

Bulletin of the Mineral Research and Exploration

Volume 1954
Issue 46 1954-1955 46-47

Article 8

2023

MINING ACTIVITIES IN TURKEY

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Recommended Citation

-, - (2023) "MINING ACTIVITIES IN TURKEY," *Bulletin of the Mineral Research and Exploration*: Vol. 1954: Iss. 46, Article 8.

Available at: <https://bmta.researchcommons.org/journal/vol1954/iss46/8>

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MINING ACTIVITIES IN TURKEY

Etibank İşletmeleri (Etibank Mines):

Etibank have accelerated their work considerably by making use of all the possibilities available, in order to cope with energy needed, resulting from developments taking place in economical and various industrial fields during the past few years.

In order to increase the production of coal at both Zonguldak and the West Lignite (Garp Linyitleri) areas, so as to keep up with the increasing demand for power which is a necessity for the expansion of the industry, Etibank planned to obtain necessary transportation and production equipment for all their plants in the shortest time possible.

I — Ereğli Kömürleri İşletmesi (EKİ) (Ereğli Coal Mines):

Although at the present time there is no final or definite information regarding the coal reserves of the Zonguldak area, visible, possible and probable reserves exceed 1 billion ton. Maximum depth reached by coal mine workings is now between (— 200—500) metres. At Kozlu deeper coal seams are to be mined by sinking new shafts to the depth of (— 600) m. In the coal area 50 coal seams ranging in thickness between 0.45 and 8 m. are now established; in some parts even thicker seams than the above mentioned are present. For the purpose of meeting the increasing coal requirements of Turkey, the General Mechanization Project has

been prepared by making use of the financial resources of the Country and Marshall Credit; the aim is to increase the production capacity of the Zonguldak area, especially increasing efficiency and safety, also to improve the quality and reduce the cost, the application of the project is now in process. The Mechanization project includes the renewal of the production and transportation machinery, mechanization of mines, construction of New and large washeries, construction of port and loading stations and many other various items. Amongst these,

(1) No. 2 Küçük Mehmet shaft at Kozlu, completed in the year 1951; (2) Port of Zonguldak, at the ont of 1953; (3) Aerial cable line of Kandilli-Armutçuk, October 1953; (4) Incivez shaft between Kozlu and Zonguldak, May 1953. In addition to the above mentioned the following were completed during the year 1954:

- (1) Karadon transformer station,
- (2) Asma transformer station,
- (3) Kozlu power station,
- (4) Construction of pillar and cargo hoist.

Plants which will be completed during 1955 are listed below.

	Months	
1. Underground electro - mechanization	VII	1955
2. Çatalağzı Washery (750 tons/hr)	IV	1955
3. Kozlu Ventilators	IX	1955

**Production of (EKL) Ereğli Coal Mines during 1954
(TON)**

Months	R a w C o a l					P r e p a r e d C o a l				0-10 Coke Pow- der	Bri- cket 0-10
	Kan- dilli	Kozlu	Uzül- mez	Gelik	Total	Coal	Middling and tailing	Total	Coke		
January	39 384	113 875	139 909	201 270	494 438	292 165	14 997	307 162	--	--	9 666
February	36 373	103 465	126 343	179 890	446 071	260 752	14 517	275 269	--	--	6 314
March	50 814	114 472	139 968	194 815	500 069	302 227	22 251	324 478	--	--	9 584
April	47 141	112 960	143 260	197 750	501 111	307 453	20 106	327 559	3 465	105	6 736
May	43 886	96 426	136 090	188 080	464 482	286 463	21 233	307 696	6 569	30	7 692
June	36 142	86 522	128 017	176 220	426 901	255 042	23 170	278 212	6 570	210	10 150
July	47 118	97 247	133 243	197 545	475 153	291 017	24 162	315 179	6 700	--	8 259
August	48 900	81 332	129 681	187 145	447 058	272 865	17 819	290 684	6 750	--	8 943
September	48 887	82 236	138 387	196 640	466 150	278 739	27 563	306 302	4 751	--	8 587
October	48 198	93 904	140 929	211 520	496 551	292 341	27 563	319 904	3 317	140	4 832
November	45 281	96 176	140 231	208 300	489 988	285 787	27 289	313 076	3 358	200	4 442
December					505 288	293 002	31 604	324 606	5 110	--	6 723
Year					5 713 260	3 417 853	272 272	3 690 125	46 570	685	91 928

4. Karadon shaft	XI	1955	4. Normal railway wagons and locomotives	VIII	1956
5. Kozlu 300 level development	VI	1955	5. Port cargo boats	X	1956
6. Coal loading plants	VII	1955	6. Rearrangement of harbour	VII	1956
7. Port operation buildings	IV	1955	7. Kozlu haulage and hoisting plants	X	1957
			8. Kozlu lamphouse, workshop and store	X	1957
			9. Çatalağzı shaft	IV	1957

Other plants which are included in the mechanization project will be completed during the years of 1956 and 1957.

The most important amongst these are:

	Months	
1. Zonguldak Washery (750 tons/hr)	IV	1956
2. Armutluk shaft	IX	1956
3. Zonguldak railway connections and bridges	VIII	1956

The total of home and foreign investments for all the plants will not exceed 200 million Turkish liras, and the production capacity of the Zonguldak coal area will be 7,000,000 tons yearly after completion of plants which are included in the mechanization project.

Coal put through Washery 1954 (Ton)

Marketed Coal. 1954

Months	Total	Months	Ton	Turkish Lira
January	444 988	January	277 752	7 848 000
February	404 760	February	256 352	7 225 445
March	456 780	March	318 396	8 931 578
April	458 860	April	315 933	9 004 083
May	430 776	May	285 328	8 281 870
June	391 229	June	252 977	7 109 920
July	414 666	July	294 925	8 126 249
August	382 786	August	268 400	7 466 022
September	404 285	September	286 947	7 921 297
October	445 664	October	292 873	8 166 316
November	440 309	November	288 186	8 020 441
December	449 402	December	300 541	8 438 053
Year	5 124 505	Total	3 438 610	96 539 274

Output and labour cost of (EKİ) Ereğli Coal Mines during 1954
Outputs:

	Per collier	Per faceman	Per under-ground man	Overall output per man shift
1954	3160 kg.	1865 kg.	978 kg.	886 kg.

