time, its impact on the rights of the downstream riparian states would be reviewed during the proposed appraisal of the Karakaya supplemental loan.

vi. Resettlement of the population affected by the construction of the project and the reservoir filling is underway in accordance with a resettlement plan and implementation schedule submitted to the Bank. Nevertheless, this issue will be reviewed during appraisal to assure that resettlement will be completed in time before the planned commencement of reservoir filling operations.

vii. The existing loan agreement calls for Government measures to strengthen the finances for power subsector development and the procedures for integrated investment planning and coordination. The forthcoming discussions with the Turkish Government of an Energy Sector Strategy paper in connection with the preparation of SAL V and the proposed review of the public investment program would be an appropriate framework for further dialogue on these issues; it is recommended that any action plans which may result from this dialogue be monitored in the context of SAL V rather than supervision of the Karakaya project.

viii. A mission is scheduled for March 1984 to check progress in the preparation of an updated capital cost estimate and investment schedule, and to firm up the current timetable for appraisal in June 1984 and Board presentation in February 1985. A US\$100 million supplemental loan for Karakaya is shown in the FY85 lending program.

## A. SECTORAL CONTEXT

### Sectoral Development Issues, Objectives, and Strategy

1. The Bank's knowledge of the Turkish Power sector is adequate. The sector is fully described and discussed in the following documents:

- Energy Sector Strategy Paper, Yellow Cover, to be issued January 1984;
- TEK Transmission Project III, SAR, May 31, 1983;
- Issues and Options in the Energy Sector, Blue Cover, March 1983;
- Electric Power Subsector Study, Green Cover, February 19, 1982; and
- Public Sector Investment Review - The Energy Sector, March 2, 1981.

The salient features of the Power Sector are: inability to meet electricity demand at least until 1990; inefficiency in public sector organizations involved in the development and operation of the Turkish power system; shortage of competent professional staff; inappropriate lignite and power pricing; heavy dependence on imported hydrocarbons; and inefficient investment program implementation.

2. The optimum utilization of indigenous energy resources to reduce Turkey's heavy dependence on imported hydrocarbons is a major Government policy objective. As the core of this policy, Turkey is endeavouring to develop further its considerable hydropower potential and extensive lignite deposits. These resources are located inconveniently from a logistic point of view, being mostly in the eastern part of the country while demand is mainly concentrated in the urbanized western part of Turkey. Because of delays in its energy investment program, demand for electricity is likely to exceed available supply well into the 1990s; urgent remedial action is required to reduce the energy deficit as much as possible. It is planned that power sector development beginning in the mid-1990s will depend heavily on nuclear energy. Apart from measures to develop other indigenous energy resources like geothermal, and to restrain the pace of hydrocarbons demand through appropriate pricing and conservation, the Government plans to expand petroleum exploration activities through joint-venture efforts in collaboration with international oil companies. However, Turkey is unlikely to accomplish its proclaimed objective of meeting 60% of the hydrocarbons demand from domestic sources during this decade, unless sizeable new reserves are discovered in the near future. The heavy bill for imported oil, and the prolonged power shortages because of unmet power plant implementation targets, makes energy supply one of the most critical factors constraining the growth of Turkey's economy.

### Sectoral Organization

3. The energy sector in Turkey is characterized by the predominance of government-owned enterprises and agencies. The Turkish Coal Enterprise (TKI), the Turkish Petroleum Company (TPAO), and the Mineral Research Institute (MTA) have responsibility for the extraction of fossil fuels and radio-active minerals. The development of hydroelectric resources is entrusted to the General Directorate of State Hydraulic Works (DSI). The Turkish Electricity

Authority (TEK) is responsible for the generation, transmission and, since November 1982, the distribution of almost all the electricity sold in Turkey. TEK is also responsible for implementing the Government's rural electrification program, and the construction of generating and transmission facilities with the exception of hydroelectric schemes for which DSI has responsibility.

