

FRANCE

By Harold R. Newman

France was a major European mineral producer despite traditional mineral industries being in a state of transition during the past few years. Prior to 2000, the heavy economic and political involvement of the state has been one of the main elements of the national mineral policy. The reduction of Government subsidies to support uneconomic mineral operations and the depletion of mineral reserves have had a significant impact on a number of extractive operations in the mineral industry.

Government Policies and Programs

Efforts have been made to promote the private sector and to reduce the dependence of state-owned companies on subsidies. The Government was proceeding with a program of privatization that required large state-controlled companies to reduce the direct role of the Government in their operations. International pressures of globalization and more direct pressure from the European Union (EU) were behind the trend away from Governmental involvement in industry.

Production

Mineral and metal industries generally maintained production and other activities at about the same or slightly decreased rates as those of 1999. Several industries, such as bauxite, coal, iron ore, and uranium, have steadily undergone changes during the past few years, especially bauxite, which is no longer mined. Some bauxite waste dumps were reprocessed; the resulting product was used by cement companies.

The coal and iron ore industries and other mineral producers were affected by cheaper foreign sources, high operating costs, and the depletion of domestic resources. Coal mining was directed by Charbonnages de France (a state-owned company).

The uranium industry reduced its operations by closing a number of mines and processing plants owing to low market prices and depletion of certain deposits. Some factors in the drop of uranium demand were the increased accessibility of petroleum and natural gas from the North Sea and the former Soviet Union (table 1).

Trade

France has a tradition of highly centralized administrative oversight of its essentially market-based economy. The Government maintained its efforts to focus the country's trading patterns toward the countries of the Organization for Economic Cooperation and Development while encouraging the development of new markets, particularly in Asia and Latin America. Strong commercial relations continued between France and the United States, and Germany remained France's largest

export destination. In 2000, France was the ninth largest trading partner of the United States worldwide and the third largest trading partner in Europe after the United Kingdom and Germany and had the world's fifth largest industrial market. France adopted the euro currency as of January 1, 1999. Responsibility for the exchange rate was shared between the national Finance Ministry and the European Central Bank (U.S. Embassy, Paris, France, 2000, p. 7-15).

France's economy continued to grow, although growth has slowed in concert with other EU countries. The real gross domestic product was expected to grow by 3.5% in 2000. The indices of industrial production are listed in table 2.

Government and private companies produced minerals and mineral products, conducted research, and explored for new domestic and international mineral resources (table 3).

Commodity Review

Metals

Aluminum.—The proposed merger of Alcan Aluminium Ltd. of Canada, Pechiney Group of France, and Alusuisse Lonza Group (algroup) of Switzerland to form the world's largest aluminum company was terminated when Pechiney withdrew from the proposed merger. Pechiney stated that it had failed to reach an agreement that would satisfy the other two parties and the EU. This was to have been the biggest consolidation move in the international aluminum industry. The three-way merger would have created a company with revenues of about \$17 billion per year and production of about 15% of the world's primary aluminum (Mining Journal, 2000).

The two-way merger agreement between Alcan and algroup remained in effect and would be completed through an exchange offer to algroup shareholders. The plan received approval by the European Commission; however, it is subject to approval by the U.S. Department of Justice and 67% of algroup shareholders. Alcan said the two-way combination would lead to cost synergies of \$150 million within 24 months of completion (Metal Bulletin, 2000).

Gold.—Gold mining in France was mostly concentrated in Société des Mines du Bourneix's open pit and underground operations south of Limoges in the Saint Yrieix la Perche District and in Mines d'Or de Salsigne's underground Salsigne Mine near Carcassonne. The Salsigne Mine was in receivership and operating under the protection of the French courts.

Iron Ore.—The iron ore basin of northern France stretches from Lorraine northward into Belgium. The high phosphorus and low iron content of the ore limited its desirability, and production has been declining for several years. Terres Rouges

Mine, which was the last iron ore mine in the Lorraine District, closed at the end of 1998. The mines of Lorraine once produced more than 50 million metric tons per year of iron ore.