1954 Timber Consumption (for 11 months) = 186 109 m³

Timber Consumption per ton of coal . = 0.36 m³

For the whole of the mine during 1954:

Total number of (shifts x labour employed)	=	9 810 423
Total value of (shifts x labour employed)	=	47 835 357 T. L.
1954 Labour allowance (for 11 months)	=	15 448 916 T.L.
1954 Labour allowance per man shift	=	1.57 T.L.
1954 Average daily pay per man shift	=	4.87 T.L.
wage per man shift	=	6.44 T.L.
(For 11 months =		32.33 T. L.
allowance		1,57 T. L. Labour

Output of (EKİ) Ereğli Coal Mines

Outputs (*)				Sale of Coke and Bricket				
Years	Collier	Under-ground woker	Overall	Months	Coke		Bricket	
					Ton	T. Lira	Ton	T. Lira
1941	2344	721	626	January	—	—	9 565	356 296
1942	2744	718	618	February	—	—	7 495	279 189
1943	2765	668	576	March	—	—	9 206	342 923
1944	2832	696	608	April	3 264	170 750	5 518	205 545
1945	2775	698	605	May	6 549	332 378	8 034	299 266
1946	2861	745	636	June	6 505	330 129	11 545	430 051
1947	2875	748	647	July	6 127	310 945	8 451	314 800
1948	2871	787	688	August	6 707	340 380	8 946	333 238
1949	2881	822	726	September	4 752	241 164	8 558	318 785
1950	2965	856	756	October	3 435	174 320	4 876	181 631
1951	3160	933	823	November	3 253	165 099	4 442	165 465
1952	3036	977	880	December	5 291	268 475	3 358	111 856
1953	3154	1012	916					
1954	3160	978	886 (for 11 months)	Total Year	45 883	2 333 640	89 994	3 339 045

II — Garp Linyitleri İşletmesi (West Lignite Mines):

Lignite, which is found in most parts of Turkey, is gaining importance daily regarding the national demand for fuel and energy.

Lignite seams which are located in Western Turkey and are operated by (Garp Linyitleri İşletmesi) the West

Lignite Mines take a leading place from the point of view of its reserves. The production of (Garp Linyitleri İşletmesi) West Lignite Mines has increased on a very large scale. The lignite production of Turkey increased from 10,000 tons to 158,000 tons between the years 1928 and 1938, production exceeded 1 million tons during 1953. 75-80 % of

(EKİ) Ereğli Coal Mines
1941 - 1953 Coal output, sale and cost of labour.

Years	Output (Ton)		Marketed Coal		Average number of labour	Cost of labour (T. Lira)			Per man shift
	Raw Coal	Market-able coal	Tonnage(*)	Value T. Lira		Wages paid	Labour allowance	Total	
1941	3 019 626	2 124 995	1 851 721	17 672 004	21 738	9 422 000	1 333 000	10 755 000	1.65
1942	2 509 614	1 813 743	1 701 679	20 570 582	21 793	12 007 562	3 388 000	15 395 562	2.15
1943	3 162 605	2 211 905	1 941 547	40 972 650	26 814	15 480 186	11 219 000	26 699 186	2.89
1944	3 554 279	2 493 034	2 163 995	46 021 193	29 242	19 268 296	11 802 828	31 071 124	3.22
1945	3 718 772	2 524 056	2 233 474	48 182 898	29 605	22 362 122	13 310 819	35 672 941	3.49
1946	3 830 245	2 525 581	2 372 981	54 365 133	28 183	22 989 695	13 377 000	36 366 695	3.69
1947	3 945 119	2 623 315	2 442 664	55 965 197	28 209	27 259 348	14 395 403	41 654 751	4.37
1948	4 021 797	2 668 985	2 418 058	59 882 543	27 215	28 094 972	14 852 868	42 947 840	4.54
1949	4 181 375	2 705 941	2 629 845	70 702 247	27 626	28 592 759	15 770 996	44 363 755	4.68
1950	4 360 598	2 832 243	2 650 979	76 170 702	27 061	30 989 403	14 243 245	45 232 648	4.85
1951	4 729 589	2 987 846	2 711 604	81 417 587	26 389	31 648 041	15 467 113	47 115 154	5.15
1952	4 846 342	3 010 312	2 915 847	89 451 865	28 648	35 778 225	18 121 686	53 899 911	5.94
1953	5 654 326	3 664 314	3 539 665	101 722 808	31 089	43 080 840	26 077 453	69 158 293	6.96

(*) Coke and bricket included

the yearly lignite production of the Country is provided by (Garp Linyitleri İşletmesi) the West Lignite Mines of Etibank.

Ready to be extracted, visible and possible lignite reserves of Soma, Tunçbilek and the Değirmisaz divisions of (Garp Linyitleri İşletmesi) West Lignite Mines were in the vicinity of 124 million tons during the year 1954.

(Garp Linyitleri İşletmesi) West Lignite Mines were able to operate more efficiently due to the installations of surface plants such as power stations, washeries, aerial cableways, besides the installations of underground plants and mechanization of mines.

For increasing the production proportional to the demand for coal in the Country, plants that were installed after 1950 play an important part.

Soma (İşletmesi) Mine:

	Months	
Washery 150 ton/hr	XI	1951
Aerial cableway 6.5 km. 100 ton/hr	IX	1951
Underground mechanization 2000 ton/day	XI	1951
Surface mechanization 2000 ton/day	XI	1951
Power plant extension 2x1000 Kw.	V	1953

Cost of Lignite on Market and cost

	Total Sale realization 1954 (T.L.)
Soma	9 163 549
Tunçbilek	8 006 153
Değirmisaz	7 930 042
Total for 1954 year	25 099 744

Değirmisaz (İşletmesi) Mine:

Months

Mechanization 1000 ton/day	IX	1952
Aerial cableway 10 ton/hr	IV	1953
Tunçbilek - Değirmisaz power transmission line 33 kw - 38 km.	VIII	1953
Washery 1500 ton/day	IX	1953

Tunçbilek (İşletmesi) Mine:

Power plant extension 2x1000 kw.	VI	1953
Conveyor belt and under- ground hopper 300 ton/hr	XI	1953
Washery 4000 ton/day	VI	1954
Underground Mechanization 2000 ton/day	VI	1954
Surface Mechanization 2000 ton/day	VI	1954

These plants were installed with the investment of 90 million Turkish liras (T. L.)

