

THE MINERAL INDUSTRY OF THE PHILIPPINES

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The Philippines has had a long, well-established history of major production from its mines. It has ranked among the world's top 10 in the production of chromite, copper, gold, and nickel. For much of the last quarter of the 20th century, mining was slowed by the effects of low international metal prices accompanied by high operating and production costs, low foreign investment, political instability, labor problems, and such natural disasters as earthquakes, floods, landslides, tsunamis, typhoons, and volcanic eruptions. Nevertheless, the Philippines was estimated to rank second to Indonesia in the Asian-Pacific region in terms of mineral prospectivity and resources (Resource Information Unit, 2000, p. 12). It has substantial resources of copper, gold, nickel, and silver, along with other mineral commodities.

In 2000, the mining industry was estimated to have contributed more than 1% to the country's gross domestic product and generated about \$1 billion for the economy (Resource Information Unit, 2001, p. 11). The mineral industries of the Philippines employed an estimated 400,000 people, or about 1.5% of the labor force; of that total, an estimated 300,000 workers were engaged in small-scale mining and panning activities, chiefly in artisanal gold workings. The metals sector accounted for an estimated 44% of the industry's production value and nearly 100% of mineral export earnings. The industrial mineral sector, which was dominated by the production of limestone for cement manufacture and marble and sand and gravel for construction uses, brought in the remaining nonfuel mineral production value (De Vera, 2000, p. 20).

The Philippine archipelago, which is in Southeast Asia between the Philippine and the South China Seas, has a wealth of natural resources. These included metallic ores and industrial minerals, ecological abundance, and broad biodiversity. Population pressures in conjunction with the effects of natural disasters have created a host of environmental challenges for the country. Additionally, land ownership and land management problems have complicated the situation by negatively affecting human health and contributing to the widespread poverty.

The Philippines' environmental problems included air pollution from motor vehicles, air and water pollution from mining operations and other industrial activities, soil erosion, uncontrolled deforestation, and tsunamis. Regulation and protection of the environment are under the jurisdictions of the Department of the Environment and Natural Resources (DENR), the Department of Agrarian Reform, and the Department of Agriculture. The major international organizations and groups concerned with the environment of which the Philippines was a member included Biodiversity, Climate Change, Endangered Species, Hazardous Wastes, Law of the Sea, Marine Dumping, Nuclear Test Ban, Ozone Layer Protection, Tropical Timber 83 and Tropical Timber 94, and Wetlands.

Mining in the Philippines is controlled by the 1995 Mining Act, which is administered by the DENR. The act and its implementing rules and regulations provide three major forms

of mining rights—an exploration permit (EP); a mineral agreement (mineral production sharing, coproduction sharing, or joint venture); and a financial or technical assistance agreement (FTAA). EPs and FTAA are avenues of entry for foreign companies to have up to a 100% right of ownership. An EP is limited for a maximum period of 8 years for metals, by which time it must be converted to either a mineral agreement or an FTAA (Chamber of Mines of the Philippines Newsletter, 2000). Mineral agreements are limited to Filipino corporations with a minimum of 60% Filipino ownership and a maximum of 40% foreign ownership. FTAA are 25-year contracts that require a minimum investment commitment of \$50 million for infrastructure and mine development. Moreover, the Government may offer a range of additional incentives under the act, such as zero capital duty, zero value-added tax, and a tax holiday. In return, the DENR expects mining to be sustainable and socially and environmentally responsible.

Through 2000, 59 EPs that covered 403,616 hectares were issued, and more than 400 applications for 3.6 million hectares were pending. The DENR required the submission of an environmental protection and enhancement program, a social development and management program, a final mine rehabilitation and decommissioning plan, an environmental monitoring audit, and financial guarantees for each new project (Resource Information Unit, 2001, p. 12).

In October, the DENR requested that the Supreme Court clarify legal and constitutional challenges to the Mining Act and the Indigenous Peoples Rights Act. The DENR perceived the challenges as one of the main reasons that foreign companies were not investing in the Philippine mining industry (Mining Journal, 2000c).

