

2005 Minerals Yearbook

CENTRAL EUROPE

THE MINERAL INDUSTRIES OF CENTRAL EUROPE CZECH REPUBLIC, HUNGARY, POLAND, AND SLOVAKIA

By Walter G. Steblez

The Czech Republic, Hungary, Poland, and Slovakia, which are the most economically dynamic countries of the former centrally planned economy areas of Europe and Central Eurasia, joined the European Union (EU) on May 1, 2004. The denationalization of the iron and steel sectors continued in the Central European region. Mining in these countries continued to undergo rationalization to meet market economy norms and had a much-reduced share in industrial production and gross domestic product than it had during the years of central economic planning when Government policies dictated mineral self-sufficiency at all costs.

CZECH REPUBLIC

The Czech Republic was an important Central European producer of heavy industrial goods manufactured by the country's toolmaking, machine building, and chemical industries. Steelmaking, the mining and processing of industrial minerals, and the production of construction materials continued to be of domestic and regional importance.

In 2005, the Czech Republic's real gross domestic product (GDP) increased by 6.1% compared with that of 2004. Based on purchasing power parity, the GDP in 2005 amounted to about \$175 billion (International Monetary Fund. 2006§¹). Industrial production increased by about 5.7% compared with that of 2004 (U.S. Central Intelligence Agency, 2005, p. 250). In 2005, the privatization of the iron and steel sector continued to be an important process in the country's mineral industry.

Government Policies and Programs

The Government continued programs of economic development that were consonant with the EU's criteria for newly admitted and applicant countries. The country's membership in The World Bank, the International Monetary Fund, the Organisation for Economic Co-operation and Development (OECD), and the World Trade Organization, as well as participation in the General Agreement on Tariffs and Trade, was largely an outcome of the Czech Republic's full orientation toward Western European political and economic values.

Three constituent Acts compose the country's mining law, which forms the foundation of the Government's mining and other mineral-related policies. These are Act No. 44/1988 Coll., on Protection and Use of Mineral Resources (the Mining Act), as amended; the Czech National Council Act No. 61/1988 Coll., on Mining Activity, Explosives, and State

Mining Administration (Authority/Sedenka), as amended; and the Czech National Council Act No. 62/1988 Coll., on Geological Works, as amended. The Mining Act classifies minerals as either "reserved" or "unreserved". The "reserved" category refers to mineral deposits that, apart from immediate market considerations, are determined to be necessary for the development of the national economy (GEOFOND, 2004, p. 10, 11). Other provisions in the Mining Act (law) address issues of licensing and Federal and regional compliance with environmental regulations during the exploration and exploitation of mineral deposits and the reclamation of minedout areas.

These regulations composed the environmental law of 1997 (Act No. 125/1997). The law became in force on January 1, 1998. The environmental law focuses on reducing the volume of waste, discreet collection of waste by category, and recycling. The law adopts the main provision of EU and OECD regulations and the Basel Convention. The catalog of wastes is compatible with the European Catalogue of Wastes of the EU.

Production and Trade

In 2005, the iron and steel industry constituted the major part of the country's metallurgical sector. The output of pig iron declined by almost 15% compared with that of 2004; crude steel production fell by about 12% (table 1). Trade data for 2004 (the latest year for which trade data were available), indicate that total imports of iron ore and concentrates amounted to about 7.6 million metric tons (Mt), or about 8% less than total imports of these commodities in 2003. Ukraine (about 61%) and Russia (about 33%) accounted for the major share of the Czech Republic's imports of iron ore and concentrate. Total imports of pig iron amounted to about 87,000 metric tons (t), which was an increase of about 21% compared with those of 2003; net imports of pig iron increased by 54%. Total exports of iron and steel scrap increased considerably to more than 1.4 Mt. Net exports of iron and steel scrap amounted to 898,000 t, which was an increase of about 43% compared with those of 2003 (GEOFOND, 2005, p. 28). Among industrial minerals, cement production increased by about 7.3% compared with that of 2004; sand and gravel and dimension stone output increased by about 15% and 5%, respectively. The output of diatomite rose by 15% compared with that of 2004. In 2005, dolomite production increased by more than 21%. Total dolomite imports in 2004 amounted to 441,823 t. Net imports of dolomite have been declining since 2000; net imports of dolomite in 2004 declined by about 20% compared with those of 2003 (GEOFOND, 2005, p. 209). Mined garnet output (pyrope ore) increased by about 2.4% compared with that of 2004 (table 1).

In 2005, the production of mineral fuels showed overall gains. Although the production of bituminous coal declined by about

¹References that include a section mark (§) are found in the Internet Reference Cited sections.

13% compared with that of 2004, the production of brown coal and lignite increased by almost 2% during this period (table 1). In 2004, imports of bituminous coal amounted to about 1.7 Mt; net exports were more than 4 Mt, or 9% less than in 2003. Natural gas production increased twofold compared with that of 2004; crude petroleum rose by about 2.3%. In 2004, total imports of natural gas amounted to 6,346 million cubic meters; about 79% of the total was imported from Russia. Russia also accounted for about 67% of the 6.5 Mt of petroleum that the Czech Republic imported in 2004 (GEOFOND, 2005, p. 89, 97, 107, 113).

Commodity Review

Metals

The Czech Republic's metals sector produced a broad range of base metals and semimanufactures from imported primary raw materials (ores and concentrates) and secondary materials (scrap). Although interest in gold mining continued in some parts of the Czech Republic, other metals reportedly were depleted. According to official data, most of the country's metallic mineral deposits as of December 31, 2000, were not economic.

All the raw materials consumed by the country's steel industry—iron ore and concentrate, and pellets and agglomerate—were imported. The steel industry operated eight steel plants with a collective capacity to produce almost 11 million metric tons per year (Mt/yr) of steel. The main steel producers were, in order of crude steel production capacity, Mittal Steel Ostrava (Nova Hut), Zelezarne Vitcovice (ZV, a subsidiary of the Evraz Group of Russia), Trinecke Zelezarny, and Poldi Hutte s.r.o. (a subsidiary of Scholz Edelstahl A.G.) and accounted for more than 87% of the country's total crude steel production capacity.

The privatization of the iron and steel industry and the increasing foreign investor interest in Czech ferrous metallurgy continued in 2005. In 2005, the Evraz Group of Russia acquired ZV for \$285 million following competitive bidding that included bids from Mittal Steel (Reuters, 2005).

Industrial Minerals

The Czech Republic was well endowed with and produced a broad range of industrial minerals that met most domestic construction and chemical industry requirements, as well as those for export. The availability of these mineral resources at the recent (2000 to 2004) average rate of mining ranged from about 43 years for gem-grade pyrope ore to about 3,000 years for silica raw materials. Such corrective additives as clays, loams, loess, sands, and shales needed by the country's cement industry to regulate the content aluminum (Al₂O₃), iron (Fe₂O₃), and silicon oxides (SiO₂) during clinker production were reported to have a combined mine life of about 1,343 years. Limestone, kaolin, and glass sand (in order of deposit sizes) were the industrial minerals that had the largest resources suitable for exploitation (GEOFOND, 2005, p. 119-120; Reuters, 2005).

Mineral Fuels

Bituminous or hard coal occurs mainly in the Upper Silesian Basin. Of the resources in this region, only about 15% is located in the Czech Republic; the balance of the resources is located in Poland. In addition to bituminous coal, the Czech Republic differentiates two types of lower rank coal—brown coal and lignite. The Czech Republic's brown coal deposits are worked in the northwestern part of the country in the Bohemian brown coal basins. The major brown coal basins are found in the Krusne hory Mountains region and cover an area of 1,900 square kilometers (km²). Coal also is mined in the Cheb, the Sokolov, and the Zitava basins. In 2005, the Government approved the privatization of Severoceske Doly AS, which was the leading coal producer in the country (Mining Journal, 2005a, b).

The Czech Republic's petroleum resources as of December 31, 2004, amounted to about 32.8 Mt, of which about 12.8 Mt was categorized as economic proven; 8.6 Mt as economic probable; and about 11.4 Mt as subeconomic. Total resources of natural gas were put at about 42 billion cubic meters (GEOFOND, 2005, p. 108, 116).

Outlook

The Czech Republic is expected to continue to rely on imports of natural gas and petroleum, given the country's limited resources of these commodities. Import reliance on base and precious metals also will continue, although demand is not expected to increase significantly owing to the fairly high technological level of the Czech Republic's fabrication and service sectors. In these sectors, material input per unit of output is expected to continue to decline from the high level of material input in production during the country's central economic planning period.

References Cited

GEOFOND, 2004, Mineral commodity summaries of the Czech Republic: Prague, Czech Republic, Ministry of the Environment of the Czech Republic, June, 210 p.

GEOFOND, 2005, Mineral commodity summaries of the Czech Republic: Prague, Czech Republic, Ministry of the Environment of the Czech Republic, June, 267 p.

Mining Journal, 2005a, CEZ Severoceske bid: London, United Kingdom, Mining Communications Ltd., July 15, p. 7.

Mining Journal, 2005b, Czech lignite sale: London, United Kingdom, Mining Communications, October 7, p. 3.

Reuters, 2005, Czechs seen rejecting Mittal offer for Vitcovice: London, United Kingdom, Reuters press release, July 11, 2 p.

U.S. Central Intelligence Agency, 2005, Czech Republic, in The world factbook: Washington, DC, U.S. Central Intelligence Agency, 698 p.

Internet Reference Cited

International Monetary Fund, 2006 (September), Czech Republic, World Economic Outlook Database, accessed September 1, 2006, via URL http://www.imf.org/external/pubs/ft/weo/2006/02/data/weorept.aspx.

HUNGARY

Bauxite remained the only major nonfuel mineral produced in Hungary that was significant in terms of European mineral production. In 2004, Hungary maintained production of modest amounts of fossil fuels, industrial minerals, and metals. Despite substantial production of bauxite and alumina, Hungary's production of primary aluminum remained modest owing to limited domestic sources of energy. The production of coal, natural gas, and petroleum was sufficient to satisfy only about one-third of the country's annual energy needs.

In 2005, Hungary's real gross domestic product (GDP) increased by 4.1% compared with that of 2004. The GDP based on purchasing power parity amounted to \$10,814 (International Monetary Fund, 2006§). The gross output (value) of industry in 2005 rose by about 7%; the value of mining and quarrying production, however, declined by 15% compared with that of 2004. In 2005, mining and quarrying represented 0.4% of the value of industrial production (Hungarian Statistical Office, 2007, p. 27).

Government Policies and Programs

The Government based its regulatory policies for mining and geologic survey work on provisions in the Mining Law of 1993 (Act No. XLVIII). Section 50 of the Mining Law was the basis for Governmental Decree No. 132/1993, which constitutes the legislative underpinning for the Hungarian Geological Survey. The Mining Law and related decrees and codes established the legislative bases for estimating reserves, determining environmental risks associated with mining, and providing the geologic and technical information needed to outline tender conditions.

Government agencies that were responsible for enforcing existing environmental protection laws and regulations included the Ministry of the Environment and Regional Planning (KTM) and the Hungarian Mining Office (MBH). The KTM was authorized to help only in the enforcement of existing environmental legislation prescribed by other ministries of the Government. With respect to mining and minerals, Hungary's Ministry of Industry and Commerce had the primary responsibility for establishing environmental regulatory standards. The chief responsibility of the MBH was that of a certifying agency, which could review only technical developmental and operational plans. These plans were required to include provisions that pertain to environmental protection and land restoration by responsible entities.