(Garp Linyitleri İşletmesi) West Lignite Mines 1954 Output (For 11 Months)

Raw Lignite:	
Collier per shift	5 959 kg.
Underground (per man shift)	1 800 kg.
Surface and Underground (per man shift)	1 640 kg.
Overall (Per man shift)	1 673 kg.

- Total sale realization (Fob wagon)

Total cost	for 11 months
6 522 468	for 11 months
5 923 332	„ 11 „
6 034 071	„ 11 „
18 479 871	for 11 months

West Lignite Mines. (Garp Linyitleri İşletmeleri)

1954 Output.

Months	Raw Coal Output (Ton)				Put into washery				Market - able output (ton)			
	Soma	Tunç- bilek	Değir- misaz	Total	Soma	Tunç- bilek	Değir- misaz	Total	Soma	Tunç- bilek	Değir- misaz	Total
January	49 680	38 056	29 155	116 891	48 565	41 167	29 155	118 887	33 303	28 830	17 086	79 219
February	46 250	27 025	31 189	104 454	46 651	30 615	31 189	108 455	32 103	21 659	18 223	71 985
March	54 750	34 627	39 831	129 208	53 009	35 816	39 831	128 656	36 609	25 673	23 408	85 690
April	46 020	36 148	34 699	116 867	47 095	36 221	34 699	118 015	32 457	25 167	20 693	78 317
May	56 370	35 544	43 604	135 518	55 860	30 509	43 604	129 973	38 617	24 944	25 418	89 009
June	51 450	50 058	41 916	143 424	51 108	37 167	41 916	130 191	34 844	36 723	24 746	96 313
July	55 700	61 422	40 587	157 709	55 112	49 510	40 587	145 209	37 210	41 168	24 189	102 567
August	50 550	53 919	33 556	138 025	50 729	44 709	35 565	128 994	34 144	38 470	19 499	92 113
September	57 000	65 500	40 226	162 726	56 051	44 193	40 226	140 470	39 329	38 454	23 713	101 496
October	54 575	56 538	43 035	154 148	55 147	54 895	43 035	153 077	37 857	36 820	25 164	99 841
November	52 800	56 500	35 452	144 752	52 017	55 971	35 452	143 440	37 349	36 521	21 348	95 218
December	45 800	55 806	51 594	153 200	25 046	69 443	51 594	146 083	18 011	44 515	30 931	93 457
Total Year	620 945	571 143	464 844	1 656 922	596 390	530 216	464 844	1 591 450	411 833	398 944	274 448	1 085 225

West Lignite Mines. (Garp Linyitleri İşletmesi)
1941 - 1953 Output and Cost of labour.

Years	Output (ton)		Lignite sold		Average Number of labour	Cost of Labour (Lira)			Per man shift
	Raw	Market-able lignite	Tonnage	Value (T. L.)		Wages paid	Labour allowance	Total	
1941	199 333	176 789	171 090	954 984	1 090	582 000	126 000	708 000	1 84
1942	296 362	266 190	271 460	1 744 653	1 781	917 000	395 000	1 312 000	2 47
1943	460 755	419 659	399 609	5 505 062	3 613	1 543 000	1 400 000	2 943 000	3 42
1944	595 463	531 814	461 668	7 299 267	5 069	2 563 000	1 410 764	3 973 764	3 06
1945	588 615	523 194	444 093	7 275 955	5 396	2 744 630	1 264 959	4 009 589	3 03
1946	508 823	459 389	394 984	6 455 950	4 470	2 316 623	1 706 316	4 022 939	3 40
1947	702 318	603 795	554 787	9 063 088	4 665	3 303 669	2 148 585	5 452 254	3 81
1948	828 930	680 039	623 421	10 336 415	5 443	3 733 104	2 334 392	6 067 496	3 92
1949	957 495	777 600	731 877	12 216 201	5 044	4 453 136	2 660 561	7 113 697	3 91
1950	980 226	746 553	701 316	12 342 458	5 117	4 962 600	2 848 919	7 811 519	4 18
1951	994 294	751 020	681 026	12 714 834	4 997	5 509 771	3 542 159	9 051 930	4 96
1952	1 081 497	764 653	724 295	15 478 276	5 208	6 027 863	3 585 082	9 612 945	5 80
1953	1 314 083	942 321	893 088	20 054 502	5 100	6 917 693	4 018 730	10 936 423	6 61

Cost of Labour and labour Allowance of (Garp Linyitleri İşletmesi) West Lignite Mines.

<u>Total Number Of man shift</u>	<u>Total cost of labour T.L.</u>	<u>Labour Allowance T.L.</u>
1 687 865	7 618 489	3 996 739
Average wage per man shift		4.51
Average labour allowance per man shift		2.37
Daily pay per man shift		6.88

III — (Şark Kromları İşletmesi) East Chromium Mines:

Turkey is one of the main chromium producing countries in the world due to her rich chromium ore resources. In Turkey the first occurrence of chromium ore was found in 1848. The production of chromium ore has greatly increased due to its important place in industry. The chromium ore production of Turkey in 1953 was as high as 600 000 tons, which can be considered very important, as the yearly chromium production of the World is about 3 million tons. About 70-75 % of the Turkish chromium ore is produced by private enterprise and the remaining part is supplied by Etibank (Şark Kromları İşletmesi) East Chromium Mines. The exploration work of the chromium ore bodies of Guleman and Sori regions in the county of Elazığ, was made by the Institue of M.T.A. and then deposits were transferred to Etibank, who carry on the mining operation. (First installation of the plants started in 1936). In 1954 the

visible, possible, and probable ore reserves of these ore bodies were estimated to be 700 thousand tons.

IV — Divriği Demir Madenleri İşletmesi - Divriği Iron Ore Mine:

Divriği iron ore deposit was discovered by the Institute of M.T.A. in 1937, the exploration work of this deposit was completed during May 1938, after which the ore body was transferred to Etibank for mining. Divriği iron ore mine was founded 25.12.1939, The average grade of iron ore is 60-66 %, the reserves were estimated by Etibank during 1954 at 28 million tons, therefore proving sufficient to meet the needs of Karabük Iron and Steel Factories.

The yearly output of Divriği iron ore mine is regulated according to the demand of Karabük iron and steel factories, thus, the output of Divriği iron ore mine is increased as the production capacity of the factories soar. During the first year of operation in 1938, the output of the mine was 72 898 tons which was increased to 342 190 tons during 1953.