Japan was the primary market for the country's mineral products. Nearly all the Philippines' production of nickel and a majority of its copper concentrates were exported to Japan. The remaining copper concentrates were smelted by Philippine Associated Smelting and Refining Corp. (PASAR) into copper cathodes at Isabel, Leyte Province, on Leyte Island for export, again primarily to Japan. PASAR was the country's only copper producer.

The Philippines was a net energy importer. The main imports were oil and coal. The country was estimated to import about 360,000 barrels per day (bbl/d) of oil and about 6 million metric tons per year of coal. Domestic energy resources included limited amounts of coal, natural gas, oil and hydroelectric power. Coal was the Philippines' largest source of fossil energy production in 2000. Energy production was concentrated in the electricity sector. Geothermal power accounted for the country's largest share of indigenous energy production, followed by hydropower, coal, and oil and gas. The electric power sector was dominated by National Power Corp. (Napocor) and Manila Electric Co. (Meralco). Meralco served Manila and its immediate surrounding area, and Napocor served most of the rest of the country. The Government owned a majority share in Napocor and a minority stake in Meralco.

Southern Energy, which was the Philippines' largest independent power producer, operated five powerplants in the country.

In 2000, the Philippines was the world's second largest producer of geothermal power after the United States (U.S. Energy Information Agency, April 2000, Philippines—Electricity, Country Analysis Brief, accessed April 16, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/philippi.html>). The country is located in the volcanically active "Ring of Fire," the zone of earthquakes and volcanoes surrounding the Pacific Ocean where about 90% of the world's earthquakes appear. Geothermal power composed about 20% of the Philippines' installed generation capacity, most of which was developed by Philippine National Oil Co.-Energy Development Corp.

In March, Benguet Corp. resumed production of chromite concentrate at its Masinloc Mine, which is 150 kilometers (km) northwest of Manila, Zambales Province. Benguet suspended mining and milling operations in August 1998 owing to flooding precipitated by heavy rains related to the La Niña weather phenomenon and to a softening of the world chromite market that resulted from a slowdown in the steel industry. Benguet had a contract, which is valid until December 2003, to supply 40,000 metric tons per year (t/yr) of refractory ore and concentrate to Metallia USA Inc. of the United States (Resource Information Unit, 2001, p. 92).

In August, the DENR ordered the closure of Krominco Inc.'s chromite mine at Mount Redondo, Dinagat Island, Surigao del Norte Province (Resource Information Unit, 2001, p. 114).

In early 2000, Western Australia-based Lafayette Mining Ltd. began work on a definitive feasibility study and an environmental impact statement (EIS) for the Rapu Rapu copper-gold-lead-silver-zinc property, which is 45 km east-northeast of Legaspi on Rapu Rapu Island, Albay Province. The EIS was completed and submitted to the Philippine regulatory authorities at yearend. The definitive feasibility study was completed in early January 2001 and indicated that a successful 6-year open cut polymetallic mining operation could be developed for the production of copper, gold, silver, and zinc (Lafayette Mining Ltd., 2001). Lafayette Mining owned an 85% share and was the operator; Goldrush Mineral Exploration Corp. held the remaining 15% share.

On May 18, Atlas Consolidated Mining and Development Corp. signed a preliminary working agreement with China's Non-Ferrous Metals Industry's Foreign Engineering and Construction Co. Ltd. in Beijing for the renovation of its Toledo copper mine on the central island of Cebu (Manila Bulletin, May 25, 2000, Atlas signs accord deal to reopen mine, accessed April 6, 2001, via URL <http://www.mb.com.ph>). In 1994, Atlas Consolidated was forced to shut down the Toledo copper operation owing to a lack of funds to rehabilitate the mine following the flooding of the underground workings caused by a typhoon the previous year (Resource Information Unit, 2001, p. 37).

In July 2000, Lepanto Consolidated Mining Co. Inc. signed a sale and purchase agreement with WMC Resources International Pty. Ltd. on its stake in the wholly owned WMC Philippines Inc. WMC Philippines was a contractor in an FTAA that covered the Tampakan copper and gold project at South Cotabato, Mindanao Province. It was one of only three FTAA's in the country (Manila Bulletin, July 13, 2000, News in brief, accessed April 6, 2001, via URL <http://www.mb.com.ph>).