4. Participation of the private sector in the supply of electricity is confined to two small utilities (CEAS and KEPEZ) and to selfproducers which generate electric power often in conjunction with process steam.

#### Demand Growth

5. During 1965-1970 the growth in power consumption which averaged 12% per annum, rose in 1976 to 19% and subsequently declined sharply to only 5% in 1980. Nevertheless, in 1981 and 1982 power consumption at the bulk level increased at average annual rates of 8.5% and 7.2% respectively, reaching 25,905 GWh in 1982. It is estimated that access to electricity rose from 51% to 75% between 1970 and 1979, while gross per capita electricity consumption increased from 240 kWh in 1970 to 550 kWh in 1980, at an annual rate of 9%. The development of electricity supply, which grew at an average annual rate of 9% over the 1972/82 period, has not been able to keep pace with the growth in demand, resulting in frequent power shortages and increased reliance on imports of electricity.

6. Turkey's total installed capacity is 6,363 MW, of which 3,406 MW (54%) is thermal, and the remaining 2,957 MW (46%) is hydro. The peak load in 1982 reached 5,100 MW, and total gross generation 26,562 GWh, of which TEK accounted for 88% (23,240 GWh); self-producers for another 6% (1,642 GWh), and CEAS, KEPEZ and municipalities for the remaining 6% (1,680 GWh). Generation, however, was not able to meet demand, estimated at 29,500 GWh. The power supply shortage would have been even more severe but for imports from Bulgaria and the USSR, which amounted to 1,800 GWh in 1982. A relatively high level of system losses (about 20% including distribution losses) contributed to the supply shortages.

#### Bank' Role and Power Sector Lending Strategy

7. The Bank has made eleven loans and a technical assistance grant (total US\$630.7 million) to the Turkish power sector, and IDA has granted three credits (total US\$55.7 million). The projects that were partially financed with the loans/credits comprise: two thermal power stations (one oil-fired and the other lignite-fired); a lignite mine; and several transmission and distribution networks extensions. The technical assistance grant helped reorganize the power sector. The first five loans/credits were for projects in the CEAS concession area. All the projects were completed successfully, although with long delays. The Bank has made three loans to TEK, for the First, Second, and Third Power Transmission Projects, and another loan to TEK and TKI for the Elbistan Mine and Power Project. The original Karakaya Hydropower Loan (Loan 1844-TU) for US\$120.0 million was made to the Government, with DSI as executing agency.

8. A Project Performance Audit Report (PPAR) distributed to the Board in November, 1981, on the Keban Transmission Project (Loan 568-TU) and the First Tek Transmission Project (Loan 763-TU) found that the projects had met their physical objectives notwithstanding delays and cost overruns. A Project Completion Report on the Istanbul Power Distribution Project (Loan 892-TU),

presented to the Board in December 1982, also reported physical completion of the project after considerable delay. Shortage of local counterpart finance and, in the case of Loan 892-TU, late preparation of tender documents were identified as major obstacles to timely project completion. Both reports indicated that the projects had been only partially successful in addressing sectoral and institutional problems such as financial and managerial autonomy, staffing, and pricing. A project completion report for the Second TEK Transmission Project (Loan 1194-TU) recently completed found that the physical completion of the project had been delayed inordinately by shortcomings in project management, and that progress in the institutional development of the power sector had been rather limited.

9. The Bank, nevertheless, has played a significant role in the consolidation of the power sector and in the creation of TEK. The Bank has, furthermore, continued to advocate much needed institutional reform to provide an adequate framework within which TEK could develop, although progress has been slow. Under a decree promulgated in November 1982, TEK is absorbing distribution facilities from the municipalities, completing the consolidation of the power sector under a single public entity. Another decree, promulgated in May, 1983, set out the principles of reorganization and greater autonomy for State Economic Enterprises (SEEs), including TEK, but specific provisions affecting TEK have not yet been implemented. Under the Third TEK Transmission Project (Loan 2322-TU), which became effective in December, 1983, TEK is using technical assistance to: improve its accounting and management information systems, implement an expanded training program, and carry out load management and tariff studies.