By the end of 1954 many new plants were in operation, such as, power station, aerial cableways, loading stations, sub-stations, and various other supplementary plants were installed, underground development work was also carried out. The approximate cost of the above stated plants was estimated at 14 million Turkish liras. It is hoped that the yearly rate of production will reach 400 000 tons.

(Şark Kromları İşletmesi) East Chromium Mines.
1954 Output

	Ore output (ton)			Concentration plant		Total Market-able production	Tonnage Sold			
	Guleman	Sori	Total	Low Grade	Feed		Concen- trate	Sold at home	Expor- ted	Total
January	160	—	160	—	—	—	—	10 566	10 566	
February	197	—	197	—	—	—	—	1 016	1 016	
March	7 175	—	7 175	—	—	—	—	3 079	3 079	
April	9 845	—	9 845	953	379	155	191	8 433	8 624	
May	9 458	662	19 120	1 092	5 613	3 388	—	4 803	4 803	
June	8 365	3 511	11 876	3 293	5 556	3 203	51	10 265	10 316	
July	8 607	8 435	17 042	3 383	6 405	3 807	490	1 016	1 506	
August	5 613	5 101	10 714	3 924	4 750	2 931	79	—	79	
September	8 197	5 816	14 013	5 504	7 321	4 082	232	7 112	7 344	
October	5 251	—	5 251	1 072	5 608	3 096	105	—	165	
November	3 010	—	3 010	726	4 569	2 518	—	25 536	25 536	
December	8 996	—	8 996	592	—	—	—	—	—	
Year	74 874	23 525	98 399	20 539	40 201	23 180	—	—	121 579	

Rate of output : Face Quarry Overall
7 338 kg. 1 649 kg. 737 kg.

(Şark Kromları İşletmesi) East Chromium Mines.

1941 - 1953 Production and Cost of Labour

Years	Production (Ore and concentrate) Ton	Sale of Chromium ore		Average number of labour	Cost of Labour (T. Lira)			
		Tonnage	Total value T. L.		Wages paid	Labour allowance	Total	
1941	63 996	63 946	2 031 295	250	87 000	—	87 000	1.05
1942	31 165	58 605	2 679 939	220	97 000	12 000	109 000	1.60
1943	60 030	12 603	1 010 095	300	186 000	119 000	305 000	3.09
1944	67 864	106 717	8 030 464	477	421 151	165 212	586 363	3.58
1945	89 869	40 141	2 863 391	392	347 662	115 000	462 662	3.46
1946	51 299	11 901	970 154	288	176 650	67 479	244 129	3.29
1947	51 717	78 561	7 557 402	310	177 004	69 710	246 714	3.14
1948	99 034	136 481	16 407 839	320	223 663	127 590	351 253	3.90
1949	172 689	152 843	19 789 347	372	414 490	206 196	620 686	4.63
1950	165 968	144 037	17 119 455	401	410 520	244 404	654 924	4.55
1951	159 623	156 245	17 644 556	563	553 030	346 572	899 602	4.67
1952	179 503	149 659	17 595 228	520	705 632	461 215	1 166 847	6.22
1953	174 244	182 012	24 223 917	550	799 324	501 644	1 300 968	6.38

Divriği Demir Madenleri İşletmesi - Divriği Iron Ore Mines
1941 - 1953 Production, sale and cost of labour

Years	Output Iron ore		Sale of Iron ore		Average Number of Labour	Cost of Labour (T. Lira)			Per man shift
	Ton	Tonnage	T. Lira	Total value		Wages paid	Labour allowance	Total	
1941	49 673	66 026	350 828	900	231 000	--	231 000	1.23	
1942	19 044	93 453	1 308 632	680	209 000	--	209 000	1.57	
1943	91 751	97 602	1 366 907	1 570	648 000	355 000	1 003 000	3.02	
1944	90 430	107 722	1 508 595	1 560	680 471	344 863	1 025 334	3.56	
1945	125 708	101 567	1 405 649	1 221	610 560	350 244	960 804	3.79	
1946	112 210	121 548	1 476 198	940	347 500	218 891	566 391	3.65	
1947	145 620	136 404	1 660 470	820	384 000	244 000	628 000	3.76	
1948	185 434	156 594	2 172 847	651	487 100	318 341	805 441	3.95	
1949	209 648	219 955	3 006 743	668	564 505	475 768	1 040 273	4.48	
1950	220 847	191 333	2 483 966	981	681 100	726 750	1 407 850	5.03	
1951	220 010	218 518	2 953 368	860	667 862	620 439	1 288 301	4.89	
1952	362 447	296 455	4 037 821	1 051	948 056	689 221	1 637 277	5.29	
1953	342 192	342 575	4 458 532	1 025	1 218 447	753 096	1 971 543	6.17	

**Divriği Demir Madenleri İşletmesi -
Divriği Iron Ore Mine 1954 Output
and Labour allowance**

Output	327 506	ton
Sale of ore	316 117	
Total number of shifts x labour employed	261 762	„
Total wages paid	1 219 256	T.L.
Average wage per man shift	4.66	TL.
Labour allowance and insurance	857 262	„
Labour allowance per man shift	3.27	„
Wage plus labour allo- wance per man shift	7.93	„
Rate of Output:		
Face	12 423	kg.
Quarry	3 571	„
Overall	1 461	„

**V — Bakır İşletmeleri - Copper
Mines:**

At the present time Turkish copper production is completely maintained by Etibank. Turkish copper is of good quality, therefore it is preferred both by foreign and home markets, whereby taking an important place among items exported. During 1953, the copper production was 23 757 tons, the same year 40 million T.L. worth of copper was exported and home sales for copper were 15 million T.L.

A. Ergani Copper Production:

Ergani copper ore bodies are found at the town of Maden in the Court-

ty of Elazığ and have been mined at different periods dating back to ancient times.

The copper mine was taken over by the Ottoman Empire during the year 1850, since then the mining of copper continued at a slow rate up to the year 1915, during which year work stopped completely.

Although the concession of the mine was transferred to İtibari Milli Bank (National Credit Bank) in 1918, the right of concession was abolished as the mine was not operated, however, the concession was renewed on behalf of the same bank, and Anonym Company was formed by the joint action of five different organizations.

