

2008 Minerals Yearbook

PHILIPPINES

The Mineral Industry of the Philippines

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In 2008, the Philippines produced more than 5% of the total world production of nickel (Kuck, 2010). Other mineral commodities produced in the Philippines included cement, chromium, copper, gold, marine salt, and silver (table 1).

Minerals in the National Economy

In 2008, the mining and quarrying sector (at constant 1985 prices) contributed 1.70% of the Philippine gross domestic product (GDP) compared with 1.73% (revised) in 2007, which was a decrease of 1.7%. The construction sector contributed 4.63% of the GDP in 2008 compared with 4.5% (revised) in 2007, which was an increase of 2.9% (Bangko Sentral ng Pilipinas, 2009).

Government Policies and Programs

The 1995 Philippine Mining Act regulates mineral resources development, requires the Government to maintain an inventory of mineral reserves, and encourages direct investment in mineral exploration and development activities in the Philippines. The Government grants exploration permits to qualified applicants to explore for mineral resources; the exploration permit is valid for a period of 2 years and is renewable for not more than 4 years for exploration of nonmetallic minerals and 6 years for exploration of metallic minerals (Mines and Geosciences Bureau, 2010).

The 1995 Philippine Mining Act allows for three types of mining agreements. The first is a mineral agreement in which the Government grants a domestic contractor (a Filipino individual or corporation) an exclusive right to conduct mining operations in the contracted area. The agreement is valid for 25 years and is renewable for another 25 years. The second type of mining agreement is a Financial or Technical Assistance Agreement (FTAA), which is available to domestic and foreign corporations for a maximum area of 81,000 hectares (ha) onshore or 324,000 hectares offshore; this agreement is valid for a period of 25 years and is renewable for another 25-year period. The third type of agreement is a mineral production-sharing agreement for properties with a maximum area of 16,200 ha; this permit, which is open to domestic and foreign corporations, is valid for a period of 25 years and is renewable for another 25-year period (Mines and Geosciences Bureau, 2010).

Production

In 2008, the Philippines Department of Energy reported a 425% increase in the production of crude petroleum to 965,000 barrels (bbl) from 184,000 bbl in 2007. Mineral production also increased for the following commodities: bentonite (by 24%); liquefied petroleum gas (21%); copper from smelter and refinery (12% and 8.4%, respectively); and coal, (6%). The mineral commodities for which production decreased significantly were zinc (by 78%), silver (54%), chromite (52%), residual fuel oil (25%), gold (8.3%), and nickel (8.2%) (table 1).

Structure of the Mineral Industry

The significant producers of mineral commodities in the Philippines were Lepanto Consolidated Mining Co. (gold and silver); Nickel Asia Corp. (nickel from the Cagdianao and the Taganito projects); Philex Mining Corp. of Canada (copper and gold); and TVI Resources Development Philippine Inc., which was the Philippine affiliate of TVI Pacific Inc. of Canada (gold and silver). The country's major mineral industry facilities are listed in table 2.

Mineral Trade

In 2008, total trade in the Philippines decreased by about 0.15% to \$105.824 billion from \$105.979 billion in 2007. The country's total exports in 2008 were valued at \$49.078 billion compared with \$50.466 billion in 2007, which was a decrease of 2.8%. The total value of imports increased by 2.2% in 2008 to \$56.746 billion from \$55.514 billion in 2007. Exports of cathodes and sections of cathodes of refined copper, and petroleum products were valued at \$2.55 billion (or about 5.2% of the country's total export value) compared with \$2.4 billion in 2007, which was an increase of more than 6%. Imports of iron and steel and mineral fuels and related materials were valued at \$14.01 billion (about 24.7% of the country's total import value) compared with \$10.8 billion in 2007, which represented an increase of more than 29% (National Statistics Office of the Philippines, 2009).

In 2008, the Philippines' main trading partner was the United States, which accounted for 14.6% of the country's total trade; exports to and imports from the United States were valued at \$8.21 billion and \$7.22 billion, respectively. The total trade in 2008 between the Philippines and the United States was valued at \$15.43 billion compared with \$16.43 billion in 2007, which represented a 6.1% decrease in trade. The second ranked trading partner was Japan, which accounted for 13.5% of total trade; exports to Japan were valued at \$7.7 billion and imports from Japan were valued at \$6.6 billion. Total trade between the two countries was valued at \$14.31 billion in 2008 compared with \$14.15 billion in 2007, which was an increase of more than 1%. The country's third and fourth ranked trading partners were China and Singapore, which accounted for 9.2% and 8.1% of the Philippines' total trade, respectively. Exports to China were valued at \$5.47 billion and imports from China were valued at \$4.25 billion, for a total of \$9.72 billion in 2008 compared with \$9.75 billion in 2007, or a decrease of more than 0.3%. Exports to Singapore were valued at \$2.61 billion and imports from Singapore were valued at \$5.95 billion for a total of \$8.55 billion in 2008 compared with \$9.36 billion in 2007, or a decrease of 8.6% (National Statistics Office of the Philippines, 2009).