Lead and Zinc.—Mining of lead and zinc has completely ceased in France. In 2000, two companies operated primary zinc plants by using imported ores and concentrates. Société des Mines et Fonderies de Zinc de la Vieille Montagne of Belgium operated a zinc refinery at Auby-les-Douai with a capacity of 210,000 metric tons per year (t/yr) of zinc. Métaleurop S.A. operated a 110,000-t/yr primary smelter and a 40,000-t/yr secondary smelter at Noyelles-Godualt (Société de l'Industrie Minérale, 2000d).

Steel.—Usinor Group produced about 21 million metric tons (Mt) of crude steel in 2000 and ranked third in the world as a producer of steel in terms of crude steel production and second in terms of sales from steelmaking activities, after Nippon Steel Corp. of Japan. Usinor's principal activities were divided into flat carbon steels, stainless steels and alloy, and specialty steels (Usinor Group, July 1, 2000, Usinor at a glance, accessed December 18, 2000, at URL http://www.usinor.com/ENGLISH/groupe/group_11.htm).

Uranium.—Compagnie Générale des Matières Nucléaires (the state-owned uranium mining company) was the country's major producer of uranium. France was the world's largest per capita nuclear power generator and ranked second in total installed nuclear capacity after the United States. About 80% of electricity generated in France came from 57 nuclear plants. This has changed dramatically since 1973 when fossil fuels accounted for more than 80% of power generation. France must decide whether to replace obsolete nuclear plants with more modern plants or to begin phasing out nuclear power (U.S. Energy Information Administration, December 2000, France—Country analysis brief, accessed August 1, 2000, at URL <http://www.eia.doe.gov/emeu/cabs/france.html>).

Industrial Minerals

Andalusite.—Denain-Anzin Minéraux Refractaire Ceramique (DAMREC) (a subsidiary of Imetal Group) was the only producer of andalusite in Europe. DAMREC's mining operation was in Glomel, Brittany, and produced about 70,000 t/yr (Société de l'Industrie Minérale, 2000a).

Barite.—The primary barite mining area is at Chaillac near Limoges. Barytine de Chaillac (a subsidiary of Solvay Barium Strontium GmbH of Germany) was the major producer with an open pit mine and plant at Chaillac. Barytine produced about 70,000 t/yr of flotation-grade barite that averaged 98% barium sulfate and was suitable for production of chemicals (Société de l'Industrie Minérale, 2000b).

Cement.—Lafarge SA and Société des Ciments Français were the two largest producers of cement in France. Each company had control of approximately one-third of the domestic market. Lafarge was the world's second largest producer of cement, after Holderbank Financière Glaris Ltd. of Switzerland, with 100 plants in 32 countries (Lafarge, [undated], Cement, accessed December

19, 2000, via URL <http://www.lafarge.com>).

Lafarge raised its bid for Blue Circle Industries plc of the United Kingdom to \$5.8 billion. Blue Circle renewed its rejection of the bid, which has been increased by more than 7%. If Lafarge is successful in its acquisition attempt, then it would move the merged company into top position in the \$80 billion-plus cement market ahead of Holderbank. It would also lead to another long-established United Kingdom-based company passing into foreign hands (Batchelor, 2000).

Fluorspar.—Société Générale de Recherches et d'Exploitation Minières (SOGEREM), which was the main producer of fluorspar with three open pit mines in the south of France, accounted for more than 60% of fluorspar production. The fluorspar vein deposits are found in the Hercynian massifs, the Massif Central, the Vosges, the axial zone of the Pyrénées, and the outer Alps. SOGEREM's mining operations supplied Comifluor S.A., which operated a plant at Bastide-a-Olette. This plant produced acid-grade fluorspar, 97% calcium fluoride, and electrical-grade fluorspar. The Escardo Mine, which was owned by Denain-Anzin Minéraux S.A., also shipped crude ore from its surface mining operation to the Olette plant for processing (Groupe Minéral Harwanne Marketing Department, 1999).

Gypsum.—France was one of Europe's largest producers of gypsum. Two-thirds of the production was from the Paris Basin. Four companies produced about 95% of the output. S.A. de Materiel de Construction was the largest company.