#### B. PROJECT FORMULATION AND PREPARATION

10. In tune with the policy of priority utilization of indigenous energy resources (para. 2) Turkey has actively studied plans for the development of the Euphrates Basin since 1962, and formulated projects for water power and irrigation. In 1974, it completed the first stage of the Keban hydropower project with 630 MW installed capacity; expanded in 1983 to 1,350 MW. Karakaya represents the second stage in the basin development program and involves primarily re-regulation of the water released from the Keban reservoir for power generation. Karakaya, like Keban, would have no irrigation uses and does not involve abstraction of water from the Euphrates River, except for initial filling of the reservoir. Bank consideration of the water flow aspects of this and other projects on the Euphrates River in the lower riparian countries started in 1972, and in 1975 the Government requested Bank advice on the filling and operational principles to be applied during the construction and operation of Karakaya which would ensure that the project would not adversely affect the interests of either Turkey, Syria, or Iraq, with regard to the use of the Euphrates waters. Turkey then communicated these principles to Iraq and Syria, and offered to discuss the development of a tripartite system to monitor the application of these principles. It was only then that the project was appraised (in late 1976). However, with a change of government in 1977, consideration of the project was deferred until mid-1979, when Turkey renewed the request for financing to the European Investment Bank (EIB) and the Bank. The project was reappraised in November 1979 with EIB participation. The loan was approved by the Board on May 15, 1980 and signed on May 21, 1980; it became effective on August 15, 1980.

11. The project involves the establishment of a reservoir having 9,600 million m<sup>3</sup> of total storage and 5,600 million m<sup>3</sup> of useful storage, located

about 160 km downstream of the Keban hydropower plant, through the construction of a concrete arch-gravity dam (173-m high) with an overflow spillway, intakes, and penstocks. The powerhouse located at the foot of the dam will comprise six 300-MW turbo-generator units. The project also includes a switchyard to interconnect the power plant with the 400 kV Turkish national grid, the relocation of a railway line, roads, and bridges, and the resettlement of about 17,000 inhabitants in the reservoir area. A Staff Appraisal Report (2848-TU) entitled "Appraisal of the Karakaya Hydropower Project" was issued on April 25, 1980.

12. Project construction began in late 1976, but due to unavailability of adequate foreign exchange financing, only preliminary works had been completed by the end of 1979 when the project was reappraised (para. 10). The latest construction and erection schedule calls for completion by 1987. The excavation work for the dam and powerhouse has been completed (about 3 million m<sup>3</sup>) as well as stabilization work on the rockwalls on both abutments of the arch-gravity dam. The contractor has completed the installation of the concrete mixing facilities and of the cableway for placing concrete, and has begun casting operations on the dam (estimated volume: 2 million m<sup>3</sup>). Main hydro and electromechanical equipment has been manufactured and delivered. A large storage facility was constructed at the railroad station about 30 km from the project site for temporary storing of the main equipment. Construction of the 400 kV Karakaya-Keban transmission line that will interconnect the Karakaya power plant with the Turkish national grid, is being carried out within the TEK Transmission III Project financed partially through Loan 2322-TU.

13. DSI, which is responsible for project execution, has retained for construction supervision and inspection the joint-venture of engineering consultants which prepared the design of the project. This joint-venture is made up of ELECTROWATT (Switzerland), TAMS (USA), SOGEI (Switzerland), and DOLSAR (Turkey). In addition, DSI employs a board of consultants to monitor the construction of the project. The members of this board are internationally-known experts in the fields of engineering geology, arch dam design, large construction techniques, and hydro and electromechanical equipment.