Metals

Chromium.—Chromite production plummeted in 2008 to 15,268 metric tons (t) from the 31,592 t reported in 2007 (table 1). The decrease in production was mainly owing to lower ore grades reported at mine sites. In 2008, chromite production at the Diginat chromite project (which was owned by Krominco Inc. of the Philippines) fell at a rate of 31% to 8,529 t from 12,379 t in 2007. Although total production of chromite decreased in 2008, ore production reported for the Heritage Resources Mining Corp's. Homonhon chromite project increased to 1,700 t from zero production in 2007 (National Statistical Coordination Board, 2008a; Mines and Geosciences Bureau, 2009).

Copper.—Mined copper production in 2008 was 21,235 t of metal content, which represented a decrease of 7.1% compared with production in 2007 of 22,862 t. Copper mine output reported from the Enargite project was 1,507 t compared with zero production in 2007; the Padcal copper project produced 18,792 t (8.6% less than production of 20,568 t in 2007); and the Rapu-Rapu polymetallic project produced 936 t compared with 2,294 t in 2007 (a decrease of 59%). On the other hand, production of smelter and refined copper increased by 12.1% and 8.4%, respectively (table 1). In April 2008, the Philippines Department of Environment and Natural Resources announced that negotiations concerning Rapu-Rapu polymetallic project's new ownership had been completed. Kores (the investment entity of the Government of the Republic of Korea) through its holding company Philco Resources Ltd. was to own 70% of the project and Malaysian Smelting Corp. (MSC) in partnership with LG Group of the Republic of Korea would own the remaining 30%. Philco and MSC acquired the Rapu-Rapu project from former owner Lafayette Mining Ltd. of Australia (Intellasia.net, 2008; Mines and Geosciences Bureau, 2009).

Gold.—Gold production in the Philippines decreased by 8.3% to 35,568 kilograms (kg) in 2008 (table 1). Based on gold purchases by the Bangko Sentral ng Pilipinas (Philippines Central Bank), small-scale mines produced 28,198 kg in 2008 compared with 31,166 kg (revised) in 2007, which was a decrease of 9.5%. The Lepanto Consolidated Mining Co.'s Enargite project reported initial gold production in 2008 of 415 kg. The company's Teresa and Victoria gold projects reported decreases in production of 66% and 57%, respectively. The Teresa project produced 144 kg of gold in 2008 compared with 423 kg in 2007; the Victoria project produced 402 kg of gold compared with 935 kg in 2007 (Mines and Geosciences Bureau, 2009).

Nickel.—In 2008, nickel production decreased to 83,895 t from 91,367 t (revised) in 2007 (table 1). The sharpest decreases in nickel production were reported from the following projects: the SR Metal project (to 5,314 t in 2008 from 20,920 t in 2007), the Cagdianao nickel project (to 4,585 t from 9,459 t), and the Tagana-an nickel project (to 1,600 t from 6,551 t). On the other hand, production soared in the Adlay-Cagdianao-Tandawa nickel project (to 12,409 t in 2008 from 8,163 t in 2007), the Rio Tuba nickel project (to 10,459 t from 6,310 t), the Berong nickel project (to 8,120 t from 4,150 t), and the

Sta. Cruz-Candelaria mining project (to 3,760 t from 981 t). In November 2008, Sumitomo Metal Mining Co. announced a delay in the start of the company's Taganito nickel project to await possible decreases in production costs. The company planned to complete a feasibility study on the construction of a 30,000-metric-ton-per-year (t/yr) nickel plant at Taganito. The construction, which would be done in partnership with Taganito Mining Corp. of the Philippines, was proposed to begin in 2009 (Mineweb.com, 2008; Mines and Geosciences Bureau, 2009).