Kaolin.—Kaolin deposits in the granite massifs in Brittany were the ones most actively mined in France. The largest mine, which was operated by La Source Compagnie Minière, was in the Kaolin d'Arvor deposit near Quessoy. The mine had a capacity of 300,000 t/yr. The second largest operation was Société Minière des Kaolin Du Moribihan's (SMKDM) open pit mines at Lanvrian and Kerbriant, with capacities of 80,000 t/yr of kaolin and 10,000 t/yr of mica. The third largest operation was Société des Kaolins du Finistère's (SKF) 30,000 t/yr capacity operations at Berrien. Groupe Mineral Harwanne owned SKF and SMKDM (Société de l'Industrie Minérale, 2000c). The kaolin was used mostly in the paper and the ceramic industries. Ball and refractory clays were mined in the Charante Basin to the southwest.

Potash.—Mines de Potasse d'Alsace S.A. was the principal producer of potash with two underground mines—Marie-Louise and Amélie—located near Mulhouse, Alsace. It was a significant supplier of potash salts. The main products were potash ore, which was concentrated to 62% potassium oxide material, bromine, rock salt for snow clearing, and other industrial products (Société de l'Industrie Minérale, 2000e).

Talc.—Talc de Luzenac S.A. was significant not only to the domestic market, but also to the European market. Borax Français S.A. (a subsidiary of Rio Tinto Corp.) purchased 92% of Talc de Luzenac. As a result of mergers and acquisitions over the past 6 years, Talc de Luzenac was formed as a subsidiary of Rio Tinto. Talc de Luzenac operated 16 deposits and 20 processing plants in Europe and North America and was the leading talc producer in the world (Société de l'Industrie

Minérale, 2000f).

Mineral Fuels

Coal.—In 2000, all underground coal mines were closed in the Midi-Pyrénées area and in the Nord Pas-de-Calais Basin. CdF was proceeding with further restructuring that would result in reduced production. The rest of the mines, with the exception of those in the Lorraine area, were closed by yearend 2000. The three deep mines still active in Lorraine, La Houve, Reumaux, and Vouters were expected to close after 2000. Four open pit mines in the Centre-Midi Basin were still being worked mostly for lignite. CdF envisioned the final stoppage of all coal mining in France by 2005 in accordance with the National Coal Pact signed in 1994 (European Commission, September 20, 2000, State aid to the French coal industry, accessed February 5, 2001, via URL <http://www.europa.eu.int>).

Natural Gas.—State-owned monopoly Gaz de France announced that it would comply with the EU directive to open the gas market to competition. France chose to open its market to the strict minimum allowed under the EU directive—20% of the total market—rising to a third of the total market by 2008. France was one of the last EU members to comply with the directive; only Germany and Luxembourg lagging behind (Alexander's Gas and Oil Connections, October 4, 2000, France to open its gas market, accessed October 8, 2000, at URL <http://www.gasandoil.com/goc/news/nte03698.htm>).

Petroleum.—In 2000, onshore petroleum production was mainly from the Aquitaine and the Paris Basins. Because production had started to decline in these areas, the Government initiated a program to encourage exploration for new deposits in other areas thought to have potential; the Jura Basin was one area under consideration.

Companies that operated refineries in France included BP Amoco plc, Mobil Corp., Royal Dutch Shell Group, and Total/Elf, as well as other smaller companies. The structure of the industry was geared to gasoline production. Refining was mainly focused on the high-octane unleaded gasoline used by a majority of the vehicles in France.

Because refining units have been capable of processing heavy fuels and no hydrocracked feedstocks were available for the production of gas, the process stream was short on middle distillates and naphtha. France was a net importer of petroleum products.

Outlook

Having one of the world's most developed economies, France was an advocate for the EU and the European single-market concept. The country has had to make considerable changes in the structure of its industries, particularly those mineral industries controlled by the state. Several state-owned companies have taken the initiative to become leaders in their respective industries. Others have been forced to make additional adjustments under restructuring schemes proposed by the EU or the French Government. The depletion of mineral resources and the cessation of subsidies for uneconomic operations have had impacts on local communities and their economies. France will have the advantage of plentiful electrical power to attract industrial facilities that require skilled work forces and good access to markets in Europe.