In 1936 the German share of the Ergani Copper Mine which was formed by German and Turkish shareholders was bought by the Turkish Government and given to Etibank. Smelting of copper commenced 21.3.1939 and the mine was operated by the Anonym Company until 1954.

The shares of İş Bank were then bought by Etibank and the Ergani Copper Mine joined to the establishment of the Turkish Copper Mines.

After the abolition of the above mentioned organization and from the beginning of August 1950 mining continued under the Ergani Copper Mines LTD. Liability Company.

During 1954 the copper content of the ore reserve was estimated at about 257 000 tons.

Ergani Bakur İşletmesi - Ergani Copper Mine.

Years	Copper production ton			Sale of Copper		Average number of labour	Cost of Labour (T. Lira)			per man shift		
	Blister	Refined	Total	Tonnage	Total value T. L.		Wages paid	Labour allowance	Total			
											1941	1942
1941	8 100	910	9 010	1 693	1 447 985	1 430	700 000	—	700 000	1.16		
1942	5 195	2 205	7 400	10 013	8 279 311	1 220	492 000	26 000	518 000	1.45		
1943	7 030	2 205	9 235	10 391	13 539 324	1 400	668 000	515 000	1 183 000	2.76		
1944	10 050	—	10 050	4 220	5 312 042	1 748	794 801	566 469	1 361 270	2.64		
1945	7 649	1 895	9 544	2 197	2 347 150	1 404	875 786	430 000	1 305 786	2.79		
1946	10 050	—	10 050	21 619	17 688 401	1 377	915 187	468 950	1 384 137	2.89		
1947	9 405	675	10 080	12 623	17 095 411	1 419	1 112 237	530 670	1 642 907	3.32		
1948	10 979	—	10 979	10 258	14 298 259	1 467	1 326 090	677 384	2 003 474	3.58		
1949	10 895	388	11 283	11 668	14 979 904	1 535	1 490 070	761 088	2 251 158	3.85		
1950	11 700	—	11 700	13 413	18 588 159	1 667	1 697 813	846 816	2 544 629	4.11		
1951	13 096	1 084	14 180	10 200	35 725 945	1 552	1 951 852	870 180	2 822 032	4.86		
1952	14 985	—	14 985	14 386	27 376 273	1 635	2 466 944	1 157 612	3 624 556	6.01		
1953	14 695	260	14 955	19 235	36 859 964	1 698	2 472 648	1 235 683	3 708 331	6.38		

Ergani Bakır İşletmesi - Ergani Copper Mines 1954 Production and Cost of Labour

Production:

Blister	16 030	Ton
Refined	681	
Total Production	16 711	

Cost of Labour and Labour allowance:

Total Number of (labour employed x shift)	569 666	
Wages paid	3 015 200	T.L.
Average wage	5.95	„
Labour allowance	1 397 276	„
Labour allowance per man shift	2.45	„
Wage plus labour allowance per man shift	8.40	„

B. Murgul Bakır İşletmesi - Murgul Copper Mine:

The Murgul Copper Mine is situated at Borçka a town in the province of Çoruh and is connected to Hopa by a high way road of 56 km. Systematic exploration work at the mine started: the Caucasus Copper Company obtained the right of concession of the mine in 1901. Copper production commenced in 1907 after the installation of various plants. At the Murgul mine 16 000 tons of copper was produced until the beginning of the first world war in 1914. The production stopped during the year 1917 and in 1930 the company dissolved. Before the second world war, prospection and exploration work was carried out by the Institute of M.T.A., and the concession was transferred to Etibank. In 1938, when Etibank took over the mine, the old plants were in bad condition. Although an agreement was reached with the General Engineering Company (Ge-

co) for re-installation of the plants, the work was temporarily postponed due to the second world war.

It was possible to obtain the necessary equipment and material supply after 1947, thus, the development work of the mine and installation of the factory was completed during 1951 and consequently production of copper started 25.3.1951. The foundation date of (Murgul Bakır İşletmesi) Copper Mine was 1.6.1951. According to the ore reserves of Murgul copper ore bodies at the beginning of 1954, the copper content of the ore was estimated at about 400 000 tons.

Rate of output (for 11 months)

Face	4 806	kg.
Quarry	2 485	„
Smelting	121	„

Murgul Sulphuric Acid Factory:

In order to make use of gases escaping from chimney of the Murgul copper mine, an Installation of a Sulphuric acid factory with a capacity of 70 000 tons a year has been started. The factory which will be completed within the year of 1955, together with areal cable way and Acid tanks will cost 12.3 million liras. Murgul Sulphuric Acid Factory will produce the basic raw material for making phosphate manure which is an important substance required.

VI — Keban Kurşun Madeni-Keban Lead Mine:

The Keban lead mine is situated 52 km. west of Elazığ along the river Euphratus. After the completion of re-installation and re-equipment of the mine at a cost of one million Turkish liras, the test production started in May 1953.

Murgul Bakır İşletmesi - Murgul Copper Mine.
1951 - 1953 Production, sale, and cost of labour.

Year	Production of Blister Copper Ton	Sale of Copper		Average number of Labour	Labour Cost (T.L.)			Per man shift
		Tonnage	Total value T. L.		Wages paid	Labour Allowance	Total	
1951	3 346	1 678	3 924 536	1 516	1 339 135	534 590	1 873 725	4.42
1952	8 345	7 140	18 232 334	1 532	1 571 863	851 340	2 423 203	5.29
1953	8 802	10 723	19 513 409	1 528	1 933 732	934 412	2 868 144	6.37

Production of the Murgul Mine during 1951 and Cost of Labour Production:

Blister	8 502 Ton
Labour: (for 11 months)	
Number of (Labour employed x shifts)	403 155
Total wages paid	1 993 186 T.L.
Cost of labour allowance	1 106 526 "
Average wage per man shift	4.96 "
Average labour allowance per man shift	2.86 "
Wage plus labour allowance	7.82 "

Until the end of 1953, 911 tons of lead concentrate, average grade of 59.14 % were produced from this mine. Newly installed plants have the capacity of producing 3000 tons of lead and 3000 tons of zinc concentrates a year.

The estimation of visible reserves of the Keban Lead Mine at the beginning of 1954 was about 86 975 tons of ore.