Mineral Fuels

Petroleum.—In 2008, production of crude petroleum increased exponentially by 425% to 965,000 bbl from 184,000 bbl (revised) in 2007. The increase was in part owing to production in the Galoc oilfield during the testing phase and initial production that started in the last quarter of 2008 (National Statistical Coordination Board, 2008b).

In 2008, the Philippines' leading oil refining company, Petron Corp., which operated a 180,000-barrel-per-day (bbl/d) refinery in Limay, Bataan, supplied nearly 40% of the country's total fuel requirements. In April 2008, Petron inaugurated the Philippine's first petrochemical feedstock facility at its Limay property. The petrochemical facility included a petro fluidized catalytic cracking unit (PetroFCC) and a propylene recovery unit (PRU); the PetroFCC was used to convert fuel oil into diesel, gasoline, and liquefied petroleum gas (LPG), and yielded higher levels of propylene, whereas the PRU was used to purify the petrochemical feedstock propylene. The capacity of the PetroFCC was estimated to be more than 6.9 million barrels per year, whereas the PRU had a production capacity of 140,000 t/yr of propylene (Petron Corp., 2008b).

In October 2008, Petron reached an agreement with Galoc Production Co. to purchase the first 300,000 bbl of the Palawan light crude oil from its Galoc field, which is located northwest of Palawan. The crude oil was to be processed at Petron's Limay refinery. The Philippines Department of Energy estimated that the Galoc oilfield could produce between 17,000 bbl/d and 20,000 bbl/d of crude oil, which constitutes about 6% of the country's daily demand (Petron Corp., 2008a).

Outlook

Based on current market conditions and on the 2008 performance of the mineral industry, production of mineral commodities in the Philippines in 2009 will likely be dominated by industrial minerals, such as bentonite, marble, and sand and gravel; and mineral fuels, such as coal, crude petroleum, and petroleum products. Production increases will also be dependent on the performance of the many projects that started reporting production in 2008, such as the polymetallic Enargite project and the Galoc oilfield.

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TABLE 1 PHILIPPINES: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²		2004	2005	2006	2007	2008
METALS						
Chromium, chromite, gross weight		42,140	38,081	46,728	31,592	15,268
Cobalt, mine output, Co content		100	300	900	1,000	1,000 ^e
Copper:						
Mine output, Cu content		15,984	16,320	17,161	22,862	21,235
Metal:						
Smelter		120,000	201,300 r	239,600 r	220,000 r	246,700
Refined		174,628	172,000	181,000	160,200	173,600
Gold, mine output, Au content	kilograms	35,464	37,490	36,141	38,792	35,568
Iron and steel, steel, crude thousand	metric tons	550	470	558	718	711
Lead, metal, secondary refined		29,000	30,000	30,000	30,000	30,000
Nickel, mine output, Ni content		16,973	26,636	64,705	91,367 ^r	83,895
Silver, mine output, Ag content	kilograms	9,315	19,150	23,502	27,754	12,694
Zinc, Zn content					7,394 ^r	1,619
INDUSTRIAL MINERALS						
Cement, hydraulic thousand	metric tons	13,346	15,494	12,033	13,048	13,369
Clays:						
Bentonite		3,560	1,000	1,000	1,148	1,422
Red		8,920	3,530	5,420	6,742	7,181
White		13,310	12,220	7,138	7,224	8,745
Other		6,500	13,400	4,901	4,883	5,601
Feldspar		32,110	11,850	15,176	14,837	15,838
Lime ^e		9,000	9,000	3,313 3	3,822 3	4,299 ³
Perlite		5,510	4,410	4,352	4,515	4,593
Phosphate rock		2,380	2,180	1,963	1,961	2,271
Pyrite and pyrrhotite, including cuprous, gross weight ^e		300,000	300,000	300,000	300,000	300,000
Salt, marine		427,620	420,950	418,210	437,689	510,059
Sand and gravel:						
Silica sand thousand	metric tons	237	224	179	221	270
Other ⁴ thousand c	ubic meters	36,133	36,792	38,455	40,076	46,659

See footnotes at end of table.