References Cited

- Batchelor, Charles, 2000, Larfarge raises offer for Blue Circle to \$5.8 bn: Financial Times [London], no. 34197, April 20, p. 15.
- Groupe Minéral Harwanne Marketing Department, 1999, Kaolin, feldspar & quartz: Industrial Minerals French Supplement, no. 360, April, p. 17-21.
- Metal Bulletin, 2000, Pechiney deal is abandoned: Metal Bulletin, no. 8468, April 17, p. 5.
- Mining Journal, 2000, Pechiney withdraws: Mining Journal, v. 331, no. 8578, April 11, p. 281.
- Société de l'Industrie Minérale, 2000a, Andalousite, *in* 2000 guide des mines et carriers: Paris, Société de l'Industrie Minérale, p. 66.
- 2000b, Barytine, *in* 2000 guide des mines et carriers: Paris, Société de l'Industrie Minérale, p. 50.
- 2000c, Kaolin, *in* 2000 guide des mines et carriers: Paris, Société de l'Industrie Minérale, p. 67.
- 2000d, Lead, *in* World mining and metals yearbook 2000: Paris, Société de l'Industrie Minérale, p. 167.
- 2000e, Potasse, *in* 2000 guide des mines et carriers: Paris, Société de l'Industrie Minérale, p. 73.
- 2000f, Talc, *in* 2000 guide des mines et carriers: Paris, Société de l'Industrie Minérale, p. 58.
- U.S. Embassy, Paris, France, 2000, France—FY 2001 country commercial guide: U.S. Department of State, July, 143 p.

Major Sources of Information

Bureau de Recherches Géologiques et Minières
Avenue de Concyr - BP 6009
45060 Orleans, cedex 2, France
Ministere de l'Industrie
DGEMP SMPSS
101 Rue de Grenelle
75353 Paris, France

TABLE 1
FRANCE: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity 3/ METALS	1996	1997	1998	1999 e/	2000 e/
Aluminum:					
Bauxite, gross weight 4/ thousand tons	81	164	165 e/	160	100
Alumina:					
Crude do.	550	570	570 e/	550	500
Calcined do.	440	450	450 e/	450	400
Metal:					
Primary do.	386	399	424	455 5/	441 5/
Secondary do.	236	242	240 e/	239 5/	270 5/
Antimony metal, including regulus	520	650	600 e/	500	500
Cadmium metal	92	309	177 r/	195 5/	160 5/
Cobalt metal:					
Powder	580	670	600 e/	600	600
Chloride	174	159	172 e/	175 r/ 5/	204 5/
Copper:					
Mine output, Cu content	170	196	180 e/	100	100
Metal:					
Blister, secondary e/	2,300	1,490	1,079	1,000	1,000
Refined:					
Primary	10,500	5,800 e/	--	--	--
Secondary e/	28,600	29,800	22,400	1,800	1,500
Total	39,100	35,600	22,400 e/	1,800	1,500
Gold, mine output, Au content kilograms	5,651	4,953	3,793	3,570	2,632 5/
Iron and steel:					
Iron ore and concentrates:					
Gross weight thousand tons	1,464	523	100	--	--
Fe content do.	430	145 e/	28	--	--
Metal:					
Pig iron do.	12,108	13,424	13,603	13,854	13,661 5/
Ferroalloys:					
Blast furnace, spiegeleisen and ferromanganese	281	326	321 e/	302 5/	300
Electric furnace:					
Ferromanganese e/ thousand tons	100	100	100	138 r/ 5/	140
Ferrosilicon do.	103	109	110 e/	100	110
Silicon metal do.	74	66	65 e/	65	60
Other (Si, Ca, Mg) do.	114	94	95 e/	100	100
Total	672	695	691 e/	705 r/	710
Steel, crude do.	17,630	19,773	20,241	20,211 5/	21,002 5/
Steel, hot rolled do.	16,224	17,975	16,822	17,294 r/ 5/	17,722 5/
Lead:					
Smelter, secondary e/	241,100	218,500	208,000	205,000 5/	209,000 5/
Refined:					
Primary	140,750	137,500	146,000 e/	124,000	100,000
Secondary	162,000	164,800	172,000	155,000	158,000
Total	302,750	302,300	318,000	279,000	268,000
Magnesium metal, including secondary	14,000	13,740	14,700	14,000	14,000
Nickel metal 6/	9,070	8,750	9,778	9,458 r/	10,100 5/
Silver: e/					
Mine output, Ag content kilograms	1,550	1,770	1,027	1,140	720 5/
Metal, Ag content of final smelter products do.	650	535	550	500	500
Tin, secondary	4,410	3,810	2,926	1,506	1,257 5/
Tungsten, powder	670	680	600 e/	500	500
Uranium:					
Mine output, U content	841	579	468 r/	625 r/	302 5/
Chemical concentrate, U ₃ O ₈ equivalent	713	487	453 r/	424 r/	318 5/
Zinc metal, including slab and secondary	324,300	317,151	329,019	331,103 5/	350,100 5/
Zirconium, sponge	1,550	1,870	1,800 e/	1,600	1,500
INDUSTRIAL MINERALS					
Barite, BaSO ₃ equivalent	76,000	77,000	75,000 e/	76,000	51,000 5/
Bromine, elemental e/	2,020	1,980	2,000	8,000	7,900 5/
Cement, hydraulic thousand tons	18,340	19,780	19,000 e/	19,527 5/	20,000
Clay, kaolin and kaolinic clay (marketable) do.	326	332	333 e/	330	380 5/
Clay, refractory, unspecified do.	14	13	14 e/	14	12