Production and Trade

In 2005, with the exception of alumina and bauxite, the output levels of metal ores and metals did not significantly vary from the output levels of 2004. To meet its economic requirements, Hungary was dependent on imports of most metals (ores and concentrates and billets). The production of cement and most industrial minerals in 2005 remained at about the output level of 2004. Hungary's output of fossil fuels was modest. In 2005, two-thirds of the country's mineral fuel and energy needs was imported. Overall, mineral fuel imports constituted about 10% of Hungary's total imports in 2005 (Hungarian Statistical Office, 2006 p. 20, 24). In terms of value, the production of basic metals and their semimanufactures declined by 2.2% compared with

that of 2004; coke and refined petroleum and industrial minerals increased in value by 11.3% and 12.8%, respectively (Hungarian Statistical Office, 2007, p. 29).

Commodity Review

Metals

Bauxite mining and refining to alumina and manganese mining (manganese carbonate and oxide ores mined at Urkut) remained the only major metal mining and processing operations in Hungary. Gallium was produced as a byproduct of alumina refining.

Bakonyi Bauxitbanya Kft. [Bakony Bauxite Mines Ltd., a subsidiary of Magyar Aluminium Ltd. (MAL)] mined the bauxite in the Bakony District; Hungary's total resources of bauxite as of December 31, 2003, were estimated to be about 39 million metric tons (Mt) with a range of 47% to 52% Al₂O₂, 20% to 25% Fe₂O₃, and 6% to 8% SiO₂. About one-third of the bauxite was mined by the open pit method; the balance was mined underground at the Fenyofo and the Halimba Mines. In 2005, bauxite production declined by almost 17% compared with that of 2004 owing mainly to the closure of the Halimba III Mine (table 1; Magyar Aluminium Ltd., 2004, p. 6; Fodor and Kakas, 2005, p. 5). The new Halimba II bauxite mine, which had been put into operation in 2003, was designed to account for about one-third of the bauxite feedstock needed by domestic alumina refiners through 2009. To assure continued supplies of bauxite to its alumina refineries, MAL acquired ownership of three bauxite mines (formerly owned by Rudnici Boksita Jajce d.d.) in neighboring Bosnia and Herzegovina. In recent years, MAL has been the sole customer at the three Bosnian mines (Magyar Aluminium Ltd., 2004, p. 4).

In 2005, the output of mainly manganese carbonate ore by the Urkut Mine in the Bakony Mountains amounted to about 50,000 metric tons (t), which was about 2% more than that produced in 2004. Hungary's manganese ore was used to produce mainly blast furnace ferromanganese (table 3).

In 2005, Carpathian Gold Inc. of Toronto, Ontario, Canada, held discussions with Magyar Mining plc, a Hungarian exploration company, concerning the sale of Carpathian's gold exploration licenses and concessions in the Matra Mountains (about 133 square kilometers). Carpathian, however, continued to hold exploration licenses in Hungary at yearend at Fuzerradvany and Mad in the Tokay Mountains and at Kanazvar in the Matra Mountains northeast of Eger (Carpathian Gold Inc., 2005; 2006; Hungarian Statistical Office, 2007, p. 27).

Industrial Minerals

Hungary produced a broad range of industrial minerals that included aggregates, bentonite, kaolin, and perlite. Such industrial minerals as construction aggregates and cement continued to play an important role in Hungary's economy, especially in the modernization of the country's infrastructure. Highway construction planned through 2008 would continue to be an important element in the country's development of infrastructure.

Mineral Fuels

In 2005, Hungary reported a decline of about 14% in crude petroleum production compared with that of 2004. Because of limited domestic resources (about 22 Mt), most petroleum (9 Mt) continued to be imported from Russia via the Friendship pipeline (table 3; Fodor and Kakas, 2005). Similarly, a substantial and increasing amount of natural gas was imported from Russia through Russia's gas-main network.

Hungary classifies its coals into three categories—hard coal (bituminous), brown coal, and lignite. Brown coal and lignite were mined, for the most part, to fuel the country's thermal electric power stations. Lignite was mined by open pit at the Bukkabrany and the Visonta Mines; the output from these mines was used entirely at the Matra electric powerplant. In 2005, the output of lignite declined by 4% compared with that of 2004; brown coal output declined by almost 43%. The output of bituminous coal ceased owing to exhaustion of reserves (table 3). Resources of bituminous coal and lignite and brown coal as of January 1, 2003, amounted to about 197 Mt and 3,100 Mt, respectively (Fodor and Kakas, 2005).

Outlook

Hungary will continue to rely on imports of natural gas and petroleum and most metals. The need to develop modern infrastructure that conforms to EU standards is expected to stimulate an increase in the consumption of construction-related industrial minerals and base metals.

References Cited

Carpathian Gold Inc., 2005, Carpathian Gold announces letter of agreement for the sale of its Hungarian subsidiaries: Toronto, Ontario, Canada, Carpathian Gold Inc. press release, February 17, 1 p.

Carpathian Gold Inc., 2006, Annual report 2006: Toronto, Ontario, Canada, Carpathian Gold, Inc., December 31, 35 p.

Fodor, Bela, and Kakas, Kristof, 2005, Hungary, *in* Mining annual review: London, United Kingdom, Mining Communications Ltd., 7 p.

Hungarian Statistical Office, 2006, Hungary in figures 2006: Budapest, Hungary, Hungarian Statistical Office, 35 p.

Hungarian Statistical Office, 2007, Statistical report: Budapest, Hungary, Hungarian Statistical Office, no. 10/2006, January, 49 p.

Magyar Aluminium Ltd., 2004, Magyar Aluminium 2003 annual report: Budapest, Hungary, Magyar Aluminium Ltd., 30 p.

Internet Reference Cited

International Monetary Fund, 2006 (September), Hungary, World Economic Outlook Database, accessed September 1, 2006, via URL http://www.imf.org/external/pubs/ft/weo/2006/02/data/weorept.aspx.

POLAND

Poland is endowed with significant mineral resources, which include bituminous coal, copper and lead-zinc ores, salt, silver, and sulfur. In 2005, the country's reserve base of copper amounted to more than 5% of the world total (Edelstein 2007). Although world reserves of elemental sulfur in 2005 were not available, Poland's production of sulfur represented about 2% of total world output (Edelstein, 2007; Ober, 2007). Resources

of coal and salt were considered to be of world significance; Poland's share of global resources of silver, lead, and zinc amounted to about 19%, 4%, and 3%, respectively. The latest available inventory of the country's mineral resources indicated net gains in geologically documented resources, mainly for bituminous coal, ceramic clays, coal bed methane, and sulfur (table 7).

In 2005, after Russia, Poland remained the leading producer of copper in Europe and Central Eurasia and remained among the top 10 world mine producers of copper (Edelstein, 2007). Poland also continued to be among the leading world producers of nitrogen (in ammonia), salt, silver, and sulfur. In Europe and Central Eurasia, the country was a significant producer of lead and zinc and a leading producer of lime. According to the most recent data available (2004), Poland accounted for about 3% of total world output of bituminous coal (Główny Urząd Statystyczny, 2006a, p. 500).

According to the International Monetary Fund, Poland's real gross domestic product (GDP) registered a growth of 3.4% compared with that of 2004; the per capita GDP based on purchasing power parity was estimated to be \$12,994 (International Monetary Fund, 2006§). In 2005, the value of industrial production in constant prices increased by about 2.7% compared with that of 2004. During the same period, the value of output of the mining and quarrying sector in constant prices declined by almost 1% compared with that of 2004. In 2005, the value of the gross output of industry represented about 22% of the GDP; the value of mining and quarrying output was 2.3% of the GDP (Główny Urząd Statystyczny, 2006a; b, p. 454, 517).

Government Policies and Programs

The Government of Poland remained fully committed to privatizing the country's iron and steel industry. The total number of privately owned mining and quarrying enterprises reached 1,241 in 2005; there were 41 state-owned enterprises (Główny Urząd Statystyczny, 2006b, p. 43). Limited-liability companies, joint-stock companies, and partnerships constituted about 80%, 11%, and 4%, respectively, of the total mining enterprises. Steel trade issues and efforts to restructure and privatize Poland's steel industry continued to be among the leading mineral industry concerns during the year.

Production and Trade

In 2005, among the major metals, production increases were reported for copper (in ore, smelter and refined), gold, pig iron, and zinc (refined). Output shortfalls were reported for primary aluminum, lead (refined), crude steel, and hotrolled semimanufactures (table 5). Among the major industrial minerals, production increases were reported for, among others, bentonite; production decreases were reported for cement (hydraulic), processed feldspar, lime, limestone, and salt. Compared with output levels in 2004, production declines in 2005 were reported for total coal, natural gas, and petroleum (table 5).

Although Poland was a leading European producer and processor of nonfuel minerals and mineral fuels, Poland still

depended heavily on imports to meet demand. According to the Mineral and Energy Economy Research Institute of Poland's Academy of Sciences, of the 121 mineral commodities that were reviewed, 48 (40%) were in the category of total import dependence. Additionally, seven mineral commodities, or about 6% of the total, were in the category of import dependence of more than 50% (Ney and Smakowski, 2004, p. xi-xvii).

Commodity Review

Metals

Aluminum and Bauxite and Alumina.—Poland's primary aluminum, which was produced in Konin by Aluminium Konin-Impexmetal S.A. (Konin), was based entirely on imported alumina. Alumina imports in 2004 (the latest year for which trade data were available) amounted to about 146,000 t and were chiefly used in primary aluminum production (table 8). A small amount (less than 15%) was used in the nonmetallurgical sphere (cement, chemicals, glass, and refractories).

In 2005, the production of primary aluminum metal declined by about 7% compared with that of 2004. Imports of aluminum and aluminum products in 2005 increased by about 6% during the same period. Exports of aluminum and aluminum products during the same period rose by about 16% (tables 8 and 9).

Cadmium.—Because of its association with sphalerite (zinciron sulfide), cadmium in Poland was produced as a byproduct of lead and zinc mining and processing operations in the Silesia-Cracow region. In 2005, refined cadmium production at Huta Cynku "Miasteczko Slaskie" increased by about 16% compared with that of 2004. Cadmium reserves as of December 31, 2003, amounted to 66,450 t (contained cadmium), of which 21,990 t (contained cadmium) were being worked (Ney and Smakowski, 2004, p. 65).

Copper.—All copper ore in Poland was mined by Kombinat Gorniczo Hutniczy Miedzi (KGHM) Polska Miedz S.A. (KGHM S.A.), which was a major world copper mining, beneficiation, smelting, and refining complex in the Lubin area. KGHM accounted for about 3.5% of world mine copper production in 2005. Using the room and pillar method, the ore was worked at the Lubin, the Polkowice-Sieroszowice, and the Rudna Mines at five deposits at depths that ranged from 600 to 1,200 meters (about 1,900 to 3,700 feet). Chalcocite was the principal mineral in the ore; smaller amounts of bornite and chalcopyrite also were present. The mineralization was mainly in a shale horizon, but extends also into overlaying carbonate and underlying sandstone layers. As of December 31, 2005, total copper resources amounted to almost 2.0 billion tons (Gt), which contained about 42 million metric tons (Mt) of copper. Reserves that were under exploitation amounted to about 1.6 Gt of ore that contained about 34 Mt of copper (table 7).

The Rudna Mine with a mining capacity of about 11 Mt/yr was the leading copper ore producer. The concentrator at Rudna processed Rudna ores, as well as some ores from the Polkowice-Sieroszowice Mine; its capacity was rated to produce about 700,000 t/yr of concentrate. Annual output by the Polkowice-Sieroszowice Mine and concentrator amounted to about 9.2 Mt of ore and 450,000 t of concentrate. The Lubin Mine accounted

for about 7.5 Mt/yr of ore to produce about 465,000 t/yr of concentrate (Ney and Smakowski, 2004, p. 132-133).

In 2005, Poland's production of copper (in ore) increased by about 4% compared with that of 2004. The recovery of copper in concentrate remained at the level of 2004. The estimated total output of primary and estimated secondary smelter copper registered an increase of about 1% in 2005. The total output of electrolytically refined copper (primary and secondary) increased by about 2% compared with that of 2004 (table 5).