PASAR produced 157,000 metric tons (t) of copper in 2000

compared with 148,000 t in 1999 and planned to increase its output in 2001. The reduced output in 2000 was a result of a planned maintenance shutdown in June (Mining Journal, 2000b). PASAR had enough feedstock for its separate refinery to keep that facility operating during the shutdown. A study for the expansion of the smelter's 172,500-t/yr capacity to 250,000 t/yr was in progress at yearend. PASAR also signed a sales contract near yearend with China's Minmetals International Non-Ferrous Metals Trading Co. (Mining Journal, 2000a).

The Victoria ore body, which is a shallow copper porphyry deposit owned by Lepanto, was discovered by an intensive surface drilling program in 1995 close to the Enargite and the Far South East gold-silver deposits, which were then under development. With encouraging drilling results, full-scale underground development brought the deposit into production in March 1997, just 18 months after discovery. After discovering more copper than expected in the stoping blocks, a 3,500-metric-ton-per-day copper flotation circuit was built in a 5-month period and became operational in June 2000. The first shipment of gold-silver-copper concentrate was made to Saganoseki, Japan, in September (Mining Journal, 2000d). In January, reserves were 6.16 million metric tons (Mt) of ore grading 7.42 grams per metric ton gold and 0.33% copper for about 44 t of gold and 2 Mt of copper (Resource Information Unit, 2001, p. 76).

Development work continued throughout 2000 at the Bulawan underground copper mine, which is 20 km southeast of Sipalay, Negros Occidental Province. Planned production was delayed because of rehabilitation activities associated with the soft ground conditions encountered during development of the first three production lines and draw points on the 70-meter (m) level. On July 16, milling operations were suspended for 2 months as part of a revised mining plan on the 70- and 85-m levels, which required that about 40% of the workforce be retrenched. Following resumption of operations in September, about 80% of the original workforce held positions with Philex Gold Inc. of Canada, which was the operator-owner of the mine (Philex Gold Inc., 2000). The Bulawan Mine originally began in January 1996 with ore supplied to the mill from open cut and underground operations. The open cut operations were suspended in June 1998.

In July 2000, the Canadian mining investment firm Thistle Mining Inc. acquired Philippine Gold Plc. and its Masbate project, which is located 350 km southeast of Manila on the northeastern coast of Masbate Island. On September 27, Thistle announced its plans to treat up to 16 Mt of surface material previously considered to be waste (Thistle Mining Inc., 2000).

Rio Tuba Nickel Mining Corp. mined ore with an average grade of 2.3% nickel at its Rio Tuba Mine at Bataraza on Palawan Island. All production was sold to Japan's Pacific Metals Co.

Sumitomo Metal Mining Co. Ltd. (SMM), which was Japan's largest nickel producer, entered into a joint venture agreement with Rio Tuba Nickel to build a \$98 million nickel smelter on Palawan Island. SMM was to produce about 10,000 t/yr of nickel and 550 t/yr of cobalt for 20 years. The project was to employ use high-pressure acid leaching (PAL) technology. Construction was to begin in 2001, and commercial production would begin in 2003 (Manila Bulletin, June 15, 2000, Nickel smelting plant planned, accessed April 6, 2001, via URL <http://www.mb.com.ph>). Rio Tuba Nickel was 60% owned by Philippine interests and 40% by Japanese interests led by

Pacific Metals Co. Ltd.

On February 23, Impala Platinum Holdings Ltd. (Implats) of South Africa agreed to become an industrial partner with Philnico Mining and Industrial Corp. and a major investor in the redevelopment of the Nonoc nickel laterite project. Based on Nonoc Island, Surigao del Norte Province, the project has a resource of 144 Mt with an average grade of 1.1% nickel and 0.11% cobalt. Implats was to contribute \$6 million to fund an 8-month bankable feasibility study, and if the outcome of the study is satisfactory, it would invest up to \$75 million in cash and contribute the nickel and cobalt assets within its base-metal refinery at Springs, South Africa, where the cobalt-nickel mixed-metal sulfides produced at the Nonoc smelter were to be refined after appropriate expansion to required capacity. Implats' contribution would earn the company a 25% equity stake in the Nonoc project. Production of 41,000 t/yr of Class I nickel and 4,000 t/yr of high-purity cobalt and a mine life of more than 40 years were envisioned (Impala Platinum Holdings Ltd., 2000).