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity 3/	1996	1997	1998	1999 e/	2000 e/
INDUSTRIAL MINERALS--Continued					
Diamonds, synthetic, industrial e/ thousand carats	3,500	3,600	3,600	3,600	3,600
Diatomite e/ thousand tons	80	80	80	75	75
Feldspar, crude e/ do.	546	621	706	638	642 5/
Fluorspar:					
Crude do.	295	236	250 e/	250	250
Marketable:					
Acid and ceramic-grade do.	78	84	85 e/	86	85
Metallurgical-grade do.	33	22	20 e/	20	20
Total do.	111	106	105 5/	106 5/	105 5/
Gypsum and anhydrite, crude do.	4,550	4,500	4,500 e/	4,500	4,500
Kyanite, andalusite, related materials e/ do.	70	67	70	70	65
Lime, quick and hydrated, dead-burned dolom do.	2,714	2,360	3,106	3,094	3,000
Mica e/	10,000	8,000	10,000	10,000	10,000
Nitrogen, N content of ammonia thousand tons	1,850	1,757	1,570 e/	1,580 r/	1,700
Pigments, mineral, natural, iron oxide e/	1,000	2,200	2,000	1,500	1,500
Phosphates, Thomas slag thousand tons	77	44	50 e/	50	50
Potash, K ₂ O equivalent (marketable) do.	760	725	453	345	360 5/
Pozzolan and lapilli e/ do.	400	477	460	450	450
Salt:					
Rock salt e/ do.	160	371	300	100	100
Brine salt (refined) do.	1,460	1,475	1,500 e/	1,730	1,774 5/
Marine salt do.	970	1,188	1,200 e/	900	1,000
Salt in solution do.	4,273	4,051	4,000 e/	4,050	3,956 5/
Total do.	6,863	7,085	7,000 e/	6,787	6,830
Sodium compounds: e/					
Soda ash do.	1,106	1,053	1,000	1,000	1,000
Sodium sulfate do.	124	120	120	120	120
Stone, sand and gravel: e/					
Limestone, agricultural and industrial do.	9,200	11,433 5/	11,000	11,000	12,000
Slate, roof do.	26	31	30	30	30
Sand and gravel:					
Industrial sands do.	6,550	6,560 5/	6,500	6,500	6,500
Other sand, gravel and aggregates do.	159,000	164,000	165,000	165,000	165,000
Sulfur, byproduct:					
Of natural gas do.	755	697	600	600	600
Of petroleum do.	235	263	245	250	250
Of unspecified sources do.	99	236	261	250 r/	250
Total e/ do.	1,090	1,200	1,100	1,100 r/	1,100
Talc:					
Crude	349,270	362,000	391,000	405,300	350,000
Powder e/	320,970 5/	300,000	300,000	300,000	300,000
MINERAL FUELS AND RELATED MATERIALS					
Asphaltic material e/	28,500	23,000	24,000	24,000	24,000
Carbon black e/	247,000	253,000	250,000	250,000	250,000
Coal, including briquets:					
Anthracite and bituminous thousand tons	7,312	5,779	5,300	4,033 r/ 5/	3,166 5/
Lignite do.	939	690	800	894 r/ 5/	297 5/
Total do.	8,251	6,469	6,100	4,927 r/ 5/	3,463 5/
Briquets e/ do.	256 5/	250	250	163 5/	200
Coke, metallurgical e/ do.	3,850 5/	3,900	4,000	5,312 r/ 5/	5,327 5/
Gas, natural, marketed e/ million cubic meters	2,815 5/	2,800	2,600	2,500	1,040 5/
Petroleum:					
Crude thousand 42-gallon barrels	15,339	13,104	13,000 e/	13,380 r/ 5/	13,476 5/
Refinery products: e/					
Liquefied petroleum gas do.	32,155 5/	34,324 5/	34,000	29,012 r/ 5/	30,937 5/
Gasoline, all kinds do.	141,524 5/	145,954 5/	145,000	146,855 r/ 5/	132,107 5/
Kerosenes and jet fuel do.	45,000	53,656 5/	54,000	52,948 r/ 5/	48,872 5/
Distillate fuel oil do.	200,000	260,000	260,000	238,451 r/ 5/	250,417 5/
Residual fuel oil do.	78,000	70,000	76,000	59,121 r/ 5/	57,776 5/
Other products do.	40,000	125,000	100,000	46,872 r/ 5/	46,179 5/
Refinery fuel do.	1,000	1,000	1,000	868 r/ 5/	1,148 5/
Total do.	538,000 r/	690,000 r/	670,000 r/	574,127 r/ 5/	567,436 5/