TABLE 1—Continued PHILIPPINES: PRODUCTION OF MINERAL COMMODITIES¹

(Metric tons unless otherwise specified)

Commodity ²		2004	2005	2006	2007	2008
INDUSTRIAL MINER	ALS—Continued					
Stone:						
Dolomite		1,408,870	874,730	1,083,269	1,092,748	1,150,035
Limestone ⁵	thousand metric tons	20,830	21,112	21,888	26,419	31,528
Marble, dimension, unfinished	cubic meters	4,740	5,120	3,964	4,791	5,410
Volcanic cinder ⁶	do.	8,470	8,660	6,378	6,177	6,519
Tuff		19,250	17,850	17,590	16,490	17,570
Quartz ^e		50,000	50,000	50,000	50,000	50,000
Crushed, broken, other ^{e, 7}	thousand cubic meters	2,500	2,500	2,735 3	2,810 3	3,077 ³
Sulfur, all forms ^e		180,000	180,000	180,000	180,000	180,000
MINERAL FUELS AND RE	ELATED MATERIALS					
Coal, all grades	thousand metric tons	2,727	3,165	2,529	3,401 ^r	3,610
Petroleum:						
Crude	thousand 42-gallon barrels	139	208	181	184 ^r	965
Refinery products: ^e						
Liquefied petroleum gas	do.	30,600 ³	31,000	31,000	2,951 ^{r, 3}	3,556 ³
Gasoline	do.	127,600 ³	128,000	128,000	12,491 ^{r, 3}	12,920 ³
Jet fuel	do.	45,800 ³	46,000	46,000	46,000	46,000
Kerosene	do.	17,700 ³	18,000	18,000	7,277 ^{r, 3}	6,596 ³
Distillate fuel oil	do.	170,000	170,000	170,000	170,000	170,000
Residual fuel oil	do.	234,200 ³	234,000	234,000	21,226 r, 3	15,975 ³
Refinery fuel and losses	do.	230,000	230,000	230,000	230,000	230,000
Other	do.	225,000	225,000	225,000	1,725 ^{r, 3}	1,950
Total	do.	1,080,000 r	1,080,000 r	1,080,000 r	492,000 r	487,000

^eEstimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. ^rRevised. do. Ditto. -- Zero. ¹Table includes data available through February 25, 2010.

²In addition to the commodities listed, the Philippines produces platinum-group metals as byproducts of other metal production, but available information is inadequate to make estimates of output.

³Reported figure.

⁴Includes "pebbles" and "soil" not further described.

⁵Include limestone for agriculture, cement manufacturing, industrial, and other.

⁶Reported as "Black cinder" for years 2006-2008 by the Philippines Mines and Geosciences Bureau.

⁷Includes materials described as rock, crushed or broken/blasted; stones, cobbles, and boulders; pebbles; rock aggregates; and broken adobe.

TABLE 2 PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2008

(Metric tons unless otherwise specified)

		Major operating companies		
Com	modity	and major equity owners	Location of main facilities	Annual capacity
Cement		Fortune Cement Corp.	Bulacan plant at Norzagaray, Bulacan Province; Batangas plant at Taysan, Batangas Province	2,100,000.
Do.		Holcim Philippines, Inc.	Bulacan plant at Norzagaray, Bulacan Province;	7,200,000.
			Davao plant at Barrio Ilang, Davao City;	
			La Union plant at Bacnotan, La Union Province;	
			Lugait plant at Lugait, Misamis Oriental Province	
Do.		Solid Cement Corp., APO Cement Corp.,	Cement plants at three locations-	4,300,000.
		and Rizal Cement Corp.	Naga, Cebu Province (APO Cement Corp.);	
			Antipolo City, Rizal Province (Solid Cement	
			Corp.); Binangonan, Rizal Province	
			(Rizal Cement Corp.)	
Chromite		Consolidated Mines Inc. (owner)	Masinloc chromite mine (Coto chromite	5,000.
		and Benguet Corp. (operator)	deposit) located in Coto 27 kilometers east of	
			the Port of Mansiloc in Zambales Province	
Do.		Krominco Inc.	Dinagat chromite project—Redondo Mine	26,000.
			(Mt. Redondo deposit) located in the	
			Municipality of Loreto, Dinagat Island	
Do.		Heritage Resources Mining Corp.	Homonhon chromite project	17,000.
Copper		Lepanto Consolidated Mining Co.	Victoria and Teresa Mines located in	200.
			Mankayan, Benguet Province	
Do.		Philex Mining Corp. (through its	Padcal copper project located in	21,000.
		subsidiary Philex Gold Inc.), 81%	Tuba, Benguet Province, Island	
			of Luzon	
Do.		Glencore International AG	Philippine Associated Smelting and	250,000 smelter;
			Retining Corp. (PASAR), located in	173,000 refinery.
		L -free Mining Ltd 750/ and LC	Isabel, Leyte Province	26,000
D0.		Latayette Mining Ltd., 75%, and LG	Rapu-Rapu Mine under the	30,000.
		25%	kapu-kapu polymetallic project,	
Gold	kilograms	2370 Lenanto Consolidated Mining Co	Viatoria and Tarasa Minos located in	2 000
Gold	Kilograms	Lepanto Consolidated Willing Co.	Mankayan Banguat Province	2,000.
Do	do	Philex Mining Corn (through its subsidiary	Padcal Mine (Sto. Tomas II denosit)	5.000
D0.	u 0.	Philex Gold Inc.) 81%	located in Tuba Benguet Province	5,000.
		Third Gold Hiel), 0170	Island of Luzon	
Do	do	TVI Resources Development Philippine Inc	Canatuan project located east	500
20.	u 0.	100%	of Siocon Province of	000.
			Zamboanga del Norte.	
			Mindanao Island	
Do.	do.	Lafayette Mining Ltd., 75%, and LG	Rapu-Rapu Mine under the	1,500.
		International and Korean Resources Corp.,	Rapu-Rapu polymetallic project,	,
		25%	located in Albay Province	
Do.	do.	Philippine Mining Development Corp.	Diwalwal Direct State Development Project	100.
			at Mount Diwalwal in Davao del Norte Province	
Do.	do.	APEX Mining Company Inc.	APEX Maco operation	100.
Nickel		Coral Bay Nickel Corp. (Sumitomo Metal	Coral Bay nickel high pressure acid leach	10,000.1
		Mining Co. Ltd., 54%; Mitsui & Co. Ltd.	(HPAL) plant located on Palawan Island in	
		18%; Rio Tuba Nickel Mining Corp., 10%;	southwest Philippines	
		Nickel Asia Corp., 6%)		
Do.		Nickel Asia Corp., 100%	Cagdianao nickel project located near	10,000.
			Barangay Valencia on Dinagat Island	

