

ITALY

By Harold R. Newman

Italy has been a significant processor of imported raw materials as well as a significant consumer and exporter of mineral and semimanufactured and finished metal products. Italy, which was one of the world's largest producers of pumice and feldspar, produced almost one-half of the world's output of pumice and about one-fourth of the world's output of feldspar. In terms of world production, the country was a significant producer of cement and crude steel. Italy was also an important producer of dimension stone and marble.

Italy was one of the 11 founding members of the European Economic and Monetary Union (EMU) and was the world's sixth largest economy in 2001. The Government has traditionally played a dominant role in the economy through regulation of and through ownership of large industrial and financial companies. Privatization and regulatory reform since 1994 have reduced that presence. The Government, however, has retained a potentially blocking "golden share" in all the industrial companies that had been privatized thus far (U.S. Department of State, 2002, p. 6).

Among the metallic ores, gold, lead, silver, and zinc were mined. Except for gold, the outputs of these ores were not significant.

Industrial mineral production, which included construction materials, was the most important sector with overall output remaining about the same as that of 2000. Domestic production of natural gas and petroleum continued as in 2000 (table 1).

Private and public companies own facilities for the mining and processing of minerals and mineral products. Some enterprises were under State control for such economic reasons as to maintain employment (table 2).

Commodity Analysis

Metals

Alumina.—In 2001, Eurallumina S.p.A. operated close to its capacity of 1 million metric tons per year (Mt/yr) at its alumina refinery. The plant produced alumina and hydrate for the account of the joint-venture participants who take the product in proportion to their shares in the consortium. Comalco Ltd. owned 56.2% and Glencore AG owned 43.8% of the operation. Eurallumina sourced 90% of its bauxite requirements from Comalco's Weipa Mine in Australia and 10% from Comalco's Boké Mine in Guinea. Eventually, bauxite supplied by Boké will be phased out, and Weipa will furnish all Eurallumina's bauxite requirements (Eurallumina S.p.A., 2001¹).

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

Copper.—The largest producer of refined copper in Italy Enirisorse S.p.A. accounted for about one-half of Italy's copper output. Italy's refined copper production has dropped significantly since 1998 owing to the decreased availability and increased cost of scrap material. Copper mines in Italy are not significant, and imports of ore were small.

Gold.—Gold Mines of Sardinia Ltd. (GMS), which was a joint venture of Gold Mines of Sardinia Ltd. (70%) and Progemisa S.p.A. (30%), operated the Furtei Mine, which is located north of Cagliari. Furtei was the first gold mine of GMS and the first gold mine in Italy. GMS reported that the latest drilling results from the Monte Ollasteddu project in eastern Sardinia have confirmed that it will be a most promising gold discovery. Mineralization has been traced along strike for 3.5 kilometers (km) and over widths of up to 1 km. Average grades were around 2.5 grams per metric ton gold. GMS also reported zones that have multiple gold-bearing seams possessing higher gold content (Mining Journal, 2001).

Lead and Zinc.—Italy imported most of its requirements for lead and zinc concentrates. Within Italy, the small amount of lead and zinc concentrate production came from mines in Sardinia.

Steel.—Riva S.p.A. dismantled its coke plant at the Cornigliano works in compliance with a court order. Riva agreed that the coke ovens did not comply with environmental regulations. The company was involved in applications to build new electric arc furnaces with 2.4 million metric tons of capacity to replace its blast furnaces. About 60% of Italian steel was produced by electric-arc furnaces, and about 40% was produced by basic oxygen furnaces (Metal Bulletin Monthly, 2001).

Ilva Laminati Piani S.p.A. (Ilva), which was Italy's largest steelmaker and a part of the Riva Group, announced that it had increased its cold-rolling capacity at the Taranto plant to 1.5 Mt/yr from 1.3 Mt/yr, although the production level was about 800,000 metric tons per year (t/yr). In addition, a new 450,000-t/yr galvanizing line became operational in 2001. The upgrades, which included a new coke oven battery, were part of an investment program to enable Ilva to produce 10 Mt/yr by 2002 (Metal Bulletin, 2001).