#### Project Objectives and Relation to Sector

14. The Karakaya project is very important for the Turkish economy. It accounts for a substantial share of Turkish investment (10% of investment in the power sector during 1983-1987) and is considered one of the pillars of Turkey's drive toward reducing its energy deficit. Success or failure of Turkey's policy to increase energy autarchy will determine the destiny of the country's economic development. Lignite and hydro are the most significant indigenous energy resources. With an estimated generation of 7,350 GWh per annum Karakaya is second only to Ataturk (8,100 GWh per annum) as a potential source of hydropower. Even before the oil crisis, the development of the Euphrates hydropower potential at Keban, Karakaya, and Ataturk was the centerpiece of Turkey's energy development program. Karakaya hydropower generation will displace about 1.6 million tons of imported oil annually estimated to cost about US\$290 million at 1983 prices.

### Project Cost

15. The original project cost estimate at the time of reappraisal (1979) was the equivalent of US\$1,160.5 million, including US\$241 million in sunk costs (1979 and before). The most recent project cost update (Oct. 1983) for the project amounts to US\$1,371.6 million (see Annex 1), about US\$211 million more than the 1980 SAR estimate.

### Main Project Issues

16. Foreign Currency Funding Shortfall. On the basis of the project cost update mentioned in the preceding paragraph and a careful review of the construction and investment schedule, particularly for the civil works contract, it is estimated that the foreign exchange funding for the project is short by about US\$101.5 million. (see Annex 2). The shortfall is due basically to the increase in the foreign exchange cost of the project and to exchange rate fluctuations which have reduced sharply the value of the EIB loan (denominated in ECU) vis-a-vis its original US dollar equivalent. A good part of the increase in foreign exchange cost originates in a settlement reached late in 1980 of claims by the civil works contractor against DSI involving, basically, reimbursement of foreign exchange cost escalation in excess of the allowance made by the contractor in the original tender rates. Most of the shortfall--US\$93.5 million--corresponds to additional funding needed for the civil and relocation works. The foreign currency funding schedule for these works is shown in Annex 3. According to this funding schedule the foreign loans currently available will run out by the end of 1984. New funding arrangements will therefore have to be developed during the course of 1984 so as not to cause delays in the construction of the project. This project is suitable for cofinancing and efforts should be made to attract other sources of financing, particularly Italy's, since the civil works contractor is Italian. Nevertheless, the magnitude and timing of additional foreign exchange funding will have to be reviewed during the proposed appraisal taking into account updated estimates of construction costs and construction schedule. Another question to be reviewed during the proposed appraisal is the adequacy of the contingencies used by the consultants in updating the project cost estimate.

17. Funding of Turkish Lira Project Expenditures. Because of the impact on project progress and costs of local funding problems experienced before conclusion of the Karakaya Loan Agreement (Loan 1844-TU), Section 3.01(c) of that agreement provides that the Borrower "shall on a monthly basis make or cause to be made such deposits in the revolving fund as are required so that on the first day of each month there shall be available in the fund amounts sufficient to meet payments for the cost of the Project required on the part of DSI to cover the forthcoming three months of such costs..." While payments of local currency costs have recently been made within contractual conditions (60 days) without serious impact on project progress, DSI is still periodically experiencing difficulties in meeting payments obligations promptly because of delays in the replenishment of the revolving fund set up for this purpose. A 1983 review of the revolving fund movements showed that the rule of monthly replenishment of the fund up to the total required for the next three months was not being followed. In view of the very important local funding required for the project in the coming years (TL 104 billion for the period 1983-87 compared with TL 20 billion for the period 1976-82--see Annex 1), the Turkish Government will have to be approached with a view to finding a mutually satisfactory solution to the issue of the funding of the local currency costs of the project. While there may be merit in a reduction of the

level of the revolving fund balance below the project funding requirements for three months, it is recommended that the revolving fund principle be retained and that the fund be operated in the manner envisaged in the Loan Agreement, or a suitable alternative be found in order to provide the appropriate mechanism for a regular and timely flow of funds for the project.