Trade data for 2005 show Poland's net exports of unwrought refined copper and copper alloys to have increased by about 6.4% compared with that of 2004. In 2004 (the latest year for which data were available), Germany, France, China, and Italy (in order of value of imports) were the principal importers of copper from Poland (table 9; Główny Urząd Statystyczny, 2005, p. 557).

In late 2005, KGHM officials indicated that the company must develop new copper deposits given that the current deposits in Poland face depletion in 11 years. To ensure the availability of future supplies of copper ore and concentrate, KGHM reported looking at additional investments in the Democratic Republic of the Congo, Peru (Rio Blanco copper project), and the Philippines (Metals Insider, 2005, 2006; Mining Journal, 2005).

Gold.—In 2005, Poland's gold production continued to be based almost entirely on the country's copper mining operations. The gold content of the copper concentrates produced by KGHM was reported to be about 1 gram per metric ton; total reserves were determined to be about 50 t (Ney and Smakowski, 2004, p. 202). In 2005, KGHM's copper refineries continued to increase the output of byproduct gold. The gold was recovered at KGHM's 550-kilogram-per-year precious metals plant (Boliden, Klado method), which was a division within the Glogow smelter and refinery. The amount of gold recovered at Glogow has varied with changes in the proportion of ores produced at the three mines, each of which has a different average gold content. Poland's annual domestic consumption of gold in recent years was in the range of about 296 to 530 kilograms (table 5; Ney and Smakowski, 2004, p. 202).

Iron and Steel.—In 2005, the total output of pig iron and crude steel fell short of 2004 production levels by 27% and 21%, respectively (table 5). Poland depended on imported iron ores and concentrates, and on such alloying materials as manganese ore, and chromite to produce the ferroalloys that were needed by the steel industry. According to 2005 trade data, imports of iron ore and concentrate declined by almost 38% compared with those of 2004. Imports of such semimanufatures as flat-rolled and stainless steel products, however, increased by more than 25% (table 8).

In 2004, Polskie Huty Staly S.A., which comprised the Huta Cedler, the Huta Florian, the Huta Katowice, and the Huta Sendzimira steelworks, was renamed Ispat Polska Stal S.A.; Ispat Polska Stal was a subsidiary of the Mittal Group, which was the world's leading steel producer. In 2005, Ispat Polska Stal S.A. was renamed Mittal Steel Poland (Metal Bulletin, 2004). To modernize these assets, Mittal signed agreements that called for Voest Alpine Industrienlagebau AG of Austria to build a new rolling mill (Huta Senzimira) and SMS Demag of Germany to provide a continuous casting line (Huta Katowice)

by yearend 2006. The total cost of these projects was valued at \$462 million (Reuters, 2005).

Lead and Zinc.—Poland worked 3 of the 21 known lead-zinc deposits in the Silesia-Crakow area, which hosted about 41 Mt of ore of the country's total resource of about 180 Mt of lead and zinc ore. Lead and zinc also were recovered from copper ore mined by KGHM in the Lubin region. About 33% of total mined lead came from copper mining and processing. Despite the presence of sphalerite in KGHM's copper deposits, the low zinc content of the ore had made metal recovery uneconomical to implement (Ney and Smakowski, 2004, p. 264, 502). In 2005, total mine production of lead in ore increased by about 33% compared with that of 2004; zinc in concentrate, however, decreased by 16%. The total output of refined lead (primary and secondary) in 2005 decreased by about 7% compared with that of 2004. In 2004, the total volume of imports of refined lead increased by 3% (tables 8).

In 2005, total refined zinc production (smelter and electrolytic) increased by 18.3% compared with that of 2004.

Silver.—In 2005, Poland remained among the major world producers of silver and accounted for more than 6% of world mine production (Brooks, 2007, p. 149). Copper and, to a lesser extent, lead and zinc mining were Poland's domestic sources of primary silver, which was associated with these ores. The country's copper mining, smelting and refining complex, which was operated by KGHM in the Lubin area, produced about 98% of the country's byproduct silver. In 2005, exports of silver fell sharply by 53%. The top three importers of Polish silver in 2004 were (in descending order of value) the United Kingdom, Germany, and Belgium (Główny Urząd Statystyczny, 2005, p. 182, 532).

Industrial Minerals

Poland produced a broad range of industrial minerals that included calcareous and silicate rocks and aggregates, clays, feldspar, gypsum, magnesite, salt, and sulfur, which served the needs of the country's chemical and construction industries. Poland remained among the leading world producers of lime, nitrogen (in ammonia), salt, and sulfur (Kostick, 2007; Kramer, 2007; Miller, 2007; Ober, 2007).

Mineral Fuels

Coal.—In 2005, bituminous coal production declined by more than 3% compared with that of 2004. In 2005, the country's net exports of bituminous coal and anthracite were about 1.7% less than in 2004. Germany, Austria, Slovakia, and Finland were (in order of value) the major importers of Polish coal (table 9; Główny Urząd Statystyczny, 2005, p. 219).

The Upper Silesian, the Lower Silesian, and the Lublin Basins have exploitable resources that amounted to 43,321 Mt of coal in 132 deposits. The Upper Silesian Basin represented the major portion of the country's total reserves, hosting about 79% of the total in 110 deposits (Ney and Smakowski, 2004, p. 224).

Natural Gas and Petroleum.—Poland depended on imports to meet its needs for oil and gas. In 2005, Poland's imports of petroleum increased by almost 2% compared with those of

2004 (table 8). The Russian Federation remained Poland's chief supplier of hydrocarbons which, in 2004 (in terms of value), supplied about 95% and 60%, respectively, of Poland's imports of petroleum and natural gas (Główny Urząd Statystyczny, 2005, p. 221, 223).

Outlook

Poland is expected remain an important world supplier of copper, salt, and sulfur and a major supplier coal, lead, and zinc to the European market. The country, however, will continue to rely on imports of natural gas and petroleum and iron ore and concentrate. As domestic sources of nonferrous metals become exhausted (2015 and beyond), Poland will increasingly depend on imports of commodities.

References Cited

Brooks, W.E., 2007, Silver: U.S. Geological Survey Mineral Commodity Summaries 2007, p. 149.

Edelstein, D.L., 2007, Copper: U.S. Geological Survey Mineral Commodity Summaries 2007, p. 52-53.

Główny Urząd Statystyczny, 2005, Rocznik Statystyczny Handlu Zagranicznego (Statistical yearbook of Poland's foreign trade): Glowny Urząd Statystyczny, September, 676 p.

Główny Urząd Statystyczny, 2006a, Maly rocznik statystyczny Polski (Concise handbook of Poland's statistics): Warsaw, Poland, Główny Urząd Statystyczny, June, 686 p.

Główny Urząd Statystyczny, 2006b, Rocznik statystyczny Pprzemyslu (Concise handbook of Poland's statistics): Warsaw, Poland, Główny Urząd Statystyczny, December, 522 p.

Kostick, D.S., 2007, Salt: U.S. Geological Survey Mineral Commodity Summaries 2007, p. 136-137.

Kramer, D.A., 2007, Nitrogen (Fixed)—Ammonia: U.S. Geological Survey, Mineral Commodity Summaries 2007, p. 114-115.

Metal Bulletin, 2004, LNM gets green light from Polish competition watchdog: Metal Bulletin, no. 8831, March 1, p. 21.

Metals Insider, 2005, Poland's KGHM said studying copper mine investments in Peru: London, United Kingdom, Metals Insider, December 16, p. 9.

Metals Insider, 2006, KGHM warns of depleting local deposits: London, United Kingdom, Metals Insider, January 3, p. 13.

Miller, M.M., 2007, Lime: U.S. Geological Survey Mineral Commodity Summaries 2007, p. 94-95.

Mining Journal, 2005, KGHM eyes Rio Blanco: London, United Kingdom, Mining Communications Ltd., April 15, p. 1.

Ney, Roman, and Smakowski, Tadeusz, eds., 2004, Bilans Gospodarki Surowcami W Polce Na Tle Gospodarke Swiatowoj 1998-2003 (Minerals yearbook of Poland): Krakow, Poland, Polish Academy of Sciences, Ministry of Environmental Protection, Natural Resources and Forestry, December, 515 p.

Ober, J.A., 2007, Sulfur: U.S. Geological Survey Mineral Commodity Summaries 2007, p. 160-161.

Reuters, 2005, Mittal signs \$462 deals to revamp Polish plants: London, United Kingdom, Reuters press release, July 19, 2 p.

Internet Reference Cited

International Monetary Fund, 2006 (September), Poland, World Economic Outlook Database, accessed September 1, 2006, via URL http://www.imf.org/external/pubs/ft/weo/2006/02/data/dbgim.cfm.

SLOVAKIA

Slovakia was a modest regional producer of a variety of minerals. Aluminum and steel production formed the dominant elements of the country's metals sector. Steel production largely was based on imported raw materials, and that of aluminum was based entirely on imported bauxite. Small quantities of copper, gold, lead, and zinc also were produced; the commercial deposits of these minerals have been virtually depleted. Industrial minerals production included that of barite, clays, magnesite, and salt. Slovakia's production of mineral fuels comprised brown coal and lignite and minor quantities of gas and petroleum (table 10).

The economy of Slovakia continued to develop towards a full market system. The need to denationalize the state's commercial assets and to reduce subsidies to the public sector expeditiously was tempered by policies promulgated to maintain social stability that often resulted in increased public sector employment and uneven economic performance. In 2005, Slovakia's real GDP increased by 6.1%. The per capita GDP based on purchasing power parity amounted to \$16,041. The total value of industrial production in 2005 continued to show recovery with a growth rate of 3.9% compared with that of 2004; the value of nonenergy-related mining and quarrying grew by 11.4%. Nonenergy-related mining and quarrying, however, declined by about 10% (International Monetary Fund, 2006§).

In 2005, Slovalco A.S., which was Slovakia's sole producer of primary aluminum, increased the output of alumina by about 3.6%; the production of primary aluminum fell short of output in 2004 by about 9% (table 10). About 16% of total sales of aluminum metal was consumed domestically; the balance was exported. Italy and Poland were the major importers of Slovakia's aluminum. The company reported the completion of modernization in the casthouse (Slovalco A.S., 2006). Activities in the aluminum sector in 2005 included plans announced by Alcan Inc. of Canada to invest \$35 million to build a new aluminum extrusion plant in Slovakia that would produce products for the construction sector. At yearend 2005, Sapa AB of Sweden conducted negotiations to buy Slovak aluminum semimanufactures producer Alufinal. The proposed deal would amount to \$42.3 million (Associated Press, 2005; Metals Insider, 2006).

Exploration for gold and resource assessment at the Kremnica gold exploration area continued during 2005 under the auspices of the Tournigan Gold Corporation of Canada (Tournigan Gold Corporation, 2005, p. 6).

In 2005, the country's steel output at U.S. Steel Kosice s.r.o. declined by about 7% compared with that of 2004. Pig iron production declined by almost 3% (table 10).

In the mineral fuels sector, brown coal production declined by about 15% in 2005 compared with that of 2004. Russia remained Slovakia's chief supplier of natural gas and petroleum and accounted for more than 98% of the country's imports of these fuels.

Outlook

Slovakia is expected to continue to produce modest amounts of industrial minerals and mineral fuels. With the possible exception of gold, metal mining has practically ceased owing to depletion of economic reserves. Aluminum and ferrous metals will continue to be produced from imported ores and concentrates. The country will remain dependent in imports of energy carriers and metals for its industrial needs.

References Cited

Associated Press, 2005, Alcan to invest \$35M in Slovakia plant: New York City, New York, Associated Press, September 28, 2 p.

Metals Insider, 2006, Sweden's Sapa closes buy of Slovak profiles manufacturer: London, United Kingdom, Metals Insider, January 5, p. 5.