Acciaierie e Ferriere Vicentine Beltrame S.p.A. (AFV-Beltrame) was to buy two steelworks from Siderugica Ferrero S.p.A. in 2002. The San Didero minimill, which is near Turin, had a capacity of about 1 Mt/yr; the San Giovanni Valdarno light section mill, which is near Florence, had a capacity of about 230,000 t/yr. The plants' products included, in decreasing order, reinforcing bars, flats, angles, squares, tees, and sections

up to 140 millimeters. The acquisitions would raise AFV-Beltrame's production capacity to more than 2.5 Mt/yr (Metal Bulletin, 2002).

Industrial Minerals

Bauxite.—Italy's only bauxite producer Sardabauxiti S.p.A. mined the Olmedo karst bauxite deposit, which is largely boehmitic and contains less than 5% diaspore. The company was estimated to produce 300,000 t/yr of abrasive, cement, and slag adjuster grades of bauxite (Industrial Minerals, 2001).

Cement.—Italy was the second largest cement producer of the European Union (EU), after Germany. Italcementi Fabbriche Riunite Cemento S.p.A. was the largest of Italy's cement producers with 22 plants and 55 quarries (Italcementi Group, 2001§). Italy was a net exporter of cement.

Gypsum.—A new gypsum processing plant opened in mid 2001 in Moncalvo, Province of Asti, northwestern Italy. The plant of Fassa S.r.l. was a state-of-the-art burning and processing plant for gypsum (CaSO₄·2H₂O) extracted from a nearby quarry. The plant was completely automatic, from the discharge of raw gypsum to the bagging of the finished product. Production was about 90,000 t/yr of hemihydrate gypsum. Future plans were to increase production capacity to 140,000 t/yr with the addition of a third kiln (World Cement, 2001).

Lime.—The Italian lime industry had a quicklime production of about 1.6 Mt/yr. In addition to this, the country produced more than 600,000 t/yr of hydrated lime. Most of the lime production was concentrated in the region of Lombardy. Unicalce S.p.A. was the leading player in the industry with 18 plants (Gypsum, Lime & Building Products, 2001).

Marble.—Marble occurs in many localities from the Italian Alps to Sicily and is quarried at hundreds of operations. The most important geographic area for producing white marble is in the Apuan Alps in Tuscany, particularly near the town of Carrara. Lombardy, the Po Valley, Puglia, Sicily Island, and Verona-Vincenza are important colored-marble-producing areas. About one-half of the production was in block form. Other major marble-producing areas include the Valle di Susa, which is near Turin, and Benevento, which is northeast of Naples.

Potash.—Production of potash remained suspended in 2001. The main reasons were the restricted availability of ground water owing to a severe drought and the inability to remove waste material and mine water owing to environmental and ecological concerns. In Sicily, the underground mines that had been operating at Pasquasia, Racalmuto, and Realmonte remained on care and maintenance.

Pumice and Pozzolan.—Italy was a significant producer of pumice and pozzolan (table 1). The Mediterranean Island of Lipari, which is 40 km off the northern coast of Sicily, was the center of the Italian pumice industry. Pumex S.p.A. and Sta Siciliana per l'Industria ed il Commercio della Pomice di Lipari S.p.A. (Italpomice S.p.A.) quarried pumice for world markets.

Pumex, with about a 600,000 t/yr capacity, was Italy's largest pumice producer. The company quarried the Mount Pelato deposit on Lipari (Pumex S.p.a., 2002§).

Mineral Fuels

Italy was almost entirely dependent on imports to meet its energy needs. The country's heavy reliance on foreign oil and gas sources, such as Algeria and Libya, has made energy security and diversification of energy sources top concern (U.S. Energy Information Administration, 2001§).