See footnotes at end of table.

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

e/ Estimated. r/ Revised. -- Zero.

1/ Table includes data available through July 2001.

2/ Estimated data are rounded to no more than three significant digits; may not add to totals shown.

3/ In addition to the commodities listed, France also produces germanium from domestic ores. Unfortunately, actual output is not regularly reported. France also produces large amounts of stone, but statistics on output are not available.

4/ Reprocessed bauxite not for metallurgical use.

5/ Reported figure.

6/ Excludes secondary production from nickel/cadmium batteries.

TABLE 2
FRANCE: SELECTED INDICES OF PRODUCTION

(1990 = 100)

Sector	1997	1998	1999	2000 e/
General	106	112	114	119
Mining	74	73	75	76
Manufacturing	105	111	114	118
Electricity and gas	120	122	124	131

e/ Estimated.

Source: United Nations, 2000, Monthly Bulletin of Statistics, v. LIV, no. 12, December, p. 26.

TABLE 3
FRANCE: STRUCTURE OF THE MINERAL INDUSTRY IN 2000

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of facilities	Annual capacity
Alumina	Aluminium P�chiney	Plant at Gardanne	700
Aluminum	do.	Aluminum smelters at: Saint-Jean-de-Maurienne, Savoie Province Nogu�res, Pyr�n�es, Atlantiques Province Lannemezan, Hautes-Pyr�n�es Province Auzat, Ari�ge Province	120 115 63 44
Andalusite	Denain-Anzin Min�raux Refractaire Ceramique	Glomel Mine, Brittany	75
Antimony, metal	Soci�t� Nouvelle des Mines de la Lucette	Plant at Le Genest, Mayeene Province	10
Barite	Barytine de Chaillac	Mine and plant at Chaillac, Indre Province	150
Do.	Soci�t� Industrielle du Centre	Mine at Rossigno, Indre Province	100
Bauxite	Aluminium P�chiney	Mines in Var Province (closed)	900
Do.	Soci�t� Anonyme des Bauxites et Alumines de Province	do.	400
Cadmium	tons	Compagnie Royal Asturienne des Mines	Plant at D'Auby-les-Douai, Nord Province
Cement	Eight companies, of which the largest are: Cement Lafarge France Soci�t� des Ciments Fran�ais	80 plants, including-- 15 plants, largest at: St. Pierre-la-Cour 13 plants, largest at: Gargenville	23,233 7,815 (1,160) 6,190 (1,100)
Coal	Charbonnages de France (CdF) including: Bassin de Centre-Midi Bassin de Nord-Pas-de-Calais Bassin de Lorraine	Mines and washeries in middle France Mines and washeries (closed) Mines and washeries in eastern France	13,000 (2,500) (1,000) (9,500)
Cobalt, metal	tons	Soci�t� M�tallurgique Le Nickel (SLN)	Plant at Sandouville, near Le Havre
Copper, metal	Compagnie General d'Electrolyse du Palais	Electrolytic plant at Palais-sur-Vienne	45
Do.	Soci�t� Fran�aise d'Affinage du Cuivre	Smelter at Poissy	11
Do.	Affinerie Sud-Ouest	Refinery at Toulouse	2
Feldspar	Denain-Anzin Min�raux S.A.	Mine and plant at St. Ch�ly d'Apcher	55
Ferroalloys	Soci�t� du Ferromanganese de Paris, Outreau	Plant at Boulogne-sur-Mer	420
Do.	P�chiney Electrom�tallurgie	Plants at Bellegarde	387
Do.	Chromeurope S.A.	Plant at Dunkerque	25

