THE MINERAL INDUSTRY OF

GERMANY

By Harold Newman

Germany's economic development slowed in 1995 and continued to be led by exports and investment, with private consumption taking a more important role. The gross domestic product (GDP) increased by 1.9% as a whole. Because the pre-reunification and post-reunification German economies were still not entirely comparable in 1995, data for both parts were still being collected by the Statistisches Bundesamt (Federal Bureau of Statistics). Estimated German growth rates are a function of an 8% to 9% growth in eastern Germany, combined with more than 2% growth in western Germany.

Germany remains the largest economy in Europe and accounts for more than one-fourth of the European Union's (EU) GDP. Despite a rise in value of the Deutsche mark, the economy was helped by exports which rose 3.7% in 1995 in real terms. Unemployment during the year averaged about 9% for the country as a whole. The rate in western Germany averaged about 8%, while the rate in eastern Germany averaged about 13%.

Government Policies and Programs

The German Government's policies were concerned with fighting inflation, lowering unemployment, increasing the country's international competitive status, safeguarding the environment, and continuing with the incorporation of the five States of the former German Democratic Republic (GDR). The agency responsible for privatizing the former GDR state holdings, the Treuhandanstalt (Trustee Agency), ceased to exist at yearend 1994 after privatizing or closing a significant number of operations. The remaining properties were transferred to the Beteiligungs Management Gesellschaft GmbH (Interest Management Association).

The Federal Government continued to provide subsidized, long-term loans, along with new tax incentives, to encourage private investment by companies in the eastern States and it continued to send the equivalent of \$100 billion per year into the eastern States in the form of subsidies and social benefits.

Germany's Constitutional Court ruled that a levy on electricity bills paid by industrial and private consumers, the Kohlepfenning (coal penny), was unconstitutional and was to be phased out by the end of 1995. The Kohlepfenning amounted to a 8.5% surcharge on electricity and was used to subsidize the steam coal industry by bridging the price gap between domestic coal and cheap imports and to guarantee jobs for miners. In 1960 the mines employed about 600,000

workers; in 1990 about 100,000 were employed.

Ending of the Kohlepfenning would coincide with the ending of another subsidy, the Jahrhundertvertrag, which obliged German electricity generators to purchase at least 40 million metric tons per year (Mt/year) of domestic coal. These two subsidies placed German electricity among the most expensive in Europe.

Part of the Constitutional Court's ruling was that any subsidy was to come out of general Government taxes. This initiated debate on whether to raise taxes beyond what had already been proposed or to end the subsidy. The Government has been subsidizing the industry with about \$5 billion per year since the surcharge was introduced in 1975. Also, questions were raised as to what effect ending the subsidy and opening the hard coal industry to free market forces would have on the steel and metals industries.

Environmental Issues

Policies dealing with the environment in Germany are the responsibilities of the Minister for the Environment. With regard to mining, environmental concerns are addressed under the federal Mining Law, and its provisions for environmental impact assessment that are to be completed before mining can start. The objective of the environmental impact assessment is the identification and evaluation of all environmental consequences of a planned project, taking into account various design options, including the zero option. The environmental evaluation process in Germany, as in other countries, presents a risk for the company involved because there is no guarantee that, after completion of the assessment, usually involving considerable time and resources, the project will be approved.

Under provisions of the federal mining law, the following are required in conjunction with the assessment:

- •Description of the expected environmental consequences.
- •Data to support the identification and estimate of the consequences.
- •Description of the preventive measures for avoidance, reduction, equalization, or substitution of the consequences.
 - •Data concerning the environment and its components.
 - •Data on alternatives to the planned project.
- •Difficulties associated with gathering the necessary data. In addition to the environmental laws and regulations enacted by the Government, individual companies and plants were committed to reduce pollution. This commitment was

shown by an increase of more than 13% in total expenditures for environmental protection in 1995. The majority of funds were spent on clean air and water quality protection; however, expenditures on noise reduction, transport of hazardous materials, and the treatment and decontamination of polluted sites also increased.

Production

The production industry, which includes the industrial processing industry, construction industry, and mining industry, contributed 0.9% to the GDP with mining showing a - 3.1%. Production in the mining and metals industries, as in other industries, depends on a variety of forces including availability of materials and supply and demand. The easing of the worldwide recession was a positive factor for these industries that depend very much on exports. The high costs of production in Germany compared with those of competing foreign producers and the problems caused by trying to balance production between the merged eastern and western States helped to constrain production. To maintain and potentially increase production and activity in the minerals and metals industry, producers and labor unions worked, in 1995, to restructure the traditional work rules that some called a restrictive factor in the expansion of the industry. (See table 1.)