Coal.—Italy was heavily dependent on imported coal. Most imports were from, in declining order of importance, Russia, South Africa, the United States, and China. Coal consumption in Italy is dominated by power generation, which was increasing, and coke production for steel, which was decreasing. About 6% of Italy's primary energy demand was met with coal (U.S. Energy Information Administration, 2001§). Lignite coal was produced by Ente Nazionale per l'Energia Elettrica's Santa Barbara Mine in Tuscany, which was the only lignite mine in Italy.

Geothermal Energy.—Geothermal energy was produced in the Larderello, the Monte Amiata, and the Travale areas in Tuscany. Exploration that used various geologic techniques and research for power stations that exploit geothermal energy have been actively pursued in these areas.

Petroleum.—Despite increasing domestic production of crude oil, Italy was less than 20% self-sufficient in energy. Italy's oilfields are in the north of the country, onshore and offshore along the Adriatic, and onshore and offshore Sicily. Production from two large fields, Villafortuna and Aquila, has declined in recent years. Italy's largest integrated oil company Ente Nazionale Idrocarburi was in the process of developing a 600-million-barrel-equivalent oilfield at Val d'Agri, in the southern Apennine region. This was considered to be Europe's most promising onshore development area (U.S. Energy Information Administration, 2001§).

Outlook

Mining of metallic ores is expected to remain at its low levels because of ore depletion and will eventually cease altogether. The metals processing industry, which is based primarily on imported raw materials, is expected to continue to play an important role in Italy's economy. Italy is expected to remain a large producer of crude steel and a significant producer of secondary aluminum in the EU.

The industrial minerals quarrying industry and preparation plants are expected to remain significant, especially in the production of barite, cement, clays, uorspar, marble, and talc. Italy is expected to continue to be the world's leading producer of feldspar, feldspathic minerals, and pumice.

Domestic outputs of natural gas, crude petroleum, and petroleum refinery products are expected to grow, although Italy will continue to depend on imported coal, gas, and petroleum for most of its needs.

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Major Sources of Information

Associazione Mineraria Italiana
Via delle Madonne, 20
00197 Rome, Italy
Ministero dell'Industria del Commercio e dell'Artigianato
Direzione Generale delle Miniere
Via Molise, 2
00184 Rome, Italy

TABLE 1
ITALY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1997	1998	1999	2,000	2001 e/
METALS					
Aluminum:					
Alumina, calcined basis e/	913,000	930,000	973,000	950,000	950,000
Metal:					
Primary	187,719	186,953	187,281	189,800	187,400 2/
Secondary	442,900	502,600	501,800	567,500	574,900 2/
Antimony, oxides, gross weight e/ 3/	800 2/	700	600	600	600
Bismuth metal e/	5	5	5	5	5
Cadmium metal, smelter	287	328	360	284	313 2/
Copper, metal, refined, all kinds e/	85,700	29,100	28,500	72,800	35,500 2/
Gold, Au content kilograms	--	500 r/	600 r/	791 r/	503 2/
Iron and steel, metal:					
Pig iron thousand tons	11,348	10,704	10,622	11,219	10,650 2/
Ferrous alloys:					
Electric furnace:					
Ferromanganese	11,295	11,487	-- r/	-- r/	--
Ferromanganese	40,000	49,000	19,000	40,000	40,000
Ferrosilicon e/	12,000	12,000	12,000	12,000	12,000
Silicomanganese	100,000	70,000	67,000	90,000	80,000
Silicon metal	12,619	8,094	6,257	5,000	6,000
Other e/	10,000	10,000	10,000	10,000	10,000
Total e/	185,914	160,581	114,257 r/	157,000 r/	148,000
Steel, crude thousand tons	25,537	25,826	24,964	26,445	26,483 2/
Steel, hot rolled do.	23,146	22,648	22,918	23,858	23,059 2/
Lead:					
Mine output, Pb content	11,792	6,800	6,000 e/	2,000 e/	1,000
Metal, refined:					
Primary	65,700	57,400	66,954	75,000 e/	82,000
Secondary	145,900	141,900	148,354	160,000 e/	121,000
Total	211,600	199,300	215,308	235,000 e/	203,000
Manganese, mine output, Mn content e/	1,490	1,440	1,200	1,200	1,000
Silver metal kilograms	4,500	2,500	4,000	4,000 e/	3,500
Zinc:					
Mine output, Zn content	8,470	2,459	--	--	--
Metal, primary	268,300	231,600	145,318	170,300 r/	177,800 2/

See footnotes at end of table.