Slovalco A.S., 2006, Annual report 2005: Ziar nad Hronom, Slovakia, Slovalco A.S., 68 p.

Tournigan Gold Corporation, 2005, Annual report, 2005: Vancouver, British Columbia, Canada, Tournigan Gold Corporation, December 9, p. 44.

Internet Reference Cited

International Monetary Fund, 2006 (September), Slovakia, World Economic Outlook Database, accessed September 1, 2006, via URL http://www.imf.org/external/pubs/ft/weo/2006/02/data/dbgim.cfm.

 $\label{eq:table 1} \textbf{TABLE 1}$ CZECH REPUBLIC: PRODUCTION OF MINERAL COMMODITIES 1

(Metric tons unless otherwise specified)

Commodity ² METALS		2001	2002	2003	2004	2005
Aluminum, metal, secondary ^e		20,000	20,000	20,000	15,000	15,000
		13,000 ^r	13,000 ^r	12,000 ^r	15,000 ^r	14,000
Copper, refined, secondary ^e	lailograma	2,000 3	2,000	1,000	1,000	1,000
Gold, metal ^e Iron and steel:	kilograms	2,000	2,000	1,000	1,000	1,000
Iron ore:		20				
Gross weight	thousand metric tons	20				
Fe content ^e		6,000				
Metal:	4114	(21(4.940	5 200	£ 20£	4.600
Pig iron	thousand metric tons	6,316	4,840	5,200	5,385	4,600
Ferroalloys, total electric furnace ^e	do.		6,512		7.022	
Steel, crude	do.	6,316 12,645 ³		6,800	7,033	6,200
Semimanufacturese	do.		12,500	12,500	12,500	12,500
Lead, metal, secondary ^e		25,000	25,000	26,000	25,000	25,000
Silver ^e		25	25	25	25	25
Uranium:		400	477	450	425	125
Mine output, U content		490	477	458	435	435
Concentrate production, U content		456	465	452	412	409
Zinc, metal, secondary	DATC	250	250	250	250	250
INDUSTRIAL MINER		2.550	2.217	2.465	2.700	2.070
Cement, hydraulic	thousand metric tons	3,550	3,217	3,465	3,709	3,978
Clays:		224	174	100	201	201
Bentonite	do.	224	174	199	201	201
Kaolin	do.	5,543	3,650	4,155	3,862	3,882
Other	do.	585	564	554 ^r	649 ^r	671
Diamond, synthetic ^e	carats	5,000	5,000	5,000	5,000	5,000
Diatomite		83,000	28,000	41,000 r	33,000	38,000
Dolomite		364,000	314,000	416,000	345,000	419,000
Feldspar		373,000	401,000	421,000	488,000	472,000
Fertilizer materials:		250,000 6	250,000 f	251 000	271 000	270 000
Nitrogenous, N content		250,000 e	250,000 e	251,000	271,000	270,000
Phosphatic, P ₂ O ₅ content ^e		100,000	100,000	100,000	100,000	100,000
Potassic, K ₂ O content ^e		20,000	20,000	20,000	20,000	20,000
Mixed		75,000 ^e	75,000 ^e	36,000	30,000	30,000
Gemstones, crude, pyrope-bearing rock		47,000	52,000	53,000	42,000 r	43,000
Graphite		17,000	16,000	9,000	5,000	3,000
Gypsum and anhydrite, crude		24,000	108,000	104,000	71,000	70,000
Lime, hydrated and quicklime	thousand metric tons	1,300	1,120	1,251	1,264	1,223
Nitrogen, N content of ammonia ^e		206,000	215,000	235,000	250,000	250,000
Sand and gravel:						
Common sand and gravel	thousand metric tons	12,100	12,400	13,401	13,653	15,673
Foundry sand		771	476	714	831	807
Glass sand		974	853	904	829	920
Stone:						
Basalt, for casting		15,000 e	14,000	13,000	12,000	12,000 e
Dimension stone	thousand cubic meters	300,000	285,000	244,000	273,000 ^r	288,000
Limestone and other calcareous stones	thousand metric tons	10,887	10,186	10,236	10,568	9,912
Building stone	thousand cubic meters	10,500	10,600	12,459	13,177	13,000
Sulfur, byproduct, all sources ^e		40,000	40,000	45,000	45,000	45,000
Sulfuric acid		220,200	240,524	239,000	234,000	230,000
MINERAL FUELS AND RELATE	ED MATERIALS					
Coal:						
Bituminous	thousand metric tons	14,808	14,097	13,382	14,648	12,728
Brown and lignite	do.	51,643	49,335	50,390	48,290	49,125
Coke	do.	3,519	3,536	3,556	3,538	3,500

See footnotes at end of table.

${\bf TABLE~1--Continued}\\ {\bf CZECH~REPUBLIC:~PRODUCTION~OF~MINERAL~COMMODITIES}^1\\$

(Metric tons unless otherwise specified)

Commo	Commodity		2002	2003	2004	2005
MINERAL FUELS AND RELAT	TED MATERIALSContinued					
Fuel briquets from brown coal	thousand metric tons	280	302	314	300	300
Gas:						
Manufactured, all types ^e	million cubic meters	800	800	800	800	800
Natural, marketed ⁴	do.	101	91	131	175	356
Petroleum:						
Crude:						
As reported	thousand metric tons	178	253	310	299	306
Converted	thousand 42-gallon barrels	1,100 e	1,620 e	1,984	1,880 e	1,920
Refinery products ^e	do.	35,000	35,000	35,000	35,000	35,000
·						

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. -- Zero.

¹Table includes data available through November 2006.

²In addition to the commodities listed, arsenic, dolomite, illite, sodium compounds, talc, and zeolite are produced, but available information is inadequate make reliable estimates of output.

³Reported figure.

⁴Includes gas produced from coal mines. Gross output of natural gas is not reported but is believed to exceed reported marketed output by an inconsequential amount.

${\it TABLE~2}$ CZECH REPUBLIC: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

(Thousand metric tons unless otherwise specified)

Commodi	ty	Major operating companies	Location of main facilities ¹	Annual capacity
Aluminum, secondary	•	Alcan Decin Extrusions s.r.o.	Decin, northern Bohemia	40,000
-		Kovohute Mnisek a.s.	Mnisek	70,000
Bentonite		Keramost a.s.	Most	250
Cement		Ceskomoravsky Cement a.s.	Kraluv dvur	350
Do.		Heidelberger Cement, 82.8%	Mokra	1,400
Do.		do.	Radotin	750
Do.		Cizkovicka Cementarna a.s. (Lafarge, 85%)	Cizkovicka	980
Do.		Holcim (Cesko) a.s.	Prague	1,000
Do.		Cement Hranice a.s. (Dyckerhoff, 98%)	Hranice	850
Do.		Cemos Ostrava a.s. (Cement Hranice, 95%)	Ostrava	400
Clay		Ceske Lupkove Zavody a.s.	Nove Straseci (refactory clay)	120
Do.		Chlumcanske Keranicke Zavody a.s.	Chlumcany (kaolin)	30
Do.		Kaolin Hlubany a.s. (WBB Minerals, 94%)	Podborany	100
Coal:			•	,
Bituminous		OKD a.s. Ostrava	Ostrava-Karvina, north Moravia	20,000
Brown		Severoceske Doly a.s.	Chomutov	14,000
Do.		Mostecka Uhelna Spolecnost a.s.	Most	17,000
Do.		Sokolovska Uhelna a.s.	Sokolov	30,000
Lignite		Lignit Hodonin s.r.o.	Hodonin, south Moravia	1,000
Gold		Kovohute Pribram Nastupickna a.s.	Pribram	9
Graphite		Grafitove doly Stare Mesto s.r.o.	Stare Mesto	10
Lead, metal, secondary, refined	i	Kovohute Pribram Nastupickna a.s.	Pribram	29
Natural gas	million cubic meters	Gasfields in Brno and Ostrava regions:	Eastern/southeastern Czech Republic	500 2
		Ceska Naftarska Spol s.r.o.	Hodonin	
		Moravske Naftove Doly a.s.	do.	
		OKD Dulni Pruzkum a Bezpecnost a.s.	Paskov	
		UNIGEO a.s.	Ostrava-Hrabova	
Petroleum:				
Crude		Oilfields around Hodonin:		160 ²
		Moravske Naftove Doly a.s.	Hodonin	
		Ceska Naftarska Spol s.r.o.	do.	
		UNIMASTER s.r.o	do.	
Refinery	thousand 42-gallon	Kolin, Kralupy, Pardubice, and Litvinov	Bohemia	200
Ž	barrels per day	,		
Steel, crude	1 7	Nova Hut s.p. (Ostrava)	Kunice-Ostrava	3,800
Do.		Zelezarne Vitkovice	Vitkovice-Ostrava	900
Do.		Trinecke Zelezarny (Trinecke Iron and	Trinec	3,000
		Steel Works)		
Do.		Poldi United Steel Works	Kladno-Prague	1,700
		Zelezarny Bila Cerkev	Hradek-Rokycany	300
Do.		•	·	
		Zelezarny Veseli, a.s.	Veseli and Moravou	300
Do.		Zelezarny Veseli, a.s. Zelezarny Chomutov s.p.	Veseli and Moravou Chomutov	350
Do. Do.		Zelezarny Chomutov s.p.		350
Do. Do.			Chomutov	

¹Names and locations of mines and crude oil refineries are identical.

²Annual capacity listed is total for all deposits, mines, or companies that produce the commodity.

$\label{eq:table 3} \textbf{HUNGARY: PRODUCTION OF MINERAL COMMODITIES}^1$

(Metric tons unless otherwise specified)

	2001	2002	2003 ^e	2004	2005
thousand matric tons	1 000	720	666 ³	647	535
					270
uo.	300	220	300	300	270
	34,000	35,000 °	34.000	34.400	31,000
		,			50,000
					81,000
		· · · · · · · · · · · · · · · · · · ·			10,000
					5,500
	3,000	3,400	3,300	3,300	3,300
thousand matric tons	1 225	1 224	1 222 3	1 250	1,329
thousand metric tons					8,000
	8,000	1,900	8,000	8,000	8,000
thousand matric tons	2.056	2 141	1 002 3	1.057	1,962
do.	1,900	1,900	1,803	1,844	1,850
	20,000	40,000 °	40,000 3	40,000 f	50,000
	,	,	,	*	50,000
	10,000	12,700	12,500	13,200	13,500
	15.000	15.000	15.000	15,000	15.000
					15,000
	5,000	5,000	5,000	5,000	5,000
	2.452	2.510	2 552 3	2.500	2 2 4 0
thousand metric tons	3,452	3,510	3,573	3,580	3,349
				,	9,000
				,	3,700
					7,000
					55,000
					500
do.					275
	151,000	140,000	59,530 3	65,100 ^r	65,000
thousand metric tons	10,645	29,138	35,000	33,544 ^r	33,500
thousand cubic meters		300	300	300	300
			,		138,000
	339,000	317,000	225,300 ³	163,900 ^r	164,000
thousand metric tons	5,000	5,626 ³		5,000	5,000
do.	800	4,196		7,200 ^r	7,200
do.	700	7,152	$2,459^{-3}$	3,014 ^r	3,014
	43,000	52,000	51,000	50,000	50,000
	80,000	80,000	80,000	80,000	80,000
	500	500	r	r	
IATERIALS					
thousand metric tons	573	660	667 ³	260 ^r	
do.	5,384	4,570	$4,128^{-3}$	2,495 ^r	1,426
do.	8,043	7,574	8,564 3	8,470 ^r	8,154
do.	14,000	12,804	13,359 ³	11,225 ^r	9,580
	650	650	650	650	650
thousand cubic meters	3,280	3,353	$3,010^{-3}$	3,200 ^r	3,159
mousand cubic meters	3,200				
	thousand metric tons do. do. do.	thousand metric tons do. 34,000 76,000 110,000 12,000 5,600 ° thousand metric tons do. 1,900 38,000 10,000 5,000 \$ thousand metric tons do. 2,550 8,000 \$ thousand metric tons do. 252,000 thousand metric tons do. 252,000 thousand metric tons do. 224 151,000 168,000 339,000 thousand metric tons do. 224 151,000 168,000 339,000 \$ thousand metric tons do. 23,000 10,000	thousand metric tons do. 300 220 ° 34,000 35,000 ° 76,000 75,000 ° 110,000 110,000 ° 12,000 10,000 5,600 ° 5,400 thousand metric tons 1,225 1,334 8,000 1,900 thousand metric tons do. 1,900 1,900 38,000 49,000 ° 10,000 12,700 15,000 5,000 5,000 thousand metric tons 3,452 3,510 5,200 3,700 2,500 1,400 8,000 4,300 252,000 72,200 thousand metric tons do. 252,000 72,200 thousand metric tons 10,645 29,138 thousand metric tons 10,645 29,138 thousand metric tons 5,000 5,000 thousand metric tons 10,645 29,138 thousand metric tons 5,000 5,626 ³ do. 224 238 151,000 152,000 339,000 152,000 thousand metric tons 5,000 5,626 ³ do. 800 4,196 do. 700 7,152 43,000 52,000 80,000 80,000 500 MATERIALS thousand metric tons 5,384 4,570 do. 8,043 7,574 do. 14,000 12,804 650 650 650	thousand metric tons do. 300 220 ° 300 300 220 ° 300 300 300 220 ° 300 300 300 300 35,000 ° 34,000 76,000 ° 75,000 ° 50,000 110,000 110,000 ° 84,000 12,000 10,000 10,000 10,000 5,600 ° 5,400 5,500 ³ 12,000 1,900 8,000 1,900 8,000 1,900 8,000 1,900 1,900 1,900 1,803 ³ 10,000 12,700 12,500 15,000 5,000 5,000 5,000 5,000 5,000 5,000 5,000 15,000	thousand metric tons do. 300