18. Riparian Rights. Karakaya is a non-water-consumptive project once the reservoir is filled. It therefore does not directly raise technical questions of long-term sharing of water with the two lower riparians, Syria and Iraq. It does, however, involve the need to ensure that, during initial filling and subsequent operation of the reservoir, the interest of the downstream riparians are not adversely affected. This matter was thoroughly and very carefully studied during the preparatory stages of the project. With a view to ensuring that the Karakaya dam will not adversely affect the lower riparians, Turkey's filling and operational proposals for Karakaya were evaluated by the Bank in the model developed in a technical study which the Bank undertook in 1974, following a request by Iraq for the Bank's good offices to help achieve a just and equitable solution between the riparian countries on the division of the Euphrates waters. This evaluation made known that if Turkey maintains an average discharge of at least 500 m<sup>3</sup>/sec., as the Euphrates passes from Turkey into Syria at Birecik, it would ensure that: (a) the existing requirements of downstream riparians for power generation and irrigation, including reasonable growth in these requirements during 1975-85, would be met; (b) the Karakaya reservoir could be filled within a period of three to seven months, depending on the date of closure and actual water flows; and (c) the Turkish power plants (Keban and Karakaya) could be operated for maximum energy output. This operating rule is called the "Rule of 500."

19. In 1976, Turkey informed Syria and Iraq that it would observe the Rule of 500 during the construction, initial filling, and operation of the Karakaya Project, until such time as any large water consumptive project is implemented in Turkey, and also of its readiness to initiate tripartite discussions on the better use of the common water. Subsequently, in March 1979, Turkey's Minister of Energy recorded an official policy statement in the Turkish Parliament that during construction, initial filling, and operation of Karakaya, the monthly average flow of Euphrates waters would not fall below 500 m<sup>3</sup>/sec at Birecik, with shortfalls in any average period of not more than a month being made up in the next period. He also announced that this Rule of 500 would be adhere to by Turkey unless very abnormal hydrometereological conditions existed, and as long as Turkey had not developed a project involving large consumptive use of the river's waters in its territory. Turkey also formally represented to the Bank that in considering Karakaya for financing, the Bank could rely on this policy statement regarding the international riparian aspects of the project.

20. The Bank has repeatedly tried since 1965, when the problem of riparian rights was raised in connection with the Keban dam in Turkey, to bring about negotiations between the riparians to resolve the question of long-term apportionment of Euphrates and Tigris waters. The long-term interest at stake as well as political differences have, however, proved to be obstacles difficult to overcome. In all cases where the Bank has been involved in the financing of projects on the Euphrates and Tigris (Lower Khalis in Iraq, Balikh in Syria, Karakaya in Turkey), it has carried out detailed studies to ascertain that the projects would adversely affect developments in the other riparian countries, and it has also always endeavoured to use its good offices to bring about tripartite discussions with a view to making progress towards an agreement on water sharing. In the case

of Karakaya, since consumptive use is limited to initial filling, and since the "Rule of 500" agreed upon by Turkey would adequately protect the downstream riparians, the Bank considered it appropriate to participate in the financing of the project. However, a new development has taken place since that time which involves the decision by Turkey to build the Ataturk dam downstream of Karakaya with a heavy consumptive use of Euphrates waters for irrigation. Although the Bank has not been approached for financing for this very large project, its implications on the riparian rights of Syria and Iraq would be reviewed during appraisal, since Turkey would no longer be committed to observing the Rule of 500 on completion of the Ataturk project.