TABLE 1--Continued
ITALY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1997	1998	1999	2,000	2001 e/
INDUSTRIAL MINERALS					
Barite e/	26,300 2/	36,000	30,000	30,000	30,000
Bauxite e/	300	300	300	300	300
Bromine e/	300	300	300	300	300
Cement, hydraulic thousand tons	33,721	36,222 r/	37,391 r/	39,020 r/	39,885 2/
Clays, crude:					
Bentonite do.	513	592	600	600 e/	600
Refractory excluding kaolinitic earth e/ do.	750	750	700	700	700
Fuller's earth e/ do.	30	30	30	30	30
Kaolin e/ do.	100	100	100	100	100
Kaolinitic earth e/ do.	10	10	10	10	10
Diatomite e/	25,000	25,000	25,000	25,000	25,000
Feldspar e/ thousand tons	2,200	2,748 2/	2,700	2,500	2,500
Fluorspar e/					
Acid-grade	105,800 2/	92,000	95,000	50,000	30,000
Metallurgical-grade	20,000 2/	15,000	15,000	15,000	15,000
Total	125,800 2/	107,000	110,000	65,000	45,000
Gypsum e/ thousand tons	1,300	1,300	1,300	1,200	1,200
Lime, hydrated, hydraulic and quicklime e/ do.	3,500	3,500	3,500	3,500	3,500
Nitrogen, N content of ammonia do.	445	409	367	408	434 2/
Perlite e/	60,000	60,000	60,000	60,000	60,000
Pigments, mineral, iron oxides, natural e/	500	500	500	500	500
Pumice and related materials: e/					
Pumice and pumiceous lapilli thousand tons	600	600	600	600	600
Pozzolan do.	4,000	4,000	4,000	4,000	4,000
Salt: e/					
Marine, crude 4/ do.	600	600	600	600	600
Rock and brine do.	3,500 2/	3,300	3,200	3,200	3,200
Sand and gravel: e/					
Volcanic sand thousand tons	100	100	100	100	100
Silica sand do.	3,000	3,000	3,000	3,000	3,000
Other sand and gravel	100,000	100,000	100,000	100,000	100,000
Sodium compounds: e/					
Soda ash thousand tons	1,000	1,000	1,000	1,000	100
Sodium sulfate do.	125	125	125	125	125
Stone: e/ 5/					
Calcareous:					
Alabaster do.	25	25	25	25	25
Marble in blocks:					
White do.	100	100	100	100	100
Colored do.	3,000	3,000	3,000	3,000	3,000
Travertine do.	2,500	2,500	2,500	2,500	2,500
Other:					
Granite do.	100	100	100	100	100
Sandstone do.	1,800	1,800	1,800	1,800	1,800
Slate do.	100	100	100	100	100
Crushed and broken:					
Dolomite do.	760	711 2/	700	700	700
Limestone do.	120,000	120,000	120,000	120,000	120,000
Marl for cement do.	15,000	15,000	15,000	14,000	14,000
Serpentine do.	1,500	1,500	1,500	1,500	1,500
Quartz and quartzite do.	30	30	30	30	30
Sulfur, recovered as elemental, in compounds, byproducts, other sources e/ do.	609	624	678 2/	693 2/	743 2/
Talc and related materials e/	142,000	138,000	140,000	140,000	140,000

See footnotes at end of table.