TABLE 3--Continued HUNGARY: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Co	mmodity ²	2001	2002	2003 ^e 2004		2005
MINERAL FUELS AND RE	ELATED MATERIALSContinued					
Petroleum:						
Crude:						
As reported	thousand metric tons	1,064	1,050	1,133 3	1,100	948
Converted	thousand 42-gallon barrels	8,118	8,011	8,640	8,400 e	7,200
Refinery products ^{e, 5}	do.	40,000	40,000	40,000	40,000	40,000

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised.

¹Table includes data available through November 2006.

²In addition to the commodities listed, diatomite and a variety of industrial minerals and construction materials, such as common clay, are also produced, but available information is inadequate to make reliable estimates of output.

³Reported figure

⁴Hungary is believed to produce some blast ferromanganese.

⁵Excludes refinery fuel and losses.

${\it TABLE~4} \\ {\it HUNGARY: STRUCTURE~OF~THE~MINERAL~INDUSTRY~IN~2005} \\$

(Thousand metric tons unless otherwise specified)

Commod	lity	Major operating companies	Location of main facilities	Annual capacity
Alumina	•	Magyar Aluminium Ltd. (MAL)	Ajka Timfoldgyar plant, about 120 kilometers southwest of Budapest, near Lake Balaton	400
Do.		do.	Almasfuzito Timfoldgyar plant near the Czech Republic border, 63 kilometers northwest of Budapest	240
Do.		do.	Moson-Magyarovar plant, in northwestern corner of Hungary, about 12 kilometers from Austrian and Czechoslovak borders	30
Aluminum, primary		do.	Inota plant, near Varpalota, 75 kilometers southwest of Budapest	46
Bauxite		Magyar Aluminium Ltd. (MAL) (owns and operates Bakony Bauxite Mines Ltd.)	Bakony District, extending roughly 100 kilometers northeast along Lake Balaton	1,500
Cement		Belpafatvalvi Cement es Meszipari Rt [Heidelberger & Schwenk (Germany) and Hungarian Group]	Belapatfalva, near Miskolc, 125 kilometers northeast of Budapest	1,100
Do.		Beremend Cement es Meszipari Rt [Heidelberger & Schwenk (Germany), 100%]	Beremend, 45 kilometers south of Pecs	1,090
Do.		Dunai Cement es Meszmu Kft [Heidelberger & Schwenk (Germany), 100%]	Vac, 50 kilometers north of Budapest	1,200
Do.		Hejocsabai Cement es Meszipari Rt [Holderbank (Germany) and Hungarian Group]	Hejoscaba, 150 kilometers northeast of Budapest	1,450
Do.		Labatlani Cementipari kft [Holderbank (Germany), 100%]	Labatlan, 20 kilometers north of Tatabanya	550
Clays		Agyag-Asvany Kft [Navan Resources PLC (Ireland)]	Felsopeteny, one underground and two open pit mines and a 5,000-metric-ton-per-year processing plant. Products are ball clay, kaolin, and refractory clay	35
Coal: Bituminous and lignite		Magyar Szenbanyaszati Troszt (MSZT)	Tatabanya and Oroszlany coal mining region,	8,900
		(Hungarian Coal Mining Trust)	45 kilometers west of Budapest	
Do.		do.	Mecsek coal mining region, near Pecs and Komlo, north of the Yugoslav border	3,100
Do.		do.	Borsod coal mining region, 130 kilometers northeast of Budapest	5,200
Lignite		do.	Thorez opencast mine at Visonta, 80 kilometers northeast of Budapest	7,000
Manganese		Orszagos Erc-es Asvanybanyak (National Ore and Mineral Mines)	Urkut manganese ore mines, 120 kilometers southwest of Budapest	160
Natural gas	million cubic feet	Hungarian Oil and Gas Co. (MOL)	Szeged and Algyo gasfields, southern Hungary	152,000
Do.		do.	Hajduszoboszo gasfields, 180 kilometers east of Budapest	50,000
Do.		do.	Smaller gasfields are Szank, Kardoskut, Bekes, Berefurdo, and others	39,000
Perlite		Perlit 92 Kft [Navan Resources PLC (Ireland) and Hungarian Group	Palhaza, northeastern Hungary; open pit mine and processing plant	150
Petroleum:				
Crude	million 42-gallon barrels	Hungarian Oil and Gas Co. (MOL)	Szeged-Algyo Field, near Romanian-Yugoslav border; 50% of total capacity	7
Refined		Subsidiaries of Hungarian Oil and Gas Co. (MOL):		
Do.	do.	Danube Petroleum Refining Co.	Szazhalombatta	55
Do.	do.	Tisza Petroleum Refining Co.	Leninavaros	22
Do.	do.	Zala Petroleum Refining Co.	Zalaegerszeg	4
Silica		Uveg-Asvany Kft. [Navan Resources PLC (Ireland) and Hungarian Group]	Mine and plant at Fehevaresugo	660
Steel		Dunaferr Dunai Vasmu Rt	60 kilometers south of Budapest	1,400
Do.		OAM-Ozdi Acelmuvek Kft	120 kilometers northeast of Budapest	360
Do.		DAM-Diosgyori Acelmuvek es Kereskedelmi Kft	Diosgyoer, 145 kilometers northeast of Budapest	850

 ${\bf TABLE~5}$ POLAND: PRODUCTION OF MINERAL COMMODITIES 1

(Thousand metric tons unless otherwise specified)

Commodity ²		2001	2002	2003	2004	2005
METALS						
Aluminum, metal:						
Primary	metric tons	44,723	49,125	45,371	45,807	42,717
Secondary	do.	9,900	9,700	11,900 r, e	12,000 r, e	12,000 e
Total	do.	54,623	58,825	57,300 r, e	57,800 r, e	54,700 ^e
Cadmium, metal, primary	do.	330	440	375	356	408
Copper:						
Ore:						
Gross weight		30,227	29,705	29,992	31,800	32,019
Cu content	metric tons	545,000	568,000	570,000 ^e	590,000	614,800
Concentrate:						
Gross weight		1,834	1,935	1,900 ^e	1,950	1,950
Cu content	metric tons	532,000	503,000	495,000	526,000	526,000
Metal:						
Smelter:						
Primary	do.	485,900 ^r	510,700	515,000 e	541,000	552,200
Secondary ^e	do.	27,900	29,400	28,500 e	30,000	25,000
Total	do.	513,800 ^r	540,100	543,500	571,000	577,200
Refined, electrolytically, primary and secondary	do.	498,451	508,674	529,616	550,066	560,256
Gold, mine output, Au content	kilograms	349	296	356 ^r	527	530
Iron and steel:						
Pig iron:						
For foundry use		98	52	132 ^e	200 e	200 e
For steel production		5,343	5,245	5,500 e	6,200	4,477
Total		5,441	5,297	5,632	6,400	4,677
Ferroalloys:						
Blast furnace, ferromanganese	metric tons	500	600	1,000 e	1,000 r, e	1,000 e
Electric furnace:						
Ferrochromium	do.		100	200	100	100 e
Ferrosilicomanganese	do.	20,000	7,500	r	8,000 e	8,000 e
Ferrosilicon	do.	48,600	41,800	92,700 r, e	110,000 r, e	80,000
Total	do.	69,100	50,000 ^r	93,900 r, e	119,100 ^r	89,100
Steel, crude:						
From open hearth furnaces		178	169			
From oxygen converters		5,822	5,531	6,070	6,865	4,927
From electric furnaces		2,809	2,667	3,040	3,713	3,409
Total		8,809	8,367	9,110	10,578	8,336
Semimanufactures:						
Hot rolled		6,599	6,114	6,595	6,600	6,188
Cold rolled		1,350	1,349	1,533	1,600	1,600
Pipe		440	309	309	310	380
Lead:						
Pb-Zn ore, gross weight	metric tons	r	r	r	r	
Mine output:						
Pb content of Pb-Zn ore	do.	69,600	73,500	74,000 ^r	51,000	78,000
Pb content of Cu ore	do.	52,000	46,900	36,000 ^r	36,000	37,800
Total	do.	121,600	120,400	110,000 ^r	87,000	115,800
Concentrate:						
Gross weight	do.	86,400	85,000	100,200 ^r	110,200 ^r	110,000 ^e
Pb content	do.	52,600	56,600	54,700 ^r	60,200 ^r	60,000 e
Metal:						
Smelter: ^e						
Primary	do.	30,800 6	29,400 6	25,000	25,000	20,000
Secondary	do.	39,500 ⁶	44,700 ⁶	45,000	45,000	45,000
Total	do.	70,300 ⁶	74,100 ⁶	70,000	70,000	65,000
Refined, primary and secondary	do.	66,000	65,800	55,563	55,932 ^r	52,059
Can footnotes at and of table						

See footnotes at end of table.