21. Ecology and Resettlement. In view of the potential importance of the ecological aspects of a project as large as Karakaya, the Government appointed independent consultants to study these aspects in detail. The study did not identify any significant adverse environmental effects. However, it highlighted the importance of dealing adequately with the resettlement of about 17,000 inhabitants who would be displaced by the construction works and the filling of the reservoir. Turkey has a comprehensive resettlement methodology, so that resettlement is carried out within a legal framework in a coordinated manner. The resettlement work at Karakaya is being carried out under the responsibility of the General Directorate of Land and Resettlement Works. The plan of resettlement action and its implementation program (Section 3.06 L.A.) was submitted to the Bank late in 1981. As of September 1983, resettlement of 650 families is underway. During the proposed appraisal the resettlement implementation program would be reviewed to ascertain the timeliness of its completion ahead of reservoir filling. Up to the time of the Karakaya reappraisal in 1979 archeological investigations conducted with the assistance of numerous foreign scientific institutions over the past decade, had not revealed any sites of archeological or historic significance in the reservoir area. During the proposed appraisal, appropriate scientific authorities would be contacted to confirm the above findings.

22. Sectoral Issues. In accordance with Section 4.05 of the Karakaya Loan Agreement (Loan 1844-TU), the Turkish Government undertook (a) to set up a committee of experts for the completion of a comprehensive review of the financial aspects related to the electric power subsector development in Turkey; (b) on the basis of such review, to furnish recommendations to the Bank and (c) after considering the Bank's comments (and no later than December 31, 1983) to implement such recommendations in accordance with a timetable to be furnished to the Bank by December 31, 1982. Section 4.06 calls for a review by the Government of existing arrangements for the coordination of the development and investment plans of TEK, DSI and TKI (coal-mining) and submission to the Bank by December 31, 1981--and subsequent implementation--of recommendations on strengthening integrated investment planning and coordination procedures for power subsector development. A report on power subsector finances has been submitted to the Bank and a major step to improve the subsector's finances was taken in 1982 with the transfer of all municipal electricity distribution activities to TEK. However, discussion of other measures to strengthen the finances for power subsector development and procedures for integrated investment planning and coordination has not, so far, resulted in the submission of Government proposals to the Bank. The Bank is presently preparing a report on Electricity Planning and Investment in Turkey, and an Energy Sector Strategy paper in connection with the preparation of SAL V and the future lending program, which will be discussed with the Government. The discussions of the strategy paper in particular will be an appropriate framework for any further dialogue on the sectoral issues covered in Sections 4.05 and 4.06 of the Karakaya Loan

Agreement, and it is recommended that any action plans which may result from this dialogue be monitored in the context of SAL V operations rather than supervision of the Karakaya project.

23. The Karakaya Loan Agreement also contains a cash generation covenant for the power subsector (Section 4.08 of LA 1844-TU). In a supplemental letter of June 27, 1983, the original targets for 1983 and 1984 of 25% and 29% were reduced to 12% and 21%, respectively. Recently the Bank was informed that electricity tariffs were increased by an average of 43% as of January 1, 1984. Details of the increase and its impact on cash generation are not yet available but, since the increase is higher than had been expected, the chances of attaining the 1984 cash generation target are greatly improved.

### C. BANK PROCESSING OF THE PROJECT

#### Critical Path for Loan Processing

24. The Bank has informed DSI of the need to prepare, prior to appraisal, detailed updates of capital cost and investment schedules for the work remaining to complete the project. A mission is scheduled for March 1984 to check progress and firm up the current timetable for appraisal in June 1984 and Board presentation in February 1985. No intra-Bank coordination is required for the proposed appraisal and no manpower problems are anticipated.