TABLE 1--Continued
ITALY: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1997	1998	1999	2,000	2001 e/
MINERAL FUELS AND RELATED MATERIALS					
Asphalt and bituminous rock, natural e/	30,000	30,000	30,000	30,000	30,000
Coal:					
Lignite thousand tons	203	156	19	14	10
Subbituminous, Sulcis coal e/	2,800 2/	10	5	5	5
Coke, metallurgical thousand tons	5,214	3,500	4,825	5,264	5,200
Gas, natural e/ million cubic meters	19,500	19,000	18,500 2/	18,500	18,000
Natural gas liquids e/ thousand 42-gallon barrels	400	400	350	350	350
Petroleum:					
Crude do.	36,720	42,923	34,245	35,000	35,000
Refinery products:					
Liquefied petroleum gas do.	26,181	25,750	25,404	27,446	27,000
Gasoline do.	171,615	173,264	174,063	175,576	175,000
Naphtha do.	33,040	37,341	30,209	30,000 e/	30,000
Jet fuel e/ do.	24,000	25,000	25,000	36,440 2/	36,000
Kerosene e/ do.	35,000	30,000	30,000	15,000	15,000
Distillate fuel oil do.	256,833	271,910	271,820	262,226	262,000
Residual fuel oil do.	112,180	114,226	104,948	100,459	100,000
Other do.	35,000 e/	38,850	42,042	46,137	46,000
Refinery fuel and losses do.	1,800 e/	1,568	1,778	1,700 e/	1,700
Total e/ do.	696,000	718,000	705,000	695,000	692,700

e/ Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. r/ Revised. -- Zero.

1/ Table includes data available through May 2002.

2/ Reported figure.

3/ Antimony content is 83% of gross weight.

4/ Does not include production from Sardinia and Sicily, which was estimated to be 200,000 metric tons per year.

5/ Output of limestone and serpentine for dimension stone is included with "Stone: Crushed and broken." In addition to the commodities listed, a variety of other dimension stone was produced and previously listed, but available general information was inadequate for continued reliable estimation of output level.

TABLE 2
ITALY: STRUCTURE OF THE MINERAL INDUSTRY IN 2001

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	Eurallumina S.p.A. (Comalco Ltd., 56.2%; Glencore AG, 43.8%)	Plant at Portoscuso, Sardinia	1,000
Aluminum	Alcoa Italia S.p.A. (Alcoa Inc., 100%)	Smelters at Porto Vesme, Sardinia, and Fusina, near Venice	188
Asbestos	Amiantifera di Balangero S.p.A.	Mine at Balangero, near Turin	100
Barite	Bariosarda S.p.A. (Ente Mineraria Sarda)	Mines at Barega and Mont'Ega, Sardinia	100
Do.	Edem S.p.A. (Government)	Mines at Val di Castello, Lucca	20
Do.	Edemsarda S.p.A. (Soc. Imprese Industriali)	Mines at Su Benatzu, Sto Stefano, and Peppixeddu, Sardinia	20
Do.	Mineraria Baritina S.p.A.	Mines at Marigolek, Monte Elto, and Primaluna, near Milan	
Bauxite	Sardabauxiti S.p.A. (Cogein S.p.A., 40%; Comtec, 40%; Icofin Co., 20%)	Mine at Olmedo, Sardinia	350
Bentonite	Industria Chimica Carlo Laviosa S.p.A.	Mines and plant on Sardinia Island, and a plant near Pisa	250
Cement	52 companies, of which the largest are:		
	Italcementi Fabbriche Riunite Cemento S.p.A.	22 plants, of which the largest are Calusco, Monselice, and Ccollefero	(15,000)
Do.	Unicem S.p.A.	12 plants, of which Guidonia, Lugagnano, Morano, Piacenza, S'Arcangelo di Romagna, and Settimello are the largest	(10,000)
Do.	Cementerie del Tirreno S.p.A. (Cementir)	6 plants at Arquasta Scivia, Livorno, Maddaloni, Napoli, Spoleto, and Taranto	(5,300)
Copper, refined	SIMAR S.p.A.	Refinery at Porto Marghera	60
Do.	Europa Metalli - LMI S.p.A.	Refinery Fornaci di Barga	24
Do.	SITI Industries	Refinery at Pieve Vergonte	22