Results obtained from the test production of the Keban Lead Mine during the year of 1953 are given below:

Production of lead concentrate	91.1	Tons
Sale of lead concentrate	396	
Value of concentrate sold	188 781	T.L.
Average number of labour	200	
Total wages paid	60 286	
Sum of expenses for labour	259 274	
Wage per man shift	4.69	„
Labour allowance and social insurance	1.27	„
Wage plus labour allowance	5.96	„

Keban Lead Mine 1954 Production and Cost of Labour.

Production:

1 572 Ton lead concentrate
200 „

Cost of Labour:

Number of (labour employed x shifts)	58 163	
Sum of wages paid	273 177	T.L.
Average wage	4.69	„
Total Labour allowance and social insurance	73 787	„
Average labour allowance		

per man shift	1.27	„
Wage plus labour allowance per man shift	5.96	„

VII — Keçiborlu Kükürtleri İşletmesi (Keçiborlu Sulphur Mine):

Sulphur ore - bodies which are found at Keçiborlu a town in the province of Isparta, were mined by the Germans during the first world war between 1914 and 1918, the concentrate produced by a simple smelting unit was supplied to the army, but after the war mining work ceased. After the Turkish Independence war, the concession of the mine was given to "Societe Generale de Mines et Metallurgie" Company. The concession of this company was abolished in 1933 as the conditions of the written agreement was not kept and the mine was not put into operation. Sümerbank had the mine explored and in June 1934, Sümerbank together with Is Bank formed an Anonym Company. After completing the installation of necessary plants June 1934 the share of Sümerbank was transferred to Etibank 6.4.1936. These shares of Is Bank were also bought by Etibank and the Keçiborlu Sulphur Ltd. Liability Mine was established in 1944.

The agricultural and industrial need of sulphur will be supplied completely by the Keçiborlu Mine, when the plants of flotation and refinery (*), which are already being built, start the process, the yearly production of pure sulphur will reach 15 000 tons and then it will be possible to export the remaining part over what is required for the home consumption. The estimated sulphur content of ore reserves of known ore bodies, at the* beginning of 1954, was about 300 000 tons.

Keçiborlu Külürleri İşletmesi - Keçiborlu Sulphur Mines.
1941 - 1953 Production, sale and cost of labour.

Years	Sulphur		Sale of Sulphur		Average number of labour	Cost of labour (T.L.)			Per man shift
	Production (Ton)		Tonnage	Total value T. L.		Wages paid	Labour allowance and social insurance	Total	
1941	1 951		3 930	455 593	282	129 000	--	129 000	1.19
1942	2 617		2 118	482 445	285	294 000	--	294 000	1.79
1943	3 079		2 827	1 110 567	300	258 000	18 000	276 000	2.17
1944	3 327		4 631	1 747 661	318	243 252	136 000	379 252	3.21
1945	3 779		3 729	1 497 849	350	232 813	180 127	412 940	3.30
1946	2 749		523	136 316	255	192 327	136 664	328 991	3.62
1947	2 653		1 092	282 534	232	181 087	98 024	279 111	3.38
1948	2 407		2 619	673 915	243	186 468	100 243	286 711	3.38
1949	3 043		5 204	1 915 549	279	235 170	122 519	357 689	3.54
1950	6 002		4 715	1 365 771	339	314 390	102 324	416 714	3.88
1951	7 390		7 636	2 178 138	282	375 232	99 557	474 789	4.68
1952	8 368		8 154	2 186 166	286	479 468	159 555	639 023	6.26
1953	9 775		9 365	2 483 059	294	436 764	251 180	687 944	6.93

Keçiborlu Kükürt İşletmesi (Keçiborlu sulphur Mines 1954 production, sale and cost of labour.

Production 10 015 Ton
Amount of
sale 198 753 sack (= 9938 ton)
Sum of
sale 3 365 714 T.L. (for 11 months)
Cost of labour: (for 11 months)
Total number of
(labour employed X shift) 90 407
Total wages paid 421 060 T.L.
Total labour allowance,
social insurance 177 501 „
Wage plus labour
allowance per
man shift 4,69 + 2.24 = 6.93 T.L.

Electrification Enterprises of Etibank:

The main new effort of Etibank on the subject of electricity carries the purpose of supplying the electrical energy to thickly populated regions such as North - West and Western Turkey, where there is a great deal of improvement in their economical life. The programme of Etibank includes new power plants with high voltage energy transmission lines and main transformer stations to be built in consumption centres, construction of which has already been started and is to be completed in the shortest possible time.

Inter-connection of Çatalağzı, Karabük, Silahtar, İzmit, Tunçbilek, Ankara, Sarıyar and Hirfanlı power plants will feed the North West electrical grid system of Etibank which will transmit and distribute the electricity to İstanbul, İzmit, Zonguldak, Çankırı, Ankara, Bolu, Eskişehir, Bilecik, Bursa, Kütahya and Afyon, and the towns, villages and industry included within the provinces. Besides those mentioned, this grid system will be arranged suitably to supply the energy for the electric

trains which will run between İstanbul-Eskişehir - Ankara - Irmak- Zonguldak.

Soma, İzmir, Gediz and Akçay power plants will feed western Turkey electric grid system which will supply electrical energy to the provinces of İzmir, Manisa, Balıkesir, and industrial centres included within the provinces.

The capacity of present power plants in Turkey totals 500.000 kilowatts, 365 000 kilowatts of which are maintained by those of North-West and Western regions, from all the power plants, 970 million kilowatt-hours of energy are produced. On the other hand, when the programme is completed, the capacity of all the power plants in Turkey will be 1 000 000 kilowatts, 475 000 kilowatts of which will be supplied by those of Etibank and consequently, the consumption of electricity in Turkey will be 3 000 000 000 kilowatt-hours, 1 750 000 000 kilowatt-hours of which will be maintained by the power plants operated by Etibank.

In the subject of electrification of North-West and Western Turkey, the above mentioned projects have all been given to the contractors, many of which are now in operation and others in the stage of construction. The cost of the power plants will amount to 480 million Turkish liras; 283 million liras of which are for Sarıyar hydro - electric power project of 80 000 kilowatts, the extension of Çatalağzı power plants of 60 000 kilowatt and those power plants of Tunçbilek of 60 000 kilowatts and Soma of 40 000 kilowatts for both of which lignite will be consumed. The cost of 20 transformer stations of 520 000 kilowatt-ampere, with the transmission lines of 1700 kilometer long, will be 156 million liras which will give one an idea of the importance of the work being carried out from the financial point of view.