The Nonoc nickel complex, which was closed in 1986, comprised a nickel laterite mine, smelter, and refinery and included a powerplant, a deepwater port, an airstrip, and employee housing, among other facilities. Numerous factors were involved in the shutdown, such as high debt levels, a decline in the value of the peso, high interest rates, low metal prices, and increasing oil prices. In late 1998, owing primarily to falling world nickel prices, the majority owner Philnico was prompted to alter its modest rehabilitation program for the 29,500-t/yr (65-million-pound-per-year) refinery by switching from the traditional ammonia leach methods of the 1970s to pressure-acid-leach (PAL) technology, which is beneficial because it is more energy efficient and permits the use of lower grade material previously considered to be waste. An additional benefit would be a cleaner operation as a result of the environmental upgrades of using PAL technology.

In October, the Securities and Exchange Commission of the Philippines ordered the liquidation of Malaysian-owned National Steel Corp. (NSC), which was once the Philippines' biggest steelmaker. NSC's main plant was in the city of Iligan, southern Philippines. The Iligan plant stopped operating in November 1999 after NSC was unable to make repayments on its debts, which were about \$350 million. NSC also was under staunch competition from cheaper steel imported from South Africa and Russia (Metal Bulletin, 2000).

Coal in the Philippines generally was classified as lignite or subbituminous and was of poor quality, although it continued to be the Philippines' largest source of fossil fuel energy production. Higher grade imported coal was blended with indigenous coals to improve the burning characteristics for use as steaming coal in electrical power generation. Semirara Coal Corp., which was the principal Philippine coal company, produced coal from three seams that average a 7-to-1 stripping ratio on remote Semirara Island, which is 350 km south of Manila. Several new coal mines, which were expected to begin production in the next several years, included the Diplahan Mine in Mindanao with expected production of about 150,000 to 225,000 t/yr and initial production scheduled for April 2001 and the Lalat and the Little Baguio Mines in Zamboanga del Sur with production of 150,000 to 200,000 t/yr and 150,000 to 225,000 t/yr expected to begin in 2003 and 2001, respectively. These mines were owned by the state-owned Philippine National Oil Company-Coal Corp., which had a mandate to

increase coal production to serve the cement and electric power industries. In 1999, the Philippines consumed 5.7 Mt of coal, 84% of which was imported. Demand for coal in the power sector grew by about 14% in 2000 because the coal-fired Sual power station operated by Southern Energy of the United States began operating.

The country's first commercial natural gas discovery was the Malampaya Field, which was discovered in 1992 in the South China Sea offshore the northwestern coast of Palawan Island. The operator Shell Philippines Exploration B.V. (SPEX) (45% interest), along with Texaco Inc. of the United States (45%) and Philippine National Oil Co. (10%), was developing it and drawing upon the field's estimated 70.8 billion cubic meters of gas reserves to supply feed for 20 years to three electric powerplants with a combined 2,700-megawatt capacity, which were under construction at Batangas on Luzon Island by Napocor and First Gas Power Corp. SPEX and its partners were building a 504-km underwater pipeline from the Malampaya Field around the eastern side of Mindoro Island to Batangas to transport the gas to the powerplants. The pipeline was one of the largest ever foreign investment projects in the country and possibly the longest deepwater pipeline in the world; one-half of its length is more than 183 m (600 feet) deep. The project was scheduled to be completed in mid-2001, ahead of schedule (U.S. Energy Information Administration, April 2001, Philippines—Natural gas, Country Analysis Brief, accessed April 18, 2001, at URL <http://www.eia.doe.gov/cabs/philippi.html>).

Although the Philippines had no significant crude oil production in 2000, it did produce about 4,000 bbl/d of oil. The Philippines' downstream oil industry was dominated by Caltex (Philippines) Inc., Petron Corp., and Pilipinas Shell Petroleum Corp. Caltex was a wholly owned subsidiary of the U.S.-based Texaco Inc.-Chevron Corp. joint venture. Caltex operated a refinery, two shipping terminals, and more than 1,000 Caltex gas stations throughout the country. Petron, which was the Philippines' largest oil refining and marketing company, was owned by the Philippine Government and Saudi Arabian Oil Co. (Saudi Aramco) (a joint venture between the Saudi Arabian Government and Amoco Production Co. of the United States). Pilipinas Shell operated a refinery and about 1,000 Shell gas stations.