TABLE 2--Continued
 ITALY: STRUCTURE OF THE MINERAL INDUSTRY IN 2001

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Feldspar	At least 5 companies, of which the largest are:		1,500
Do.	Maffei S.p.A.	Surface mines at Pinzolo, Sondalo, and Campiglia Marittima	(200)
Do.		Underground mine at Vipiteno	(300)
Do.	Miniera di Fragne S.p.A.	Surface mine at Alagna Valsesia	(60)
Do.	Sabbie Silicee Fossanova S.P.A. (Sasifo)	Surface mine at Fossanova	(30)
Gold kilograms	Gold Mines of Sardinia Ltd. 70%, Progemisa S.p.A. 30%	Furtei Mine near Cagliari, Sardinia	1,400
Gypsum	Fassa S.r.l.	Plant at Moncalvo, Asti	90
Lead-zinc, ore	Enirisorse S.p.A. (Government)	Mines at Masua, Monteponi, and Sardinia	60
Lead, metal	do.	Refinery at San Gavino, Sardinia	80
Do.	do.	Kivcet smelter and Imperial smelter at Porto Vesme, Sardinia	114
Lignite	Ente Nazionale per l'Energia Electrica (ENEL)	Surface mine at Santa Barbara	1,000
Lime	Unicale S.p.A.	Plants in Lombardy region	500
Magnesium, metal	Societa Italiana Magnesio S.p.A. (INDEL)	Plant at Bolzano	8
Marble	A number of companies, largest of which include:	Quarries in the Carrara and Massa areas	2,000
Do.	Mineraria Marittima Srl	do.	(500)
Do.	Industria dei Marmi Vicentini S.p.A.	do.	(300)
Do.	Figai S.p.A.	do.	(100)
Nitrogen, N content of ammonia	Hydro Agri S.p.A.	Plant at Ferrara	410
Petroleum, crude	Ente Nazionale Idrocarburi (ENI) Government	Oilfields offshore Sicily, the Adriatic Sea, and onshore in the Po River Valley	90
Petroleum, refined thousand 42-gallon barrels per day	do.	About 30 refineries	2,000
Potash ore	Industria Sali Otassici e Affini per Aziono S.p.A.	Underground mines at Corvillo, Pasquasia, Racalmuto, and San Cataldo, in Sicily	1,300
Do.	Sta Italiana Sali Alcalini S.p.A. (Italkali)	Underground mines at Casteltermini and Pasquasia, Sicily	700
Pumice	Pumex S.p.A.	Quarries, Lipari Island, north of Sicily	600
Do.	Sta Siciliana per l'Industria ed il Commercio della Pomice di Lipari S.p.A. (Italpomice S.p.A.)	do.	200
Pyrite	Nuova Solmine S.p.A.	Underground mines at Campiano and Niccioleta	900
Salt, rock	Sta Italiana Sali Alcalini S.p.A. (Italkali)	Underground mines at Petralia, Racalmuto, and Realmonte, Sicily	4,000
Do.	Solvay S.p.A.	Underground mines at Buriano, Ponteginori, and Querceto, Tuscany	2,000
Steel	Ilva Laminati Piani S.p.A. (Riva Group)	5 steel plants, the largest of which is Taranto (1,500)	4,000
Do.	Riva S.p.A.	About 5 plants	7,000
Do.	Acciaierie e Ferriere Vicentine Beltrame S.p.a. (AFV-Beltrame)	Steel plant at Vicenza	1,000
Talc	Luzenac Val Chisone S.p.A.	Mines at Pinerolo, near Turin, and at Orani, Sardinia	120
Do.	Talco Sardegna S.p.A.	Mine at Orani, Sardinia	20
Zinc, metal	Enirisorse S.p.A. (Government)	Plants at Crotone and Porto Vesme, Sardinia, and Porto Maghera, near Venice	349