Trade

Total value of exports of all goods for 1994, the latest year data were available, was \$423 billion. The value of imports was \$377 billion with France, at 11%, the major supplier. The United States, at 7.3% was fourth largest supplier. The United States had a + \$6-billion trade balance with Germany. Table 2 shows a balance of payments of selected commodities.

As a major world processing nation, Germany relied on imports to feed the bulk of the metals industry, transforming the raw materials into products that supplied the manufacturing industry, which provided the bulk of the country's exported materials.

Structure of the Mineral Industry

The structure of the industry in Germany and the principal companies operating in the production and processing of metals and minerals are shown in table 3. The restructuring and privatization of the facilities in the eastern States continued in 1995. The Interest Management Association was retaining control of some of the eastern States companies until they are sold or closed. Most of the producing and processing facilities still in operation in the eastern States were small compared with those in the western States, except for lignite and potash, which were very large operations.

Commodity Review

Metals

Aluminum.—In 1995, Germany's primary aluminum industry was the largest in the EU, although it was considered medium-sized when compared with other world producers. Increased demand and increased price of aluminum resulted in an increase in production. VAW Aluminium AG accounts for more than 75% of primary aluminum production. VAW announced plans to improve its position in downstream fabrication, investing in and expanding foil production, flexible packaging, and cast and sheet products for the automobile industry. The company was proceeding with converting its primary smelter at Töging to a recycling plant. VAW stated that one of the main reasons for doing this was the high cost of shipping the alumina feed.

Lead.—Metaleurop announced it was expecting to have its new lead smelter in Nordenham on-line the first part of 1996. The old facility was closed in early December to make way for the new smelter. Because activity was halted at the old facility and output will be reduced in the startup period, the plant was expected to produce only 64,000 metric tons of refined lead in 1996 versus a normal 120,000 metric tons per year (t/yr). Full production was expected in 1997.

Metallgesellschaft AG, Frankfurt, announced it had transferred ownership of its Austrian secondary lead unit, BMG Metall und Recycling GmbH, to its metals holding company, Rheinische Zinkgesellschaft GmbH, Duisburg, as another step in the restructuring of its metals division. All the group's secondary lead plants are now grouped together, which was expected to facilitate greater cooperation between them. The metals group also includes electrolytic zinc production and zinc semifabricating operations in Germany.

Steel.—The German steel industry continued to maintain a high productivity level even though steel demand had softened and the German construction market was slowing down. Most companies were showing better financial results than had been the case in previous years. Strong demand for steel products on export markets (Asia and the United States) had a positive effect on the industry's traditional European market.

In January 1995, the Treuhandstalt negotiated the sale of 60% of the Eko Stahl AG plant in Eisenhuttenstadt to the Cockrill Sambre Group of Belgium. Eko was the largest steel plant in the former GDR. Eko was proceeding with modernization of the mill which was scheduled to be completed by yearend 1997. Modernization of the plant's cold-rolling facility was scheduled to be completed in 1996 at a cost of \$79 million. Construction of a 1.4-Mt/yr blast furnace was scheduled to be completed in the first half of 1997 at a cost of \$206 million, and the installation of a hotrolling line was scheduled for completion in the second half

of 1997 when a \$123-million upgrade of the plant's energy and power distribution system was also to be completed. The absence of a hot-rolling line had been the main reason for the inefficiency and high operating costs of the plant. Between October 1990 and yearend 1994, the Treuhandanstalt had provided more than \$840 million in subsidies to keep the Eko plant operating.

Industrial Minerals

Cement.—According to latest available data, domestic sales in 1994 were up by 11% over those of the previous year. Exports, including clinker, also increased substantially, up to 2.3 Mt in 1994, compared to 1.9 Mt in 1993. Imports, with a 13% increase, rose more rapidly to 7.1 Mt in 1994, compared to 6.2 Mt the previous year.

The Treuhandanstalt sold the former GDR's businessess, mostly to either German or other Western European companies, and a number of these plants were being extensively modernized. Cement demand had increased significantly; so, companies were upgrading plants for more cost-efficient production.

Clays.—There are between 140 to 160 small-to mediumsized clay mines in operation at one time in Germany. About one-half of the high-quality refractory and ceramic clays was produced in the Rhineland-Palatinate area. Production in Bayaria is concentrated in the Oberfalz area.

Bentonite was almost exclusively mined in Bavaria. Süd-Chemie AG, in Moosburg, was the largest bentonite producer in Western Europe. The second largest company was Erbslöh Geisenheim Industrie GmbH, in Geisenheim. About 30% of the bentonite production was exported for use by the drilling, construction, foundry, and water purification industries.