In January, the Philippines Department of Energy announced plans to phase out the sale of leaded gasoline. Oil retailers in metropolitan Manila were banned from selling leaded gasoline in April, and nationwide sales were banned by January 2001 (U.S. Energy Information Administration, April 2000, Philippines—Refining and downstream, Country Analysis Brief, accessed April 16, 2001, at URL <http://www.eia.doe.gov/emeu/cabs/philippi.html>).

The transportation infrastructure of the Philippines was moderately developed. Of the 199,950 km of roads, 39,590 km was paved, and 160,360 km was unpaved. Inland waterways, of which 3,219 km was usable for shallow draft (less than 1.5-m) vessels, were of little importance to the transportation industry. The public sector railway system consisted of 492 km of narrow-gauge (1.067-m track) track. Of the 266 airports, 76 had permanent-surface runways. International shipping ports included Batangas, Cagayan de Oro, Cebu, Davao, Guimaras Island, Iligan, Iloilo, Jolo, Legaspi, Manila, Masao, Puerto Princesa, San Fernando, Subic Bay, and Zamboanga. The merchant marine fleet included 168 bulk or combination bulk

ore freighters, 47 petroleum-oil-lubricant tankers, 13 liquefied gas tankers, 5 chemical tankers, and 2 specialized tankers. Pipelines included 357 km for petroleum products (U.S. Central Intelligence Agency, 2000, Philippines—Transportation, World Factbook 2000, accessed April 12, 2000, at URL <http://www.odci.gov/cia/publications/factbook/geos/rp.html>).

The potentially rich mineral resources of the Philippines have not been fully exploited. The Philippine mining industry, however, has been stimulated somewhat by the Government-initiated Mining Act of 1995, which aimed to promote the mining industry to the international community. The act also provided incentives to ensure efficiency and economic viability for mining endeavors.

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Major Sources of Information

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TABLE 1
PHILIPPINES: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/	1996	1997	1998	1999	2000 e/
METALS					
Chromium, chromite, gross weight	107,068	87,500	53,871	19,566	20,900
Copper:					
Mine output, Cu content	61,600	48,600 r/	45,400 r/	37,600 r/	26,300
Metal:					
Smelter	201,661	206,160	198,088	148,000 r/	140,000
Refined	155,774	146,630	152,431 r/	147,982 r/	135,100
Gold, mine output, Au content	30,180	32,671	34,038	31,050 r/	36,513 3/
Iron and steel:					
Ferroalloys, electric-furnace:					
Ferrochromium	6,736	--	--	--	-- 3/
Ferromanganese	--	--	--	--	-- 3/
Ferrosilicon	--	--	--	--	-- 3/
Steel, crude	920	950	880 r/	530 r/	530
Lead, metal, secondary refined e/	17,200	17,000	17,000	12,389 r/ 3/	16,218 3/
Nickel, mine output, Ni content	14,539	18,137	12,840	8,450	23,000
Silver, mine output, Ag content	25,095	19,625	18,220	18,214 r/	23,534 3/
INDUSTRIAL MINERALS					
Cement, hydraulic	12,429	14,681	12,888	12,566	11,959 3/
Clays:					
Bentonite	8,000 e/	8,000 e/	3,900	1,844	1,500 3/
Red	800 e/	800 e/	1,180	--	--
White	5,000 e/	6,000 e/	1,783	5,465 r/	1,510 3/
Other	800,000 e/	800,000 e/	6,000	--	771 3/
Feldspar	25,000 e/	25,000 e/	2,938	16,909 r/	3,440 3/
Lime	10,000 e/	10,000 e/	5,997	1,679 r/	9,000
Magnesite e/	700	700	700	700	700
Perlite	20,000 e/	20,000 e/	6,356	10,265	2,092 3/
Phosphate:					
Guano e/	50	50	25	-- 3/	-- 3/
Phosphate rock	30,000 e/	30,000 e/	8,000	181,000 r/	434,000 3/
Pyrite and pyrrhotite (including cuprous), gross weight e/	320,000	320,000	320,000	320,000	300,000
Salt, marine	618,500 r/	686,500 r/	727,754	704,347	589,528 3/
Sand and gravel:					
Silica sand	31 r/	21 r/	16	64 r/	70 3/
Other e/ 4/	15,000	15,000	15,000	15,000	1,500
Stone: e/					
Dolomite	675,000	675,000	210,230 3/	839,102 r/ 3/	823,302 3/
Limestone 5/	6,710 r/ 3/	10,216 r/ 3/	27,714 r/ 3/	16,738 r/ 3/	22,244 3/
Marble (dimension), unfinished	300,000	300,000	98,000 3/	9,826 r/ 3/	14,804 3/
Volcanic cinder	2,000	2,000	2,000	2,000	2,000
Tuff	3,000	3,000	1,540 3/	1,460 r/ 3/	1,662 3/
Quartz	50,000	50,000	50,000	50,000	50,000
Crushed, broken, other 6/	1,000	1,000	1,570 3/	2,388 r/ 3/	2,684 3/
Sulfur, all forms e/	163,000	103,000	132,000	110,000	110,000
MINERAL FUELS AND RELATED MATERIALS					
Coal, all grades	1,125 r/	1,000	900 r/	1,300 r/	1,300
Petroleum:					
Crude	432	292	300 e/	400 r/	400
Refinery products: e/					
Liquefied petroleum gas	4,000	5,475 3/	5,110 r/ 3/	5,500	5,500
Gasoline	15,000	18,615 3/	19,345 r/ 3/	18,500	18,500
Jet fuel	5,000	6,570 3/	8,380 r/ 3/	6,500	6,500
Kerosene	5,000	4,380 3/	4,380 r/ 3/	4,500	4,500
Distillate fuel oil	31,000	40,150 3/	36,865 r/ 3/	40,000	40,000
Residual fuel oil	29,000	47,450 3/	42,340 r/ 3/	47,000	47,000
Other	10,000	9,855 3/	12,775 r/ 3/	10,000	10,000
Refinery fuel and losses	4,000	5,110 3/	4,745 r/ 3/	5,000	5,000
Total	1,012,531	1,109,086 3/	1,144,495 r/ 3/	1,126,411	991,598