$\label{eq:table 5--Continued} \mbox{POLAND: PRODUCTION OF MINERAL COMMODITIES}^{1}$

(Thousand metric tons unless otherwise specified)

Commodity ² METALSContinued		2001	2002	2003	2004	2005
Platinum-group metals, average content of slimes: ^{c, 3, 4} Palladium	Irila amama	12	10	10 e	10	10
	kilograms		12	20 e	10	10
Platinum	do.	20	20		20	20
Selenium	metric tons	65	68	78 ^r	83	83
Silver, mine output, Ag content	do.	1,190	1,222	1,237	1,344	1,344
Zinc:						
Zn content:		172 200	171 200	171.700	170 000 1 6	150,000
Mine output	do.	172,300	171,200	174,700	170,000 r, e	150,000
Concentrate output	do.	152,700	152,200	153,900	140,300 ^r	117,200
Metal, refined, including secondary INDUSTRIAL MINERALS	do.	174,700	158,900	154,200	131,000 ^r	155,000
Barite, beneficiated	do.	2,500	2,700	3,030	3,183	2,357
Cement:						
Clinker		9,335	8,812	8,525	9,600 r, e	9,600 e
Hydraulic		12,074	10,948	11,653	12,837	12,646
Portland		11,115	10,000	10,700	11,700 r, e	11,700 e
Clays and clay products, crude:	·					
Bentonite	metric tons	29,000	26,200	31,648	66,143	86,331
Fuller's earth	do.	29,000	26,200	27,000 e	28,000 °	28,000 e
Fire clay		140	128	144	137	156
Kaolin:		1.0	120		10,	100
Crude		267	252	170	191	214
Beneficiated		129	114	136	191	115
Diatomite	metric tons	1,000	1,000	700	1,000 e	1,000 e
Feldspar:	metric tons	1,000	1,000	700	1,000	1,000
Run of mine	do.	150,000 ^r	219,000 ^r	256,000 r, e	250,000 r, e	250,000 e
Processed, including imported material	do.	200,600	293,000	341,400 ^r	320,000	320,000
Gypsum and anhydrite:	<u>uo.</u>	200,000	273,000	341,400	320,000	320,000
Natural: ⁵						
Gypsum rock		999	867	1,031	971 ^r	1,000
Anhydrite		285	280	297	201 ^r	243
Total		1,284	1,147	1,328	1,172 ^r	1,243
Synthetic gypsum		1,134	1,147 1,134 ^r	1,094 ^r	1,172 1,000 e	1,243 1,000 e
			2,281 ^r	2,422 ^r	2,172 ^r	2,243
Grand total		2,418	,	,		
Lime, hydrated and quicklime		1,954	1,865	1,955	2,086 ^r	1,688
Magnesite: ^e		22 000 6	24.000.6	24.000	24.000	24.000
Ore, crude	metric tons	23,000 6	24,000 ⁶	24,000	24,000	24,000
Concentrate	do.	22,200 6	22,100 6	22,100	22,100	22,100
Calcined	do.	200 6	100 6	100	100	100
Nitrogen, N content of ammonia		1,169	1,362	1,912	1,985	1,985
Salt:						
Rock		787	839	848	1,099	1,123
Other		2,689	2,719	3,812	4,043	3,762
Total		3,476	3,558	4,660	5,142	4,885
Sand, excluding glass sand:						
Aggregates:						
Mine output	metric tons	73,107	66,722	78,945 ^r	75,000 ^r	75,000 ^e
Processed	do.	62,534	62,799	71,376 ^r	65,000 ^r	65,000 ^e
Foundry sand		849	628	666 ^r	650	650 ^e
Filling sand		8,914	9,122	8,612 ^r	9,000	9,000 ^e
	nd cubic meters	492	411	483 ^r	450	450 e
Silica:						
Glass: ^e						
Construction, flat		394 ⁶	400	400	400	400
Technical		54 ⁶	60	60	60	60

See footnotes at end of table.

TABLE 5--Continued POLAND: PRODUCTION OF MINERAL COMMODITIES¹

(Thousand metric tons unless otherwise specified)

Commodity ²	2001	2002	2003	2004	2005
INDUSTRIAL MINERALSContinued					
SilicaContinued:					
GlassContinued: ^e					
Commercial	81 6	80	80	80	80
Packing	993 6	900	900	900	900
Processed:					
Glass sand	1,423	1,235	1,402	1,500 e	1,500 e
Quartz and quartz crystal metric to	ons 65,900	27,000	33,000 ^e	35,000 ^e	35,000 e
Quartzite, refractory 0	do. 114,200	32,000	115,400	50,000 ^e	50,000 e
Quartz schist	io. 5,500	3,000	2,800 e	3,000 e	3,000 e
Sodium compounds, n.e.s.:					
Carbonate (soda ash), 98%	1,062	1,054	1,050	1,167	1,189
Caustic soda (96% NaOH)	348	395	427	452	475
Stone:					
Mine output:					
Crushed and dimension stone	22,466	22,619	21,105 ^r	23,000 e	23,000 e
Dolomite	1,639	1,585	1,815	1,986	1,834
Limestone:					
For lime production	11,324	10,306	11,379 ^r	11,000 ^r	10,000 e
For non-lime end use	24,289	23,233	23,747	25,463	24,607
Sulfur:					
Native, Frasch	942	760	762	821	802
Byproduct:					
From metallurgy		275	275 ^e	275 ^e	275 e
From petroleum	162	180	175 ^e	175 ^e	175 e
Total	439	455	450 e	450 e	450 e
From gypsum ^e		10	10	10	10 e
Grand total	1,391	1.225	1,222	1,281	1,262
MINERAL FUELS AND RELATED MATERIALS		, -	,	, -	,
Carbon black	15,100	16,900	18,500 ^r	15,000	15,000
Coal:				- ,	- ,
Bituminous	103,992	103,546	103,016	101,230	97,903
Lignite and brown	59,557	58,210	60,919	61,197	61,136
Total	163,549	161,756	163,935	162,427	159,039
Coke, coke oven	8,844	8,787	10,111	7,752	5,610
Fuel briquets, all grades	50	50 e	4	3	3
Gas:					
Natural million cubic mete	ers 5,175	5,259	5,315	5,630 ^r	5,742
Manufactured:		- ,	-	- ,	- ,-
	do. 6	6 e	4	5	5
	do. 3,919	3,752	4,245	4,216	4,200
	do. 300	300	300	300	300
	do. 4,225	4,058	4,549	4,521	4,500 e
Peat, fuel and agricultural	325	300 e	430	509	500
Petroleum:		300	150	507	200
Crude, as reported	— 767	721	765	886	849
Refinery products ⁶	18,680	17,540	16,886	17,000 ^e	16,000
^e Estimated: estimated data are rounded to no more than three significa			· · · · · · · · · · · · · · · · · · ·	17,000	10,000

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. -- Zero.

¹Table includes data available through November 2006.

²In addition to the commodities listed, antimony and germanium, which are associated with polymetallic deposits, and cobalt and nickel, which are associated with copper ores, are produced in quantities that so far have not warranted further recovery.

³Based on official Polish estimates.

⁴Estimates based on reported platinum- and palladium-bearing final (residual) slimes and their average Pt and Pd content from electrolytic copper refining.

⁵Includes building gypsum, as well as an estimate for gypsum used in the production of cement.

⁶Reported figure.

${\it TABLE~6}$ POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2005^1

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Aluminum:		**	
Primary	Huta Aluminium "Konin" S.A.	Konin	55.
Secondary	Zaklady Metalurgiczne "Skawina"	Skawina	20.
Do.	Zaklady Metali Lekkich SA "Kety"	Kety	NA.
Do.	Zaklady Metalurgiezne "Trzebinia"	Trzebinia	NA.
Barite ²	Przedsiebiorstvo Hondlowo Uslugowe R&S Spolka Jawna	Boguszow, Stanislawow	3.
Cement:			
Do.	Zaklady Cementowo-Wapiennicze Gorazdze S.A.	Chorula	1,800 clinker, 2,400 cement.
Do.	Cementownia "Ozarow" S.A.	Ozarow	2,200 clinker, 2,400 cement.
Do.	Cementownia "Chelm" S.A.	Chelm	1,440 clinker, 2,640 cement.
Do.	Kombinat Cementowo-Wapienniczy Warta S.A.	Dzialoszyn	600 clinker, 1,150 cement.
Do.	Cementownia "Malogoszcz" S.A.	Malogoszcz	1,840 clinker,
	7.11.1.0	G'.i. 1	1,800 cement.
Do.	Zaklady Cementowo-Wapiennicze Nowiny S.A.	Sitkowka	785 clinker, 1,070 cement.
Do.	Cementownia "Strzelce Opolskie" S.A.	Strzelce Opolskie	1,257 clinker,
			1,630 cement.
Do.	Kombinat Cementowo-Wapienniczy	Bielawy	900 clinker,
	"Kujawy" S.A.		1,000 cement.
Do.	Cementownia "Rudniki" S.A.	Rudniki	840 clinker,
_			1,470 cement.
Do.	Cementownia "Wierzbica" S.A.	Wierzbica	759 clinker, 1,000 cement.
Do.	Cementownia "Nowa Huta" S.A.	Krakow	290 clinker,
D0.	Cementowina Nowa Fluta S.A.	Kidkow	1,100 cement.
Do.	Cementownia "Rejowiec" S.A.	Rejowiec	600 clinker,
			845 cement.
Do.	Cementownia "Odra" S.A.	Opole	433 clinker,
			800 cement.
Do.	Cementownia "Warszawa"	Warszawa (Warsaw)	600 cement.
Do.	Cementownia "Groszowice" Sp. z.o.o.	Opole	304 clinker,
			425 cement.
Do.	Cementownia "Polcement-Saturn"	Wojkowice	400 cement
Do.	Cementownia "Wiek"	Ogrodzieniec	710 clinker,
			240 cement.
Do.	Fabrika Cementu "Wysoka"	Lazy	304 clinker,
D-	Communic IIIV-il-	W-3	425 cement.
Do.	Cementownia "Wejhorowie"	Wejhorowo	42 clinker, 45 cement.
Coal:			
Anthracite	Zaklad Wydobywczo Przetworczy Antracytu Walbrzych-Gaj	Lower Silesia	200.
Bituminous	Includes:	Of which:	140,000.3
	Bytomska Spolka Weglowa S.A.	Upper Silesia (9 mines)	
	Rudzka Spolka Weglowa S.A.	do. (6 mines)	
	Gliwicka Spolka Weglowa S.A.	do. (7 mines)	
	Katowicki Holding Weglowy S.A.	do. (11 mines)	
	Nadwislanska Spolka Weglowa S.A.	do. (8 mines)	
	Rybnicka Spolka Weglowa S.A.	do. (5 mines)	
	Jastrzebska Spolka Weglowa S.A.	do. (6 mines)	
	Seven independent mines	do.	
	Walbrzyskie Kopalnie Wegla	Lower Silesia	
	Kamiennego		
	KWK "Nowa Ruda"	do.	
	IX VIX TYOWA RAGA		

See footnotes at end of table.

$\label{eq:table 6--Continued}$ POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2005^1