Most of German kaolin is mined in Bavaria. The country is the second largest producer of kaolin in Western Europe after the United Kingdom. Still, the country imports about 50% of its requirements of high-quality paper-coating-grade kaolins. Amberger Kaolinwerke GmbH was the largest producer, with mines in Hirschau, Bavaria.

Graphite.—Graphitwerk Kropfmühl AG was the only natural graphite mining and processing company in Germany. The company operated a mine and plant at Kropfmühl, Passau, and a plant at Werk Wedel, Holstein. About one-half of the company's production, which has been falling in recent years because of declining reserves, went into the European refractory industry.

Gypsum.—Germany is a major European producer of crude gypsum. The largest producer was Gebr. Knauf Westdeutsche Gipswerke GmbH which accounted for more than two-thirds of the gypsum produced. The company operated mines in Bavaria, Baden Wurttemberg, Hesse,

Saarrland, and Lower Saxony. The second largest producer was Rigips Baustoffwerke GmbH, which operated mines in Baden Wurttemberg and Lower Saxony.

Magnesia.—After withdrawing from fused alumina and fused spinel production in recent years, Hüls AG announced it was to withdraw from fused magnesia production at the end of the first quarter of 1996. With a production capacity of 15,000 t/yr of fused magnesia at its Niederkassel plant, Hüls was the world's second largest supplier after Universal Ceramic Materials PLC. of the United Kingdom. Since the world electric-grade fused-magnesia supply market was about 45,000 t/yr in 1995, Hüls withdrawal took out a considerable portion of the world's capacity. The major use of fused magnesia is in ceramic insulators for heating elements.

Potash.—After the merger of all activities of Mittledeutsche Kali AG and Kali und Salz AG was completed; and Kali und Salz Beteiligungs AG, in conjunction with Beteeiligungs Management Gesellschaft Berlin GmbH, began operations, the potash industry became more settled and regained its traditional position. With a 15% share of the world's production of potash, Germany is the world's second largest producer after Canada.

Kali und Salz GmbH (K&S) concentrates on the mining operations. K&S operated seven mines and, after closings and the restructuring that were scheduled to be completed by 1997, will have a potassium chloride production capacity of 4 Mt/yr of which 2 Mt/yr will be standard grade and 2 Mt/yr will be granular grade. This capacity will be slightly more than 50% of the overall total capacity of the two separate industries prior to the merger.

Mineral Fuels

The most important energy source in Germany's consumption of primary energy is petroleum with a 40% share of total consumption. Next is natural gas with a 20% share; coal with a 15% share; lignite with 13%; nuclear with a 10% share; hydroelectricity and wind power with a 1% share each; and miscellaneous sources, such as firewood and waste, with a 1% share. About 30% of Germany's primary energy requirement was satisfied from domestic sources with the remaining 70% imported.

Anthracite and Bituminous Coal.—Subsidies that have for so long supported Western Europe's coal industry were slowly but surely being phased out. It was expected that coal producers will be operating without subsidies by the year 2000.

About 77% of hard coal production was from the Ruhr Coalfield where it is mined from seams at depths exceeding 900 meters (m). The coal ranged from anthracite to high-volatile bituminous coal. The Saar Coalfield was also

important, with substantial deposits of bituminous coal. The hard coal industry was dominated by a single company, Ruhrkohle AG, which operated 14 of the existing 19 mines and preparation plants and produced about 40 Mt/yr of clean coal.

Lignite.—The lignite deposit in the Rhine region is the largest single formation in Europe. In the eastern States, there are major deposits at Halle Leipzig and Lower Lausitz which have considerable domestic importance.

Lignite mining, in the western States at least, was under less pressure than hard coal mining. Rheinbraun AG was Germany's major lignite producer and mined more than 100 Mt/yr. Electricity generation by the coal-fired power stations of RWE Energie accounted for 85% of Rheinbraun's production.

In the eastern States, Lausitzer Braunkohle (Laubag) was continuing to downsize in anticipation of decreased demand. Despite an unchanged 13% share of primary energy consumption, lignite output declined by 7% in 1995. Reportedly, Laubag was expecting demand to level off at around 50 Mt/yr from the current 55 Mt/yr. Lignite fueled 87% of the eastern State's power requirements and can be expected to cover at least one quarter of German electricity demand into the next century.

In an environmental move, Federal and State authorities were to pay \$8 billion for one of the largest reclamation programs for the lignite mines of the eastern States. The program, started in 1991 and scheduled to end in 1997, was extended to 2002. The program calls for removal of contaminated material and reclaimation of about 10,000 hectares. This program follows the closure of the uneconomical or depleted mines of both Laubag and Mibrag.