Etibank Dış Satışları - Etibank Exports

Years	C o a l		Chromium ore		C o p p e r	
	Tonnage	Value	Tonnage	Value	Tonnage	Value
		T. L.		T. L.		T. L.
1941	12 048	97 986	63 786	2 027 295	1 253	833 775
1942	2 761	39 700	57 868	2 656 355	5 288	4 786 537
1943	3 499	73 200	12 301	994 995	11 864	15 128 437
1944	3 827	80 300	106 217	8 005 464	3 228	4 141 160
1945	8 591	188 800	40 141	2 863 391	378	358 780
1946	198 904	8 072 612	11 901	970 154	20 463	16 933 601
1947	92 732	5 671 517	78 129	7 536 950	6 974	8 205 374
1948	7 086	486 011	135 931	16 382 358	1 244	1 716 183
1949	5 386	382 252	152 226	19 762 592	7 230	8 424 681
1950	5 370	247 262	143 772	17 108 480	6 316	8 598 004
1951	77 378	3 233 437	155 865	17 629 506	7 297	21 927 483
1952	178 536	7 303 808	148 837	17 533 302	16 646	41 622 491
1953	28 873	1 273 376	181 118	24 156 328	23 015	41 196 157

396 tons of lead concentrate of total value of 188 781 T.L. were exported in 1953.

1 612 ton of lead concentrate were exported in 1954.

Amongst the power plants, which will feed the North-West and Western Turkey electrical grid system of Etibank, Sarıyar, Hirfanlı and Gediz power plants will be hydraulic, while, Çatalağzı, Tunçbilek and Soma power plants will consume lignite and coal which cannot be used elsewhere and also where the impossibility of selling or transporting to long distances occur. In this way, by consuming inferior quality solid fuel these national resources will be evaluated.

The policy of Etibank towards the power plants, which form the grid system by inter-connection, is that the energy produced by power plants at Silahtar, İzmir and Ankara, which have been installed to make use of good quality solid fuel, will be as small as possible; while the capacity of hydroelectric power plants or power stations consuming inferior quality solid fuel will be as high as possible. This policy is suitable to the fuel and energy saving policy of the Country including transportation; in short, it is suitable for the

national economy of the Country. Etibank's power plants of North-West and Western Turkey grid system which will be functioned by water-power or by inferior quality solid fuel will maintain saving of 800 000 tons of good quality lignite or coal per year.

The other enterprise of Etibank is the installation of a hydro - electric power station at Hazer. This power station will supply the electrical energy to the Ergani Copper mine also the Şark Kromları (Eastern Chromium Mine) and the province of Elazığ besides maintaining the irrigation of Uluova and Kuzuova. The power station will be built to make use of water power supplied by the Lake Hazer, and the plants, which will be completed during the year of 1955, will cost 7 million Turkish liras. The energy produced from this power station will be 20-30 million kilowatt hours per year; the energy will be transmitted to Maden and Elazığ by transmission lines 60 kilometres in length, and at Elazığ and Maden substations will be built.

Power plants to be built or expanded, Energy transmission lines and transformer stations to be built

New power plants	Power	Yearly Capacity Kwh
Sarıyar, Hydroelectric	2 × 40 000	370 000 000
Hazer, Hydroelectric	2 × 3 000	20 750 000
Tunçbilek, Thermal (steam plant)	2 × 3 000	240 000 000
Soma, Thermal (steam plant)	2 × 20 000	180 000 000
Expanded Power plant		
Çatalağzı, Thermal (steam plant)	3 × 20 000	250 000 000
The cost of this plant will be about 300 million T. L.		
Plants which will be completed partially in 1955 and 1956:		

**Location of Energy
Transmission Lines**

Location of Energy Transmission Lines	Length (Km.)
Adapazarı - Bursa - Eskişehir	212
Ankara - Kırıkkale	60
Kırıkkale - Karabük	200
Paşalar - Tunçbilek	100
Tunçbilek - Kütahya	50
Kütahya - Afyon	100
İzmir - Manisa	35
Manisa - Soma	85
Soma - Balıkesir	70

Balıkesir - Edremit	80
Bolu - Düzce	42

Total cost will be 50-60 million T.L.
Location of new transformer Stations:

Bursa, Eskişehir, İzmir, Kırıkkale, Karabük, Paşalar, Kütahya, Afyon, İzmir, Manisa, Balıkesir, Edremit, Bolu and Düzce.

Total cost on completion will be 16-17 million T. L.

Table showing the production, shipped tonnage and sale of different items based on figures obtained in 1953.

	Production Ton	Shipped Tonnage	Fob value T. L.
Asbestos	—	—	—
Antimony (ore	8 857	—	—
(concentrate	1 725	1 119	389 414
Boracite (ore	17 984	—	—
(concentrate	6 436	8 613	1 250 031
Cement (State	178 728	180 503	11 585 717
(Private enterprise	304 026	301 146	18 201 677
Total	448 754	481 649	29 787 394
Lead	298	966	94 006
Iron	164 056	128 480	3 533 258
Chromium	728 825	490 441	45 169 324
Lignite	326 500	317 766	5 931 078
Meerschaum (Box)	537	499	145 904
Mineral water (Litre)	1 489 987	1 546 663	490 043
Soda	284 154	285 066	114 026
Manganese	89 864	74 567	5 907 589
Magnesite	350	255	10 044
Sodium Sulphate	163	1	—
Molibdenum	1 358	—	—
Fluorspar	100	80	9 120
Emery	1 135	2 629	119 005
Tungsten	—	—	—
Mercury	—	—	—
Trass	—	—	—

Chromium ore production in 1953, Total shipped tonnage of ore, and
FOB sale value

	Production Ton	Shipped Tonnage	FOB Value T. L.
1 — Chromium ore from private concessions	366 992	238 625	25 295 662
2 — Chromium ore from privately owned Mines holding exploration permit	361 833	251 816	19 873 662
Total	728 825	490 441	45 169 324

Production and FOB sale value of lignite in 1953

1 — Lignite from private concessions	193 317	190 633	3 782 640
2 — Total production from lignite mines holding exploitation permit	98 390	92 877	1 483 415
3 — Total production from lignite mines holding exploitation permit	34 793	34 255	665 023
Total	326 500	317 765	5 931 078