## TURKEY

## LOAN 1844-TU

## KARAKAYA HYDROPOWER PROJECT

Comparison of Project Cost Estimate at Appraisal and as Revised in October 1983  
(in millions)

		1980 SAR Estimate			Oct./83 Revised Estimate		
		1982 and before	1983/87	Total	1982 and before	1983/87	Total
1. Relocation Works	TL	3,081.2	955.3	4,036.5	5,304.7	11,781.0	17,085.7
	US\$	-	10.4	10.4	-	6.5	6.5
2. Civil Works (Contract No. 1)	TL	4,663.5	3,235.1	7,898.6	5,658.0	18,700.3	24,358.3
	US\$	106.5	101.6	208.1	102.0	165.3	267.3
3. Turbines and Gen. (Contract No. 2)	TL	158.7	13.0	171.7	208.4	93.3	301.7
	S\$F	253.6	63.4	317.0	253.3	63.3	316.6
4. Electro-Mech. Equipment (Contract No. 3)	TL	82.6	43.4	126.0	113.5	72.9	186.4
	S\$F	118.4	29.6	148.0	118.2	29.6	147.8
5. Engineering and Administration	TL	271.1	262.8	533.9	1,720.8	2,371.3	4,092.1
	US\$	0.7	0.9	1.6	0.1	1.5	1.6
	S\$F	11.6	8.5	20.1	18.6	14.1	32.7
6. Land Appropriation	TL	3,550.8	716.5	4,267.3	6,314.2	19,464.9	25,779.1
7. Human Resettlement	TL	2,983.5	4,972.5	7,956.0	1,534.4	1,513.4	3,047.8
Base Line Cost	TL	14,791.4	10,198.6	24,990.0	20,854.0	53,997.1	74,851.1
	US\$	107.2	112.9	220.1	102.1	173.3	275.4
	S\$F	383.6	101.5	485.1	390.1	107.0	497.1
Physical Contingencies	TL	1,924.9	1,659.6	3,584.5	-	9,194.6	9,194.6
	US\$	18.4	21.0	39.4	-	39.4	39.4
	S\$F	10.5	5.1	15.6	-	5.3	5.3
Subtotals	TL	16,716.3	11,858.2	28,574.5	20,854.0	63,191.7	84,045.7
	US\$	125.6	133.9	259.5	102.1	212.7	314.8
	S\$F	394.1	106.6	500.7	390.1	112.3	502.4
Price Contingencies	TL	2,151.5	4,939.8	7,091.3	-	41,009.4	41,009.4
	US\$	6.7	11.5	18.2	-	59.6	59.6
Totals	TL	18,867.8	16,798.0	35,665.8	20,854.0	104,201.1	125,055.1
	US\$	132.3	145.4	277.7	102.1	273.3	375.4
	S\$F	394.1	106.6	500.7	390.1	112.3	502.4
Total Local Cost	US\$	348.2	240.0	588.2	273.1	465.7	738.8
Total Direct Foreign Cost	US\$	370.4	201.9	572.3	306.3	326.5	632.8
Total Project	US\$	718.6	441.9	1,160.5	579.4	792.2	1,371.6

Notes: 1. Borrower's revised estimate included in Quarterly Progress Report No. 13 as of September 30, 1983, prepared by DOLSAR (local consultants).

2. Mid-1983 exchange rates used for conversion of 1983-87 cost estimate are: US\$1.00 = TL 223.7 = 2,100% S\$F.

TURKEY  
1984-1990  
KARAKAYA HYDROPOWER PROJECT  
Foreign Exchange Financing Plan  
Under Existing Financing Arrangements  
(in millions)