Infrastructure

Germany had a total of 625,600 kilometers (km) of highways and roads, ranging from the high-speed Autobahn system to undeveloped gravel and packed-dirt country roads. Of the total, the Autobahn consisted of 10,814 km; national highways, 43,786 km; state highways, 99447 km; and municipal, county, and secondary roads, 471,553 km. The railroad system included 45,468 km of track, about 90% of which is Government-owned. Of the total, 44,769 km was 1.435-m standard-gauge, and 699 km was 1.000-m gauge track. Pipelines included a 3,644-km line for petroleum, 3,964-km line for refined products, and 97,564-km line for natural gas. Inland waterways and canals consisted of 7,541 km and 31 major ports, with the Kiel Canal serving as an important connection between the Baltic and North Seas and the Rhein-Main-Danube-Canal serving as a connection between the North Sea and the Black Sea. The major maritime Ports of Hamburg, Rostock, Bremerhaven, Bremen, and Wihelmshaven together accounted for about 70% of total

merchandise traffic.

Outlook

Germany's economy was expected to expand steadily for the next few years despite the huge burden of unification costs on the national economy. As growth in Germany's international trading partners increases, Germany's industrial production was expected to grow to meet the demands for consumer products. Restructuring industries to be more efficient resulted in increased unemployment, which, in turn, cut into the available resources of the Federal Government in the form of payments for unemployment compensation, retraining, and other social costs. This is expected to continue in the short term.

Major Sources of Information

Statistisches Bundesamt (Federal Statistics Office) Gustav-Stresemann-Ring 11 65180 Wiesbaden, Germany

Bundesanstalt für Geowissenschaft und Rohstoffe (Federal Institute for Geosciences and Natural Resources) Stilleweg 2, Postfach 51 01 53 30361 Hannover, Germany

Bundesministerium für Forschung und Technologie (Federal Ministry for Research and Technology) Heinemannstrasse 2 53175 Bonn, Germany

Bundesminsiterium für Wirtschaft, Abteiling III, Energiepolitik, Mineralische Rohstoffe (Federal Ministry for Economics, Section III, Energy Policy and Mineral Raw Materials)

Villemombler Strasse 76

53100 Bonn-Duisdorf, Germany

Deutsches Institut für Wirtschaftsforschung (German Institute for Economic Research) Köningen-Luise Strasse 5

14195 Berlin (Dahlem), Germany

Major Publications

Aussenhandel (Foreign Trade), Statistisches Bundesamt.

Der Bergbau und der Bundesrepublik Deutschland: Statistische Mitteilungen der Bergbehorden (Mining in the Federal Republic of Germany: Statistical Reports).

Bundesministerium für Wirtschaft. Jahrbuch für Bergbau, Energie, Mineralöl und Chemie (Mining, Energy, Petroleum, and Chemical Yearbook) Essen, Glückauf GmbH.

Statisches Jahrbuch für die Bundesrepublik Deutschlands, (Statistical Yearbook for the FederalRepublic of Germany), Wirtschaft und Statistik (Economics and Statistics). Statistisches Bundesamt.