See footnotes at end of table.

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

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

1/ Table includes data through April 5, 2001.

2/ In addition to the commodities listed, the Philippines produced platinum-group metals as byproducts of other metals, but output was not reported quantitatively, and no basis is available to make reliable estimates.

3/ Reported figure.

4/ Included "pebbles" and "soil" not further described.

5/ Excluded limestone for road construction.

6/ Included materials described as rock, crushed or broken; stones, cobbles, and boulders; rock aggregates; and broken adobe.

TABLE 2
PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2000

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity e/
Cement		Rizal Cement Co. Inc., 100%	Binangonan plant, Rizal Province, Luzon Island	964
Do.		Davao Union Cement Corp., 100%	Davao City plant, Davao del Sur Province, Mindanao Island	648
Do.		Iligan Cement Corp., 100%	Iligan City plant, Lanao del Norte Province, Mindanao Island	420
Chromite, concentrate		Benguet Corp., 100%	Masinloc open cut mine, 150 kilometers northwest of Manila, Zambales Province, Luzon Island 1/	105
Coal		Semirara Coal Corp. (Government), manager (Voest Alpine AG of Austria, 60%; National Development Corp., 36%; and Development Bank of the Philippines, 4%)	Unong Mine, Antique Province, Semirara Island	1,000
Copper, metal content		Philex Mining Corp., 100%	Padcal (Santo Tomas II) underground mine, south of Baguio City, Benguet Province, Luzon Island	8
Do.		Manila Mining Corp., 100%	Placer open cut mine, 50 kilometers southeast of Surigao, Surigao del Norte Province, Mindanao Island	4
Do.		Lepanto Consolidated Mining Co. Inc., 100%	Victoria underground mine, 80 kilometers north of Baguio City, Benguet Province, Luzon Island	1
Copper, metal, refined		Philippine Associated Smelting and Refining Corp., operator [Pasar Holdings Inc., 37.72%; Japanese consortium (Itochu Corp., Marubeni Corp., and Sumitomo Corp.), 31.23%; eight Filipino companies, 21.78%; International Finance Corp., 5.08%; and National Development Corp. (Government), 4.19%]	Isabel, Leyte Province, Leyte Island	172
Gold, ore throughput	million tons	Benguet Corp., 100%	Antamok open cut mine, Itogon, Benguet Province, Luzon Island 2/	1
Do.	do.	Philex Gold Inc., 100%	Bulawan underground mine, 20 kilometers southeast of Sipalay, Negros Occidental Province, Negros Island	1
Do.	do.	TVI Pacific Inc., 100%	Canatuan open-pit mine, east of Siocon, Zamboanga del Norte Province, Mindanao Island 3/	1
Do.	do.	Climax Mining Ltd. (Australia), 100%	Dinkidi underground mine, 200 kilometers northeast of Manila, Luzon Island 3/	NA
Do.	do.	Philex Mining Corp., 100%	Padcal (Santo Tomas II) underground mine, south of Baguio City, Benguet Province, Luzon Island	8
Do.	do.	Manila Mining Corp., 100%	Placer open cut mine, 50 kilometers southeast of Surigao, Surigao del Norte Province, Mindanao Island	4
Do.	do.	Lepanto Consolidated Mining Co. Inc., 100%	Victoria underground mine, 80 kilometers north of Baguio City, Benguet Province, Luzon Island	1