Work Packages /1	Payable	Total	IBRD		EIB		Swiss Loan		Italian	Own Funds		Financing Gap	
	in SwF	Cost US\$	US\$	ECU	US\$	SwF	US\$	US\$	SwF	US\$	US\$	in SwF	
1. Relocation Works		7.9	6.7	-	-	-	-	-	-	-	-	1.2	
2. Civil Works (Contract No. 1) /2		365.1	113.3	85.0	76.8	27.1	16.8	60.0	-	5.9	-	92.3	
3. Turbines and Gen. (Contract No. 2)	319.8	164.3	-	-	-	316.6	162.9	-	-	-	-	1.4	3.2
4. Electro-Mech. Equipment (Contract No. 3)	149.8	77.1	-	-	-	147.8	76.4	-	-	-	-	.7	2.0
5. Engineering and Administration	33.4	16.8	-	-	-	15.6	8.1	-	-	8.5	4.3	4.4	9.3
		1.6	-	-	-	-	-	-	-	-	0.1	1.5	
	<u>503.0</u>	<u>632.8</u>	<u>120.0</u>	<u>85.0</u>	<u>76.8</u>	<u>507.1</u>	<u>264.2</u>	<u>60.0</u>	<u>8.5</u>	<u>10.3</u>	<u>101.5</u>	<u>14.5</u>	
<b>Available Loans</b>													
Disbursed (12-31-82)		307.0	24.3	34.6	35.0	423.4	217.4	20.0		10.3			
Undisbursed		224.3	95.7	50.4	41.8	83.7	46.8	40.0		-			
		<u>531.3</u>	<u>120.0</u>	<u>85.0</u>	<u>76.8</u>	<u>507.1</u>	<u>264.2</u>	<u>60.0</u>		<u>10.3</u>			

/1 Including physical and price contingencies (where applicable).

/2 Net payment in foreign exchange after legal deductions (5.65% of contractor billing).

TUNNEY  
Loan 1844-TU  
KARAKAYA HYDROPOWER PROJECT  
Foreign Exchange Funding Schedule for Civil and Relocation Works  
Under Existing Financing Arrangements  
(in millions)

		1982 and before	1983	1984	1985	1986	1987	Total
<u>Funding Required</u>								
A. Civil Works Contracts:	US\$							
Base Line Cost		108.2	41.9	58.9	50.2	15.0	9.2	283.4
Physical Contingencies		-	9.8	14.2	11.8	3.0	1.8	40.6
Price Contingencies			9.2	19.5	21.8	7.0	5.3	62.8
Total Contract	US\$	108.2	60.9	92.6	83.8	25.0	16.3	386.8
B. Relocation Works:	US\$							
Base Line Cost		-	2.5	2.0	1.0	0.6	0.4	6.5
Physical Contingencies		-	0.4	0.3	0.2	0.1	0.1	1.1
Price Contingencies		-	0.1	0.2	-	-	-	0.3
Total Relocation Works	US\$	-	3.0	2.5	1.2	0.7	0.5	7.9
Total A + B	US\$	108.2	63.9	95.1	85.0	25.7	16.8	394.7
Less: Legal Deductions (5.65% on A)	US\$	6.2	3.3	5.2	4.7	1.4	0.9	21.7
Total Funding Required	US\$	102.0	60.6	89.9	80.3	24.3	15.9	373.0
<u>Funding Provided</u>								
IBRD Loan 1844-TU	US\$	24.3	24.8	41.8	29.1	-	-	120.0
EIB Loan	US\$	35.0	21.0	20.8	-	-	-	76.8
ECU	(34.6) /1	(25.0) /2	(25.4) /3	-	-	-	-	(85.0)
Swiss Loan	US\$	16.8	-	-	-	-	-	16.8
Italian Loan	S.F.	(27.1) /4	-	-	-	-	-	(27.1)
Italian Loan	US\$	20.0	14.8	25.2	-	-	-	60.0
Own Funds	US\$	5.9	-	-	-	-	-	5.9
		102.0	60.6	87.8	29.1	-	-	279.5
Plus: Shortfall		-	-	2.1	51.2	24.3	15.9	93.5
Total Funding Provided Plus Shortfall		102.0	60.6	89.9	80.3	24.3	15.9	373.0

Note: Figures between brackets are not added.

/1 Average exchange rate: 1.0 ECU = US\$1.01

/2 Average exchange rate: 1.0 ECU = US\$0.84

/3 Exchange rate as of Dec./83: 1.0 ECU = US\$0.82

/4 Average exchange rate: 1.0 S.F. = US\$0.62