${\bf TABLE~1}$ GERMANY: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995 e/
METALS					
Aluminum:					
Alumina, Al2O3 equivalent			0.40.000		
Calcined thousand		857	840,000	824	825
Hydrate Matel	<u>do.</u> 1,150	1,120	1,110	951	1,000
Metal: Primary	690,322	602,791	551,933	504,956	575,000
Secondary	690,322 541,644		408,120	397,900	400,000
Arsenic, white, As2O3 content e/	300	,	300	250	250
Cadmium metal, refinery including secondary	1,048	961	1,056	1,145	1,145
Cobalt metal including alloys	975	815	602	856	800
Copper:					
Metal:					
Smelter:					
Primary Primary	186,200	179,100	141,300	237,400	242,100
Secondary	70,000	55,800 r/e/	60,000 r/e/	54,800	66,000
Refined:					
Primary	203,245	236,100	270,400 r/	252,900	247,200
Secondary	318,300		361,487	339,000	369,100
Gold, mine output, Au content kilogr	<u>ams</u> 10	e/			
Iron and steel:					
Ore and concentrate:	120,000	100,000	146,000/	145.760 -/	1.45.000
Gross weight Fe content	120,000 16,841	109,000 15,326	146,000 r/ 23,302 r/	145,760 e/ 21,222 e/	145,000 20,000
Metal:	10,641	13,320	23,302 1/	21,222 6/	20,000
Pig iron thousand	tons 30,989	28,547	26,969 r/	29,923 r/	30,000
Ferroalloys (includes speigeleisen, unspecified crude iron, and	30,707	20,547	20,707 1/	27,723 17	30,000
blast furnance ferromanganese with 2% or more carbon)	do. 384	237	136 r/	291 r/	280
Of which ferrochromium	do. 34		150 1/ 16 r/	17 e/	16
Steel, crude	42,169	39,712	37,625 r/	40,836 r/	42,051
Semimanufactures	do. 32,881	31,553	29,840 r/	32,067 r/	32,000
Lead:		,		,	,
Mine output, Pb content, recoverable	5,930	2,100			
Metal:					
Smelter	161,000	175,000	175,000 r/	189,000	180,000
Refined:					
Primary	160,810	,	174,595 r/	189,435 r/	190,000
Secondary	201,700		159,561 r/	142,249	145,000
Nickel: metal, refined	850	500 r/e/			
Platinum-group metals:	1 100	- /			
Mine output, metal content kilogr Metal. refined e/				75.000	
Selenium metal	<u>do.</u> 65,000 110		60,000 120	75,000 125 e/	125
Silver:		123	120	123 6	123
Mine output, Ag content (recoverable) kilogr	ams 4,477	916	r/	r/	
Metal, refined e/	do. 700,000		600,000	600,000	600,000
Tin:		,	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,
Mine output, Sn content	118				
Metal, primary including secondary	700	200 r/e/	179 r/	100 e/	100
Uranium concentrate, U3O8 content	1,207	232	116 r/	50 e/	50
Zinc:					
Mine output, Zn content:					
Analytic content	54,000				
Recoverable content	46,861	11,767			
Metal including secondary	345,700	383,100	380,948 r/	359,900 r/	360,000
INDUSTRIAL MINERALS Abracivas:					
Abrasives: Natural, pumice	266,000	591,000	647,000	504,000	500,000
Artificial, corundum	366,000 68,500		58,931	56,601	56,000
Barite, marketable (contained BaSO4)	68,300 147,219	154,873	38,931 147,614	127,383	130,000
Boron materials, processed borax, Na2B4O7 10H2O content e/	3,000		2,000	1,500	1,500
Bromine e/	1,500		750	750	750
Cement:		,50			,50
Clinker (intended for market) thousand	tons 1,050	1,220	1,110	1,160	1,200
Hydraulic	do. 34,400		36,649	40,380	40,000
Chalk, crude including ground	do. 600		440	445	450
See feetnetes at and of table		-	_	_	-

See footnotes at end of table.

TABLE 1--Continued GERMANY: PRODUCTION OF MINERAL COMMODITIES 1/2/

(Metric tons unless otherwise specified)