**Production, total shipped tonnage of ore and FOB sale value of
Manganese and Iron ores.**

Total Manganese ore	89 846	74 567	5 907 589
Total Iron ore	164 056	128 480	3 533 258
Total	253 902	203 047	9 440 847

**Table showing the production, shipped tonnage, and FOB sale value of different
items based on figures obtained in 1954.**

	Production Ton	Shipped Tonnage	Fob Sale value T. L.
Asbestos	45	—	—
Antimony	1 783	1 768	684 893
Boracite	14 331	15 610	1 883 681
Cement (State	146 604	149 737	11 172 063
(Private enterprise	532 795	542 981	25 070 005
Mercury	9	9	240 520
Lead	911	110	2 635
Iron	154 014	161 382	4 367 056
Chromium	428 796	285 309	26 921 544
Lignite	443 551	419 209	9 247 805
Meerschaum (Box)	776	903	233 114
Mineral water (Litre)	3 269 181	3 270 732	877 894
Manganese	49 827	50 093	3 802 954
Magnesite	1 065	637	19 049
Coal	5 714 119	3 577 537	102 281 904
Sodium sulphate	1 260	669	99 940
Trass	3 017	3 017	—
Tungsten	250	—	—
Emery	4 802	4 602	200 798

Total expenditure of Chromium Mines during 1953.

	Number of labour per day	Sum of Wages paid		Sum of salaries paid		Labour allowance		Cost of prospecting transportation concentration and smelting		Sundries		Transportation and loading	
		T. L.	T. L.	T. L.	T. L.	T. L.	T. L.	T. L.	T. L.	T. L.	T. L.	T. L.	T. L.
Private concessions	965 556	4 156 797	640 471	107 531	1 387 318	394 982	3 584 237						
Privately owned mines holding exploration permit	952 425	4 103 523	525 824	230 776	476 460	211 531	3 176 674						
Total for private enterprise	1 917 981	8 260 320	1 166 295	338 307	1 863 778	606 513	6 760 911						

Total expenditure of lignite mines during 1953

Lignite from privately owned mines holding exploration permit	19 498	82 395	14 050	7 329	15 660	85	14 388
Lignite from the privately owned mines holding exploitation permit	148 897	663 764	69 211	26 583	91 729	29 766	215 393
Private concessions	302 324	1 302 567	464 761	107 841	137 371	253 474	347 039
Total	470 719	2 048 708	548 022	141 753	244 760	283 325	576 820

Total expenditure of Manganese, and Iron ore Mines during 1953.

Total expense for manganese	193 571	895 151	184 980	75 462	208 349	110 362	831 211
Total expense for Iron ore	63 380	786 210	108 841	77 530	32 924	69 607	1 627 558

Total expenditure of chromium during 1954.

	<u>Number of labour per day T. L.</u>	<u>Sum of wages paid T. L.</u>	<u>Sum of salaries paid T. L.</u>	<u>Labour allowance T. L.</u>	<u>Plants built during the year T. L.</u>	<u>Cost of washery and trans- portation T. L.</u>	<u>Sundries T. L.</u>	<u>Loading and trans- portation T. L.</u>
Chromium mines privately owned holding exploration permit	213 577	900 684	282 870	67 118	81 773	73 358	10 721	400 722
Private concessions	566 167	2 628 794	601 082	132 497	421 228	843 653	165 456	2 079 390
Total	<u>779 744</u>	<u>3 529 478</u>	<u>883 952</u>	<u>199 615</u>	<u>503 001</u>	<u>917 011</u>	<u>176 177</u>	<u>2 480 112</u>

Expenditure of lignite mines during 1954

Privately owned lignite mines holding exploration permit	98 352	432 843	71 790	34 352	379 172	53 609	40 983	313 113
Privately owned lignite mines holding exploitation permit	188 782	1 069 668	252 625	42 886	248 863	119 995	77 484	223 707
Private lignite concessions	325 823	1 575 795	201 602	171 097	301 234	136 441	331 122	573 121
Total	<u>612 957</u>	<u>3 078 306</u>	<u>526 017</u>	<u>248 335</u>	<u>929 269</u>	<u>310 045</u>	<u>449 589</u>	<u>1 109 941</u>

Expenditure of Magnese mines during 1954

Total expenditure for Manganese Mines	76 605	375 163	182 946	56 272	192 950	126 008	18 831	554 896
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Production, shipped tonnage and FOB sale value of chromium ores during 1954.

	Production Ton	Shipped Tonnage	Fob sale value T. L.
1 — Total from private concessions	265 435	206 117	21 557 111
2 — Total from privately owned mines holding exploration permit	163 361	79 192	5 364 433
Total	428 796	285 309	26 921 544

Production, delivery and FOB sale value of lignite, during 1954.

1 — Total from private concessions	238 612	221 778	4 900 778
2 — Total from privately owned mines holding exploration permit	65 350	63 563	1 765 628
3 — Total from privately owned mines holding exploitation permit	139 589	133 868	2 581 399
Total	443 551	419 209	9 248 805

Production, shipped tonnage and FOB sale value of Manganese during 1954.

Total	49 827	50 093	3 802 954
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1952 - 1954 Production figures of the Sümerbank Factories.
Iron and Steel - Heavy Industry.

	1 9 5 2 Ton	1 9 5 3 Ton	1 9 5 4 Ton
1. Coke	399 867.2	538 270.5	509 113.—
2. Pig iron	89 250.6	99 145.8	195 681.—
3. Steel	153 465.1	162 641.1	168 893.—
4. Manufacture of wire	115 874.4	136 158.8	133 765.—
5. Pipe (cast)	7 095.8	6 791.7	7 037.—

Chemical and Building Material Industry.

1. Cement	185 309.—	187 129.—	155 837.—
2. Paper and cardboard	29 287.—	28 867.—	40 670.—
3. Sulphuric acid	20 093.7	23 154.—	22 930.—
4. Super phosphate	21 234.2	22 027.—	20 577.—
5. Costic soda	1 925.—	2 014.—	1 864.—
6. Fire brick and cementing material	6 327.—	7 967.—	12 211.—
7. Brick (piece)	3 199 435.—	028 402.—	5 922 899.—
8. Tile (piece)	4 809 300.—	315 651.—	3 397 998.—