TABLE 3--Continued
FRANCE: STRUCTURE OF THE MINERAL INDUSTRY FOR 2000

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of facilities	Annual capacity
Fluorspar		Société Générale de Recherches et d'Exploitation Minière (SOGEREM)	Mines in southern France	150
Gold	kilograms	Société des Mines du Bourneix (Government)	Mines in the Saint Yrieix la Perche District	4,000
Do.	do.	Mines d'Or de Salsigne (Eltin Co., 51%; Ranger Co., 18%; Peter Hambro Plc., 10%)	Mine near Carcassonne	3,000
Gypsum		S.A. de Matériel de Construction	Mine at Taverny	1,500
Iron and steel:				
Iron ore		Acieries Reunies de Burbach-Eich-Dudelang (ARBED)	Mine at Terres Rouges, Bassin de Lorraine, eastern France (closed 1999)	8,000
Steel		Usinor-Sacilor	Dunkerque	7,500
Do.		do.	Fos-sur-Mer	4,200
Do.		do.	Seramange	3,000
Do.		Sollac, Unimetal (Usinor-Sacilor, 100%)	Gadrange, Neuves Maisons, and Thonville	8,400
Kaolin		La Source Compagnie Minière	Kaolin d'Arvor Mine, Quessoy	300
Lead, metal		Métaleurop S.A.	Imperial smelter, Noyelles Godault	110
Magnesium, metal		Société Française d'Electro-Metallurgique	Plant at Marignac, Haute Garonne	14
Natural gas	million cubic meters	Société Nationale Elf Aquitaine (SNEA)	Gasfield and plant at Lacq	20,000
Nickel, metal		Société Métallurgie le Nickel (SLN)	Plant at Sandouville	16
Petroleum:				
Crude	barrels per day	Société National Elf Aquitaine (SNEA)	Paris Basin oilfields	1,000
Refined	do.	Compagnie Française de Raffinage (TotalFina)	Refineries at Gonfreville and La Mede	446,000
Do.		Shell-Française	Refinery at Petite Couron	285,000
Do.		do.	Refinery at Berre	270,000
Do.		Elf Aquitaine-France	Refinery at Feyzin	120,000
Do.		do.	Refinery at Donges	200,000
Do.		do.	Refinery at Grandpuits	96,000
Do.		Société Française British Petroleum (S.F.B.P.)	Refineries at Lavera	175,000
Do.		Esso S.A.	Refineries at Fos-sur-Mer	237,000
Do.		Mobil Oil Française	Refineries at Gravenchon	62,000
Do.		Cie. Rhenane de Raffinage (CRR)	Refinery at Reichstett	80,000
Potash, K ₂ O		Mines de Potasse d' Alsace S.A. (MDPA)	Mines at Amélie and Marie-Louise, in Alsace	10,000
Salt, rock		Compagnie des Salins du Midi et des Salines de l'Est	Varangeville Mine at Saint-Nicolas-de-Port	9,000
Sulfur		Société Nationale Elf Aquitaine (SNEA)	Byproduct from natural gas, Lacq plant	3,000
Talc		Talc de Luzenac S.A. (Rio Tinto Corp., 100%)	Trimons Mine near Ariège, Pyrenees	350,000
Uranium, U ₃ O ₈	tons	Compagnie Général des Matériaux Nucleaires (COGEMA) (Government)	Mines at Limousin, Vendee, and Hérault	1,800
Zinc, metal		Société des Mines et Fonderies de Zinc de la Vieille Montagne (VM)	Electrolytic plant, Auby-les-Douai	210