Commodity		1991	1992	1993	1994	1995 e/
INDUSTRIAL MINERALSContinued						
Clays:		500	501	450 /	455	500
Bentonite the Bleaching and Fuller's earth	ousand tons	583 708	581 673	473 r/ 670 e/	475 e/ 498 e/	500 500
	do.					
Ceramic clay Fire clay	do.	3,000 e/	3,120	3,290	3,540 1,079	3,500
Kaolin, marketable	do.	1,080 684	1,280	1,190 981 r/	,	1,000
Unspecified and other	do.	761	1,185 r/ 571	981 r/ 888	1,631 e/ 900 e/	1,500 800
Diatomite	<u>uo.</u>					
Feldspar:		44,300	47,300 r/	51,700 r/	52,000 e/	50,000
Feldspar sand		65,000	50,000	50,000	50,000	50,000
Feldspar stone		10,000	10,000	10,000	10,000	10,000
Marketable, including byproduct		403,788	384,747 r/	360,154 r/	379.427 e/	375,000
Fluorspar:		403,788	304,747 1/	300,134 1/	319,421 6/	373,000
Acid-grade e/		53,500	50,000	39,000 r/	38,200 r/	38,000
Metallurgical-grade e/		7,400	3,050	997 r/	1,800 r/	1,000
Total		60,900	53,050	39,997 r/	40,000 e/	39,000
Graphite, marketable		15,807	11,963 r/	8,363 r/	4,369 e/	5,000
•	ousand tons	1,751	2,021 r/	3,129	3,484 r/	3,500
Lime, quicklime, dead-burned dolomite	do.	7,530	7,540	7,480	8,511	8,000
Magnesium salts (byproduct of potash mining)	do.	1,550	1,040 e/	797 r/	818	800
Nitrogen, N content of ammonia	do.	2,120	2,110	2,100	2,170	2,100
Phosphate materials:	uo.	2,120	2,110	2,100	2,170	2,100
Phosphatic fertilizers, P2O5 content		736	718	730	750	750
Thomas slag:		750	710	750	750	750
- <u> </u>	ousand tons	142	120	110	134 e/	150
P2Os content	ousura toris	21,000	18,000 e/	16,000 r/e/		19,000
Pigments, mineral, natural		7,040	10,100	7,710	7.475 e/	7,500
Potash:		7,0.0	10,100	,,,10	,,	7,200
	ousand tons	41,300	37,300	30,400	34,621	34,000
Crude, K2O content	do.	4,673	4,259	3,510	3,277	4,000
Marketable, K2O content	do.	3,708	3,758	2,860	3,286 r/	3,000
Pumice, marketable	do.	366	591	647	504	625
Pyrite, marketable concentrate, gross weight	do.	219	53			
Salt, marketable:		217	55			
Evaporated	do.	778	807	813	801 r/	800
Rock and other		9,923	9,559	9,772	9,731 r/	10,000
Sodium compounds, n.e.s.:		.,	. ,	,,,,,	. ,	.,
	ousand tons	1,949 e/	1,639 e/	1,586	1,380	1,400
Sulfate, manufactured	do.	146	114	107	113	110
Stone, sand and gravel:						
Stone:						
Dimension, crude and partly worked	do.	177,000	178,000	198,000	200,000 e/	200,000
Dolomite	do.	1,330	914	788	800 e/	1,000
Limestone, industrial	do.	58,110	63,000	59,900	62,271	60,000
Quartz and quartzite		26,000	29,500	24,200	28,744	30,000
Slate		64,600	55,400	66,900	89,400	90,000
Sand and gravel:						
	ousand tons	188,700	211,600	213,000	244,000	250,000
Gravel including terrazzo splits	do.	152,100	169,900	172,000	201,000	200,000
Sand:						
Foundry	do.	3,350	2,760	2,400	3,240	3,000
Industrial (glass)	do.	7,664	7,943	7,370	7,600	7,500
Sulfur, byproduct:		-				
Of metallurgy e/		23,047	23,021	33,450	35,000 e/	30,000
Of natural gas and petroleum e/		1,079,531	1,015,853	1,137,150	1,200,000	1,200,000
Other e/		83,968	99,649	90,000	90,000 e/	90,000
Total		1,186,546	1,138,523	1,260,600	1,325,000	1,320,000
Talc and steatite		22,700	23,500	21,200	11,538 e/	15,000
MINERAL FUELS AND RELATED MATERIALS						
Asphalt and bitumen, natural		19,700	22,300	19,900	23,100	20,000
Carbon black		380,000	376,000	335,000	299,000	300,000
Coal:						•
	ousand tons	66,438	65,906	58,283	51,985	52,000
	do.	279,401	241,751	221,748	207,131 r/	210,000
Lignite						

TABLE 1--Continued GERMANY: PRODUCTION OF MINERAL COMMODITIES 1/2/

(Metric tons unless otherwise specified)

Commodity		1991	1992	1993	1994	1995 e/
MINERAL FUELS AND RELATED MATERIALS	Continued					
Coke:						
Of anthracite and bituminous coal	thousand tons	15,900	14,700	12,100	10,919	10,000
Of lignite	do.	862	284	186	172	175
Fuel briquets:						
Of anthracite and bituminous coal	do.	860	677	585	460	450
Of lignite (including dust and dried)	do.	24,100	16,700	9,933	6,849	6,500
Gas:						
Manufactured:						
Blast furnace	million cubic meters	4,130	4,500	4,394	4,730	4,800
Coke oven	do.	3,350	3,500	2,900	2,640	2,600
Total	do.	7,480	8,000	7,294	7,370	7,400
Natural:						
Gross		21,890	18,770	18,680	20,442 e/	20,000
Marketed e/		20,000	17,600	17,500	18,322	18,000
Peat:						
Agricultural use	thousand tons	2,880	2,720	2,740	2,950	3,000
Fuel use		225,000 e/	188,000	180,000	173,000	170,000
Petroleum:						
Crude	nousand 42-gallon barrels	24,440	23,443	22,028	21,198	22,000
Refinery products:						
Liquefied petroleum gas	do.	29,100	30,800	32,800	39,500	38,000
Gasoline including aviation	do.	211,000	215,000	214,000	225,000	225,000
Naphtha	do.	61,000	69,100	76,100	87,300	80,000
Mineral jelly and wax	do.	3,060	4,270	3,930	3,820	3,600
Kerosene and jet fuel	do.	18,200	17,800	20,600	23,000	20,000
Distillate fuel oil	do.	308,000	309,000	344,000	355,000	350,000
Refinery gas	do.	32,300 e/	34,300 r/e	35,100	36,800	36,000
Lubricants	do.	4,860	5,110	4,690	4,880	4,800
Nonlubricating oils	do.	7,240	7,290	6,190	6,920	7,000
Residual fuel oil	do.	75,900	89,800	91,800	87,200	90,000
Bitumen and other residues	do.	22,000 e/	23,200 e/	23,100	25,500	25,000
Bituminous mixtures	do.	1,420	1,210	1,100	1,170	1,200
Petroleum coke	do.	8,660	8,630	8,940	9,540	9,000
Unspecified	do.	20,100	19,400	15,900	17,400	16,000
Total	do.	802,840 e/	834,910 e/	878,250	923,030	905,600