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacit
CoalContinued:			
Lignite	Includes:	Of which:	$75,000.^3$
	KWK "Belchatow"	Belchatow	
	KWK "Turow"	Turow	
	KWK "Konin"	Konin	
	KWK "Adamow"	Adamow	
	KWK "Sieniawa"	Sieniawa	
Coke	Includes	Of which:	12,000. ³
	Zaklady Koksownicze im. Powstancow Sl.	Upper Silesia	
	Zaklady Koksownicze "Przyjazn"	do.	
	Kombinat Koksochemiczny "Zabrze"	do.	
	Huta im. Sendzimira	do. (Krakow)	
	Huta "Czestochowa"	do. (Czestochowa)	
	Zaklady Koksownicze "Walbrzych"	Lower Silesia	
Copper:	Zakiady Koksowineze Waiotzych	Lower Shesia	
Ore, gross weight	Kombinat Gorniczo Hutniczy	Lubin Mine, Lubin-Glogow District	7,000.
(1.2%-2.2% Cu)	Miedzi (KGHM) Polska Miedz S.A.	East Mine, East Glogow District	,,000.
(1.2%-2.2% Cu)			
Do	[KGHM, S.A.] do.	Polkowica Sigraszowica Mina Lubin Glacow District	9,200.
Do. Do.	do.	Polkowice-Sieroszowice Mine, Lubin-Glogow District	9,200.
		Rudna Mine, Lubin-Glogow District	
Concentrate, gross weight	do.	Lubin beneficiation plant, Lubin-Glogow District	465.
(25.2% -25.9% Cu)	1-	Polkowice beneficiation plant, Lubin-Glogow District	450
Do.	do.	<u> </u>	450.
Do.	do.	Rudna beneficiation plant, Lubin-Glogow District	700.
Metal, refined	do.	Refineries at Glogow I, Glogow II, and Legnica	480.
Feldspar	Strzeblowskie Kopalnie Surowcow	Mine at Sobotka, Lower Silesia, workings at	50.
	Mineralnych	Pagorki Zachodnie and Pagorki Wschodnie	
Ferroalloys: Electric furnace (FeSiMn, FeMn, FeCr, FeSi)	Huta "Laziska" S.A.	Upper Silesia at Laziska Gome	170.
Blast furnace (FeMn)	Huta "Pokoj" S.A.	Upper Silesia, Ruda Slaska	90.
Gold kilograms	KGHM "Polska Miedz" S.A.	Refinery at Glogow "Trzebinia"	550.
Gypsum and anhydrite	Includes:	Of which:	1,400.3
Cypsum and annyunce	Zaklady Przemyslu Gipsowego "Dolina Nidy"	Southeastern Poland, Gacki	1,1001
	Zaklad Gipsowy "Stawiany"	Southeastern Poland, Szarbkow	
	Kopalnia Anhydrytu "Nowy Lad"	Lower Silesia, Niwnice	
	KGHM "Polska Miedz" S.A.	Lower Silesia, Iwiny	
Helium million	Zaklad Odazotowania Gazu	Western Poland, Odolanow	3.
cubic meters	Zamana Ganzoto wama Gaza	colon I olulu, Odolulo ii	٥.
Kaolin	KSM "Surmin-Kaolin" S.A.	Lower Silesia, Nowogrodziec	50.
Lead-zinc:	1011 Juniin Ruomi J.A.	Doner Ditesia, 110 wegrounde	50.
Concentrate	Zaklady Gorniczo-Hutnicze (ZGH)	Mines and concentrators at Olkusz and	60 lead,
Concentrate	"Boleslaw"	Pomorzany, Bukowno region	160 zinc.
Metal:	Doicsiaw	1 omorzany, Dukowno region	100 ZIIIC.
	Huto Cynku "Miostaczko Claskie"	Refinery at Miasteczko Slaskie	60
Pb, refined	Huta Cynku "Miasteczko Slaskie"	•	60. 35.
Do.	Huta Metali Niezelaznych	Katowice	33.
7n refined	"Szopienice"	Immonial Consistent Micator-1 Cl1	60
Zn, refined	Huta Cynku "Miasteczko Slaskie"	Imperial Smelter at Miasteczko Slaskie	60.
Do.	Zaklady Metalurgiczny "Silesia"	Refinery at Katowice	30.
	(input from Huta "Miasteczko Slaskie"		
Do.	Zaklady Gorniczo-Hutnicze "Boleslaw"	Refinery at Boleslaw	65.
Do.	Huta Metali Niezelaznych	Katowice	28.

See footnotes at end of table.

$\label{eq:table 6--Continued}$ POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2005^1

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity
Lime ³		Zaklady Przemyslu Wapienniczego Trzuskawica	Kieleckie County, Swietokrzyskie Mountains	4,500.3
		Slaskie Zaklady Przemyslu Wapienniczego Opolwap S.A.	Opole County	
		Zaklady Przemyslu Wapienniczego Bukowa	Kieleckie County, Swietokrzyskie Mountains	
		Kombinat Cementowo-Wapienniczy Kujawy S.A.	Bydgoskie County	
		Zaklady Cementowo-Wapiennicze Gorazdze S.A.	Opole County	
		Zaklady Cementowo-Wapiennicze Nowiny	Kieleckie County	
		Produkcyjno-Handlowo-Uslugowe Wapmo-Sabinow	Czestochowa County	
		Wojcieszowskie Zaklady Przemyslu Wapienniczego Sp. z.o.o.	Jeleniogorskie County	
		Zaklady Przemyslu Wapienniczego w Sulejowie	Piotrkowskie County	
		Zaklad Wapienniczy w Plazie	Katowickie County	
Natural gas	million cubic meters	Ministry of Mining and Energy	Gasfields at pre-Carpathian foothills; Carpathian Mountains Lowlands, near Ostrow Wielkopolski, Poznan, and Trzebnica, north of Wroclaw	4,900.
Nitrogen:				
Ammonia (NH ₃)		Includes:	Of which:	$2,400.^3$
		Zaklady Azotowe "Pulawy" S.A.	Pulawy in eastern Poland	
		Zaklady Azotowe "Kedzierzyn" S.A.	Kedzierzyn in Upper Silesia	
		Zaklady Azotowe "Wlocławek" S.A.	Wloclawek in central Poland	
		Zaklady Azotowe S.A. w Tarnowie	Tarnow in southern Poland	
		Zaklady Azotowe S.A. w Chorzowie	Chorzow in Upper Silesia	
		Zaklady Chemiezne "Police"	Police in northwest Poland	
Fertilizer (N)		do.	do.	1,700.
Petroleum:				
Crude		Includes:	Of which:	$200.^{3}$
		Polskie Gornicstwo Naftowe i Gazownictwo Warszawa	Oilfields in northern and northwestern lowlands; sub-Carpathian region and Carpathian Mountains	
		Predsiebiorstwo Poszukiwan i	do.	
Do.		Eksploatacji Rpy i Gazu "Petrobaltic"	Baltic Sea Shelf	100.
Refined		Includes:	Of which:	13,500 ^{.3}
		Petrochimia-Plock	Plock in central Poland	
		Rafineria "Gdansk"	Gdansk in northern Poland	
		Rafineria "Chechowice"	Czechowice in southern Poland	
		Rafineria "Trzebinia"	Trzebinia in southern Poland	
		Rafineria "Glimar" Gorilice	Gorilice in southern Poland	
		Rafineria "Jedlicze"	Jedlicze in southern Poland	
		Podkarpackie Zaklady Rafyneryjne w Jasle	Jaslo in southern Poland	
Salt, all types		Includes:	Of which:	6,500. ³
·····, ···· · · · · · · · · · · · · · ·		Inowroclawskie Kopalnie Soli S.A.	Gora, Mogilno I, and Mogilno II Mines at Inowroclaw in central Poland	.,
		Kopalnia Soli "Klodawa"	Klodawa in central Poland	
		Kopalnia Soli "Wieliczka"	Wieliczka in southern Poland, near Krakow, mining deposits at Barycz and Wieliczka	
		Kopalnia Soli "Bochnia"	Southern Poland, mines at the Lezkowice and Siedlec-Moszczenica-Lapczyca deposit. Not known to have operated in 1999	
		KGHM "Polska Miedz" S.A.	Sieroszowice in southwestern Poland	
		Kopalnia Wegla Kamiennego	Debiensko, Upper Silesia	
		"Debiensko"		

$\label{eq:table 6--Continued}$ POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2005^1

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Selenium	Includes:	Of which:	80.3
	Huta Metali Niezelaznych 'Szopienice"	Katowice	
	KGHM "Polska Miedz" S.A.	Refinery at Glogow	2
Silver	KGHM "Polska Miedz" S.A. and	Refined from dore produced by the	1.3
	Zaklady Metalurgiczne Trzebinia	Szopienice Pn-Zn smelter-refinery	
N. 1		largely from KGHM-supplied slimes	
Steel:		06 111	14,000 (1) 3
Crude and semimanufactures	Includes: Huta Katowice S.A.	Of which:	14,000 (crude).
	nuta Katowice S.A.	Plant at Dobrowa Gornicza, producing pig iron, crude steel, hot-rolled products, and cast steel	
	Huta im. T. Sendzimir S.A.	Steelworks at Krakow, producing pig iron, crude steel, hot-rolled products, cold-rolled products, pipes, and cast iron	
	P.P. Huta "Zawierciu"	Steelworks at Zawierciu, producing crude steel, hot-rolled products, cast iron, and cast steel	
	Huta Czestochowa S.A.	Steelworks at Czestochowa, producing pig iron, crude steel, hot-rolled sheets, pipes, and cast iron	
	Huta "Ostrowiec" S.A.	Steelworks at Ostrowiec-Swietokrzyski, producing crude steel, hot-rolled products	
	P.P. Huta "Labedy"	Steelworks at Gliwice, producing crude steel, and hot-rolled products	
	Huta "Lucchini-Warszawa" Sp. z o.o.	Steelworks in Warsaw, producing crude steel, hot-rolled products, and cold-rolled strip	
	Huta Florian S.A.	Steelworks in Swietochlowicach, producing crude steel, hot-rolled products, galvanized sheet, and cold-rolled strip	
	Huta "Stalowa Wola" S.A.	Steelworks at Stalowa Wola, producing crude steel	
	Huta "Jednosc" S.A	Steelworks at Siemianowice Slaskie, producing crude steel, hot-rolled products, and pipes	
	Huta "Batory" S.A.	Steelworks at Chorzow, producing crude steel, hot-rolled products, and pipes	
	P.P. Huta "Baildon"	Steelworks in Katowice, producing crude steel, hot-rolled products, cold-rolled strip, and cast steel	
	Huta "Malapanew" S.A.	Steelworks at Ozimek, producing crude steel and cast steel	
	Huta "Zabrze" S.A.	Steelworks at Zabrze, producing crude steel, cast iron, and cast steel	
	Huta "Zygmunt" S.A.	Steelworks at Bytom, producing crude steel, cast iron, and crude steel	
Semimanufactures only	Huta Cedler S.A.	Steelworks in Sosnowiec, producing hot-rolled products, cold-rolled strip, and cast iron	
	P.P. Huta "Kosciuszko"	Steelworks at Chorzow, producing hot-rolled products	
	Huta "Pokoj" S.A.	Steelworks at Ruda Slaska, producing hot-rolled products	
	Huta "Andrzej" S.A.	Steelworks at Zawadskie, producing pipes	
	Huta "Ferrum" S.A. P.P. Huta "Bobrek"	Steelworks in Katowice, producing pipes Steelworks in Bytom, producing pig iron, hot-	
	Huta "Buczek" S.A.	rolled products, and cast iron Steelworks in Sosnowiec, producing pipes and	
		cast iron	
	P.P. Huta "1 Maja"	Steelworks in Gliwice, producing hot-rolled products	

$\label{eq:table 6--Continued} TABLE~6\text{--Continued}$ POLAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2005^1

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Sulfur	Includes:	Of which:	5,700. ³
	P.P.Kopalne i Zaklady Przetworcze	Operations at Tarnobrzeg, mining the Jeziorko-	
	Siarki "Siarkopol"	Grebow-Wydza deposit	
	P.P. Kopalnie i Zaklady Chemiczne	Operations at Grzybow, mining the Osiek and	
	Siarki "Siarkopol"	Grzybow-Gacki deposits	

¹The data presented in this table were compiled, in large measure, from information provided in the Minerals Yeabook of Poland (Bilans Gospodarki Surowcami Mineralnymi w Polsce Na Tle Gospodarki Swiatowej 1995-2003) prepared and published by the Department of Mineral and Energy Policy, Mineral and Energy Economy Research Centre of the Academy of Science of Poland, The Ministry of Environmental Protection, Natural Resources, and Forestry. Additionally, very valuable information and criticism was provided by Mr. Krystof Galos and other members of his academic department.

²The production of barite at the "Boguszow" Barite Mine was stopped in 1997 because of large-scale area flooding and its future status is uncertain.

³Annual capacity listed is total for all deposits, mines, or companies that produce the commodity.

⁴In order of size.