See footnotes at end of table.

TABLE 2--Continued
 PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2000

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity e/
Nickel, ore		Cagdianao Mining Corp., 100%	Cagdianao open cut mine, Surigao del Norte Province, Dinagat Island	177
Do.		Hinatuan Mining Corp., 100%	Hinatuan open cut mine, Surigao del Norte Province, Hinatuan Island	250
Do.		Rio Tuba Nickel Mining Corp., 100%	Rio Tuba open cut mine, Bataraza, Palawan Province, Palawan Island	400
Do.		Taganito Mining Corp., 100%	Taganito open cut mine, Claver, Surigao	400
Nickel		Philnico Mining and Industrial Corp., 90%; and Asset Privatization Trust (Government of the Philippines), 10%. Impala Platinum Holdings Ltd. earning 25%	Nickel mine-smelter-refinery complex on a 60-hectare site 20 kilometers east-northeast of Surigao City, Nonoc Island, Surigao del Norte Province 4/	NA
Petroleum products	thousand 42-gallon barrels	Caltex (Philippines) Inc., 100%	Caltex Batangas Refinery, Batangas Province, Luzon Island	84
Do.	do.	Petron Corp., operator [Philippine National Oil Co. (Government), 100%]	Petron Bataan Refinery, Bataan Province, Luzon Island	180
Do.	do.	Pilipinas Shell Petroleum Corp., 100%	Shell Batangas Refinery, Batangas Province, Luzon Island	137
Silver, ore throughput	million tons	Benguet Corp., 100%	Antamok open cut mine, Itogon, Benguet Province, Luzon Island 2/	1
Do.	do.	Philex Gold Inc., 100%	Bulawan underground mine, 20 kilometers southeast of Sibalay, Negros Occidental Province, Negros Island	1
Do.	do.	TVI Pacific Inc., 100%	Canatuan open-pit mine, east of Siocon, Zamboanga del Norte Province, Mindanao Island 3/	1
Do.	do.	Philex Mining Corp., 100%	Padcal (Santo Tomas II) underground mine, south of Baguio City, Benguet Province, Luzon Island	8
Do.	do.	Manila Mining Corp., 100%	Placer open cut mine, 50 kilometers southeast of Surigao, Surigao del Norte Province, Mindanao Island	4
Do.	do.	Lepanto Consolidated Mining Co. Inc., 100%	Victoria underground mine, 80 kilometers north of Baguio City, Benguet Province, Luzon Island	1
Steel		National Steel Corp., operator (Wing Tiek Holdings of Malaysia, 100%)	Iligan, Lanao del Norte Province, Mindanao Island 5/	350

e/ Estimated. NA Not available.

1/ Refractory-grade concentrates; mining resumed in March 2000.

2/ On care-and-maintenance status.

3/ Development on hold awaiting financing.

4/ Construction, rehabilitation, and precommissioning scheduled for possible mine-smelter-refinery startup in 2002.

5/ Closed since November 1999.