e/ Estimated. r/ Revised.

^{1/} Table contains data available through May 31, 1996. 2/ Data are from a combined Germany.

 ${\bf TABLE~2}$ GERMANY: 1994 BALANCE OF PAYMENTS, SELECTED MINERAL COMMODITIES 1/

(Thousand dollars)

	Exports	Imports	Net gain	Exports to	Imports from	Net gain
Mineral commodity	to EU	from EU	or (loss)	the world	the world	or (loss)
Crude industrial minerals:						
Chalk	1,842	18,148	(16,306)	3,287	18,261	(14,974)
Graphite, natural	4,306	48	4,258	9,387	13,397	(4,010)
Magnesite	287	1,224	(937)	607	2,255	(1,648)
Other	603,283	503,626	99,657	928,639	1,303,342	(374,703)
Total	609,718	523,046	86,672	941,920	1,337,255	(395,335)
Metalliferous ores:						
Iron ore	1,032	42	990	1,915	1,249,529	(1,247,614)
Copper	363	53,595	(53,232)	470	371,012	(370,542)
Lead		4,531	(4,531)		24,477	(24,477)
Tin	54		54	54		54
Zinc	3	3,656	(3,653)	5,957	148,745	(142,788)
Other (including waste and scrap)	1,331,935	687,507	644,428	1,931,610	2,361,284	(429,674)
Total	1,333,387	749,331	584,056	1,940,006	4,155,047	(2,215,041)
Nonmetallic mineral manufactures	718,660	802,040	(83,380)	1,347,224	1,652,341	(305,117)
Metals:						
Iron and steel	7,139,355	6,207,548	931,807	13,630,063	10,857,745	2,772,318
Mercury	164	108	56	1,655	327	1,328
Other nonferrous metals	3,905,048	3,203,675	701,373	7,124,188	8,458,761	(1,334,573)
Total	11,044,567	9,411,331	1,633,236	20,755,906	19,316,833	1,439,073
Mineral fuels	2,125,155	9,681,825	(7,556,670)	4,665,957	26,395,100	(21,729,143)

^{1/} Table prepared by Harold Willis, International Data Unit.

TABLE 3 GERMANY: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995

(Thousand metric tons unless otherwise specified)

	Major operating companies and		Annual
Commodity	major equity owners	Location of main facilities	capacity
Alumina	VAW Aluminium AG (special aluminas)	Plant at Schwandorf	430
Do.	Aluminium Oxid Stade GmbH (VAW, 50%)	Plant at Stade	750
Do.	Martinswerke GmbH (fused alumina, Alusuisse, 100%)	Plant at Bergheim	350
Aluminum	VAW Aluminium AG	Smelters at Innwerke at Töging, Elbewerke at Stade, Rheinwerke at Neuss, Lippenwerke at Lünen (secondary)	300
Do.	Aluminium Essen GmbH	Smelter at Essen-Borbeck	95
Do.	Hamburger Aluminium-Werke GmbH (VAW, 33%)	Smelter at Hamburg	120
Cement	38 companies, the major ones are:	64 mills (grinding) including:	59,000
Do.	Heidelberger Zement AG	Plants at Blaubeuren-Schelklingen, Leimen, Hassmersheim, Burglengenfeld, Kieferssfelden, and others.	(9,200)
Do.	Dyckerhoff AG	Plants at Amoneburg, Golheim, Neuwied, Neubeckum, and others.	(7,250)
Do.	E. Schwenk, Zementwerke KG	Plants at Allmendingen, Karlstadt, and Mergelstetten	(6,000)
Do.	Anneliese Zementwerke AG	Plants at Ennigerloh-Nord, Ennigerloh-Sud, Geske, and Paderborn	(3,500)
Coal, anthracite and bituminous	Four companies:	About 27 mines, including:	72,500, including:
Do.	Ruhrkohle AG	17 mines in Ruhr region	(54,000)
Do.	Saarbergwerke AG	5 mines in Saar basin	(11,000)
Do.	Preussag Anthrazit GmbH	Mine at Ibbenbüren	(2,500)
Copper	Norddeutsche Affinerie AG (Metallgesellschaft, 35%; M.I.M. Holdings, 35%; Degussa, 30%)	Smelter and refinery, both at Hamburg	290 350
Do.	Hüttenwerke Kayser AG	Refinery at Lünen	120