${\it TABLE~7} \\ {\it POLAND: RESOURCES~OF~MAJOR~MINERALS~IN~2005} \\$

(Million metric tons of ore unless otherwise specified)

			Geolo	Geologically documented resources		
					Annual	
		of deposits			percentage	
Commodity	Total	Exploited	Total	Exploited	change of total	
METALS						
Copper	14	6	1,985	1,603	-2.3	
Lead and zinc	21	3	171	32	-1.7	
INDUSTRIAL MINERALS						
Raw materials for chemicals:						
Sulfur, native	18	5	525	38	12	
Rock salt	19	5	80,165	11,178		
Barite	5		6			
Potassium-magnesium salts	5	1	669	72		
Raw materials for construction:						
Chalk	196	55	198	20		
Clay:						
Argillaceous material for construction ceramics	1,209	311	3,987	524		
Bentonite	8	1	2.7	0.5		
Ceramic	29	6	145	11	2.8	
Refractory	17	3	57	5	-1.8	
Kaolin	14	2	215	82.2		
Dolomite	11	4	353	164	1.7	
Feldspar ore	8	2	94	11.2	-1	
Gypsum and anhydrite	15	4	261	115	-1	
Magnesite	6	1	13.3	3		
Sand and gravel:						
Filling sand	32	10	4,600	1,173		
Moulding sand	78	12	350	116	-1	
Quartz sand for brick and concrete	159	46	719	134	-1	
Gravel aggregates	5,118	1,893	14,637	3,302	1.0	
Silica:						
Glass sand	30	8	599	218		
Quartz, veined	7	3	7	5		
Quartzite, refractory	19	1	14	7	-3.4	
Stone:						
Stone for construction and road use	567	236	8,230	3,927		
Limestone and marl for lime and cement use	178	38	18,110	6,063		
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Bituminous	132	46	43,321	15,291	1.8	
Lignite	76	10	13,724	1,878	1.0	
Gas:						
Natural billion cubic meters	260	180	151	121	-2	
Coal methane do.	48	20	86	22	1.2	
Petroleum do.	86	67	22	19	10	
Zero				<u>*'</u>		

-- Zero.

Sources: Central Statistical Office of Poland, 2005, Statistical Yearbook of Industry; Polish Academy of Sciences, 2004, Minerals Yearbook of Poland; Concise Statistical Yearbook of Poland.

${\bf TABLE~8} \\ {\bf POLAND: IMPORTS~OF~SELECTED~MINERAL~COMMODITIES} \\$

(Thousand metric tons unless otherwise specified)

Commodity		2001	2002	2003	2004	2005
METALS						
Aluminum and articles thereof		310	374	354	520	551
Chromite		26	9	11	NA	NA
Cobalt, matte, oxide, and scrap m	etric tons	86	71	88	NA	NA
Iron ore and concentrate		7,709	6,957	8,950	10,932	6,789
Lead:						
Concentrates, Pb content		4	5	2		
Refined		12	33	32	33	34
Manganese, ore and concentrate		44	15	10	NA	NA
Steel:						
Flat-rolled, nonalloy semimanufactures	_	2,535	2,357	NA	2,862	3,602
Stainless and articles thereof		84	91	NA	144	163
Pipes and hollow profiles		289	344	NA	415	442
Zinc, metal refined		NA	8	12	17	13
INDUSTRIAL MINERALS						
Alumina		135	123	146	NA	NA
Barite		7	6	8	NA	NA
Bauxite		38	50	69	NA	NA
Bentonite		65	68	94	NA	NA
Cement:						-
Clinker		251	67	70	NA	NA
Cement		347	654	719	NA	NA
Feldspar		144	168	155	NA	NA
Flourspar		5	6	5	NA	NA
Glass		466	549	534	707	759
Graphite, natural and synthetic		55	61	63	NA	NA
Gypsum and ahydrite		23	46	104	NA	NA
Kaolin, washed		61	70	72	NA	NA
Mineral fertilizers		1,426	1,609	1,875	1,999	1,648
MINERAL FUELS AND RELATED MATER	RIALS					
Coal, including briquets		1,903	2,768	2,560	2,335	3,372
Natural gas million cub	oic meters	8,325	7,775	8,721	NA	NA
Petroleum:						
Crude		17,513	17,872	17,448	17,309	17,641
Refined		2,318	2,501	2,039	3,155	3,599
NA Not available Zero						

NA Not available. -- Zero.

Sources: Central Statistical Offiice of Poland, Yearbook of Foreign Trade, 2003 and 2005; Polish Academy of Sciences, Minerals Yearbook of Poland, 1999-2003.

TABLE 9 POLAND: EXPORTS OF SELECTED MINERAL COMMODITIES

(Thousand metric tons unless otherwise specified)

Commodity	2001	2002	2003	2004	2005
METALS					_
Aluminum and articles thereof	230	264	319	332	385
Cadmium metric	tons 198	49	428	NA	NA
Cobalt, matte, oxide, and scrap	do. 14	1		NA	NA
Copper:					
Refined copper and copper alloys	233	288	277	282	300
Copper manufactures	143	123	121	177	163
Lead:					
Concentrates, Pb content	56	58	52	54	NA
Metal, refined	10	21	32	27	28
Silver and articles thereof metric	tons 1,094	1,135	1,254	683	319
Steel:					
Pig iron	41	3	16	NA	NA
Steel, crude	2	3	3	NA	NA
Flat-rolled, nonalloy semimanufactures	2,219	2,151	NA	2,694	2,148
Pipes and hollow profiles	202	35	NA	184	188
Zinc:					_
Concentrate, Zn content	16	34	35	25	NA
Metal and articles thereof	92	89	80	82	82
INDUSTRIAL MINERALS					_
Cement	897	478	264	769	602
Glass	682	662	697	803	872
Salt	376	343	423	NA	NA
Sulfur	774	600	534	NA	NA
MINERAL FUELS AND RELATED MATERIALS					
Coal:					
Anthracite and bituminous	23,032	22,626	20,128	19,700	19,371
Lignite	15	42	37	NA	NA
Coke and semicoke thousand metric	tons 3,924	4,226	5,267	5,258	4,524
Petroleum, refined	2,523	2,446	1,389	NA	NA
NA Not available Zero.					

NA Not available. -- Zero.

Sources: Central Statistical Office of Poland, Yearbook of Foreign Trade, 2003 and 2005; Polish Academy of Sciences, Minerals Yearbook of Poland, 1999-2003.

${\bf TABLE~10}$ SLOVAKIA: PRODUCTION OF MINERAL COMMODITIES $^{1,\,2}$

(Thousand metric tons unless otherwise specified)

Commodity		2001	2002	2003	2004	2005
METALS		2001	2002	2003	2004	2003
Aluminum:						
Alumina	metric tons	110,078	111,618	132,089	156,893	162,483
Aluminum ingot, primary	do.	133,672	146,958	165,290	175,000 °	158,400
Copper:	uo.	133,072	110,250	105,270	175,000	150,100
Mine output, concentrate, Cu content	do.	6	2	2 e	2 e	2 e
Metal, refined, primary and secondary ^e	do.	8,000	8,100	5,800 ³		
Gallium, metal ^e	kilograms	500	500	500	500	500
Gold, metal	do.	157	53	50	50 e	
Iron and steel:	40.	10,				
Iron ore:						
Gross weight		888	1,300	1,324	1,000	1,000
Metal content		238	175	200	500	500
Concentrate, gross weight		435	326	400	300	300
Metal:						
Pig iron		3,255	3,533	3,892	3,800	3,681
Ferroalloys, total electric furnace ^{e, 4}		95	95	95	95	95
Ferrochromium	metric tons	5,968	5,695	1,924	2,000	867
Ferrosilicon ^e	do.	50,000	50,000	50,000	50,000	50,000
Steel, crude		3,989	4,275	4,709	4,564	4,242
Semimanufactures ^e		3,600	3,500	3,500	3,500	4,000
INDUSTRIAL MINERAL	S	-,	- ,	- /	- ,	,
Barite, concentrate	metric tons	14,450	25,820	12,000 r	27,060 ^r	25,000
Cement, hydraulic		3,123	3,141	3,147	3,158	3,499
Clays:						
Bentonite	metric tons	82,915	66,128	74,938	69,252	75,752
Kaolin	do.	34,700	33,000	35,000	89,420 r	85,000
Refractory	do.	3,000	3,000 e			
Ceramic	do.	59,000	55,000	50,000	50,000 e	50,000 ^e
Dolomite		1,471	1,357	1,250	1,117	1,021
Gypsum and anhydrite, crude	metric tons	169,000	121,700	93,800 ^r	127,100 ^r	120,000
Lime, hydrated and quicklime		816	911	847	961	946
Magnesite, concentrate	metric tons	961,000	930,000	397,259	404,776	447,700
Nitrogen, N content of ammonia	do.	261,000 r	410,000 ^r	288,000 r	275,223 ^r	295,286
Perlite	do.	14,910	18,630	15,000 ^r	23,840 ^r	20,000
Salt	do.	123,000	97,400	133,100 ^r	121,600 ^r	120,000
Sand and gravel	thousand cubic meters	1,272	1,399	1,300	1,300 e	1,800
Stone:						
Limestone and other calcareous stones for cement		3,596	3,694	3,453	4,501	6,034
Crushed stone	thousand cubic meters	4,602	4,715	5,075	4,472	6,541
Talc	metric tons	2,600	2,290	4,200 ^r	7,100 ^r	7,000
Zeolites	do.	23,000	28,000	25,000		
MINERAL FUELS AND RELATED I	MATERIALS					
Coal, brown and lignite		3,424	3,401	3,077	2,952	2,511
Coke: ^e						
Metallurgical		1,500	1,500	1,500	1,500	1,500
Unspecified		200	200	200	200	200
Gas, manufactured, coke oven	million cubic meters	213	206	210	200	200
Petroleum:						
Crude:				40		~~
As reported	1 140 " : :	54	53	48	50	50
Convertede	thousand 42-gallon barrels	400	400	350	350	350
Refinery products ^e	do.	40,000	40,000	40,000	44,500	44,500

^eEstimated; estimated data are rounded to no more than three significant digits. ^rRevised. -- Zero.

¹Table includes data available through November 2006.

²In addition to the commodities listed, arsenic, diatomite, feldspar, illite, sodium compounds, sulfur, and sulfuric acid are produced, but available information is inadequate to make reliable estimates of output.

³Reported figure.

⁴May include some FeCrSi and FeNi, if any was produced.

${\it TABLE~11}$ SLOVAKIA: STRUCTURE OF THE MINERAL INDUSTRY IN 2005

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies ¹	Location of main facilities ²	Annual capacity
Aluminum	ZSNP Aluminum Works (Slovalco)	Ziar and Hronom, central Slovakia	108
Antimony:			
Ore	Liptovska Dubrava	Central Slovakia	50
Do.	Pezinok	Western Slovakia	50
Smelter	Vajskova	Central Slovakia	2
Cement	Lietavska Lucka, Stupava, and Turna	Slovakia	5,400
Coal:			
Brown	Hornonitranske Bane, a.s.	Prievidza, central Slovakia	3,500
Do.	Bana Dolina, a.s.	V'lky Krtis, southern Slovakia	500
Lignite	Bana Zhorie, a.s.	Holic, western Slovakia	400
Copper:			
Ore	Slovinky, Hodrusa-Hamre, and Rudnany	Central Slovakia	500
Refinery	Krompachy	do.	27
Gallium kilograms	ZSNP Aluminum Works (Slovalco)	Ziar and Hronom, central Slovakia	4,000
Iron:			
Ore	Nizna Slana and Rudnany	Central Slovakia	1,600
Concentrate	do.	do.	1,300
Lead-zinc, ore	Banska Stiavnica	do.	200
Magnesite	SMZ a.s. Jelsava	Eastern Slovakia	350
Do.	Slovmag a.s., Lubenik	Central Slovakia	150
Petroleum, refinery	Bratislava, Dubova	Slovakia	NA
Salt	Solivary a.s., Presov	Eastern Slovakia	150
Steel, crude	U.S. Steel Kosice	Eastern Slovakia, Kosice	4,000
Do.	Zeleziarne Podbrezova a.s.	Slovakia, Podbrezova	600

NA Not available.

¹All mining companies are Government owned.

²Names and locations of mines and crude oil refineries are identical.