TABLE 3--Continued GERMANY: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995

(Thousand metric tons unless otherwise specified)

		Major operating companies and		Annual
Commodit	y	major equity owners	Location of main facilities	capacity
Lead		Metaleurop Weser Blei GmbH	Smelter and refinery at Nordenham	113
				120
Do.		Berzelius Metallhütten GmbH	QSL smelter at Stolberg	75
Do.		do.	Refinery at Duisberg	120
Do.		Norddeutsche Affinerie AG	Refinery at Hamburg	50
Lignite		Rheinische Braunkohlenwerke AG (Rheinbraun)	Surface mines in Rhein Basin: Garzweiler,	105000
			Fortuna/Bergheim, Zukunft/Inden, and Hambach	
Do.		Braunsweigische Kohlen-Bergwerke AG	Surface mines in Helmsted Basin: Alversdorf,	4,500
		LAUDAC (DWEE : D ELL	Helmstedt, Schöningen, Offledben, and Buschhaus	116,000
Do.		LAUBAG (RWE Energie, PreussenElektra,	Surface mines in Lausitz Basin: Cottbus,	116,000
		Bayernwerk)	Glückauf, Oberlausitz, Senftenburg, and Welzow	100,000
Do.		MIBRAG (Vereinigte Mitteldeutsche	Surface mines in Bitterfeld Basin: Borna,	100,000
X . 1	2112 1 2	Braunkohlenwerke AG)	Deuben, Geisetall, and Regis	0.500
Natural gas	million cubic meters	Brigitta Erdgas und Erdöl GmbH, and Elwerath Erdgas und Erdöl GmbH	Plants at Clenze and Grossenkmeten	9,500
Do.	do.	Mobil Erdgas-Erdöl GmbH	Plants at Scholen	4,000
Do.	do.	Other companies	Plants at Duste, Rutenbrock, and others	2,000
Petroleum:		_		
Crude	42-gallon barrels per day	The largest companies are:	6 areas with about 85 oilfields	80,000
Do.	do.	Elwerath Erdgas und Erdöl GmbH	West of Ems River	(30,000)
Do.	do.	Wintershall AG	Weser-Ems Rivers	(21,000)
Do.	do.	Deutsche Texaco AG	Elbe-Weser Rivers	(20,000)
Refined:	do.	About 25 companies, of which the largest:	20 refineries	2,062,000
				including:
Do.	do.	Deutsche Shell AG	Refineries at Godorf, Hamburg, and Grasbrook	(256,000)
Do.	do.	Esso AG	Refineries at Karlsruhe and Ingolstadt	(245,000)
Do.	do.	Ruhr Oel AG	Refinery at Gelsenkirchen	(215,500)
Do.	do.	Erdoel Raffinerie Neustadt GmbH	Refinery at Neustadt-Donau	(145,000)
Potash		Kali und Salz AG	Mines at Bergmannssegen-Hugo, Niedersachen-	2,300
			Riedel, Salzdetfurth, Sigmundshall, Hattorf,	K2O
			Neuhof-Ellers, and Wintershall	
Do.		MDK (Mitteldeutsche Kali und Sondershausen)	10 mines mostly in the state of Thüringen	3,500 K2O
Salt (rock)		Kali und Salz AG	Mines at Bad Friedrichshall-Kochendorf,	15,000
` ′			Braunschweig-Luneburg, Heilbronn, Riedel,	ŕ
			Stetten, and Wesel (Borth)	
Steel		Major companies including:	About 25 plants	45,000,
Do.		Thyssen Stahl AG	Plants at Krefeld, Duisburg, Hattungen Oberhausen, and Written	(13,000)
Do.		Fried. Krupp AG Hoesch-Krupp	Plants at Bochum, Dortmund, and Rheinhausen	(9,000)
Do.		Stahlwerke Peine-Salzgitter AG	Plants at Peine and Salzgitter	(4,500)
Do.		Klöckner-Werke AG	Plants at Bremen and Osnabruck	(4,200)
Zinc		Ruhr-Zink GmbH	Refinery at Datteln	200
Do.		Berzelius Metallhütten GmbH	Imperial smelter and fire refinery at Duisburg	100
Do.		Metaleurop Weser Zink GmbH	Refinery at Nordenham	130