See footnotes at end of table.

TABLE 2—Continued PHILIPPINES: STRUCTURE OF THE MINERAL INDUSTRY IN 2008

(Metric tons unless otherwise specified)

	Major operating companies		
Commodity	and major equity owners	Location of main facilities	Annual capacity
Nickel-Continued	Hinatuan Mining Corp.	South Dinagat project located on Nonoc	4,000.
		Island	
Do.	do.	Tagana-an nickel project located on	30,000.
		Hinatuan Island	
Do.	Nickel Asia Corp., 65%, and Pacific Metals	Claver nickel project (Taganito) located in	12,000.
	Co. Ltd. and Sojitz Philippines, 35%	Surigao del Norte Province, Mindanao	
		Island	
Do.	Nickel Asia Corp., 60%, and Pacific Metals	Rio Tuba nickel project, located in Barrio	5,000.
	Co. Ltd. and Sojitz Philippines, 40%	Rio Tuba, Municipality of Bataraza in	
		Palawan Province.	
Do.	Toledo Mining Corporation Plc., 56.1%	Berong nickel project located on Palawan Island	10,000.
Do.	CRAU Mineral Resources Corp.	Sta. Cruz-Candelaria Nickel project located	1,000.
		in Zambales Province	
Do.	CTP Construction & Mining Corp.	Adlay-Cagdianao-Tandawa (ACT) nickel	10,000.
		project, located in Barangay Adlay,	
		Municipality of Carrascal, Province of	
		Surigao del Sur	
Do.	SR Metals, Inc.	SR Nickel project, Tubay Mine, located in	25,000.
		Tubay, Agusan del Norte Province	
Silver kilograms	Lepanto Consolidated Mining Co.	Victoria and Teresa Mines located in	4,000.
		Mankayan, Benguet Province	
Do. do.	TVI Resources Development Philippine	Canatuan project, located east	17,000.
	Inc., 100%	of Siocon, Province of	
		Zamboanga del Norte,	
		Mindanao Island	
Do. do.	Lafayette Mining Ltd., 75%, and LG	Rapu-Rapu Mine under the	18,000.
	International and Korean Resources Corp.,	Rapu-Rapu polymetallic project,	
	25%	located in Albay Province	
Do. do.	Philex Mining Corp. (through its subsidiary	Padcal Mine (Sto. Tomas II deposit)	5,000.
	Philex Gold Inc.), 81%	located in Tuba, Benguet Province,	
		Island of Luzon	
Zinc	Lafayette Mining Ltd., 75%, and LG	Rapu-Rapu Mine under the	8,000.
	International and Korean Resources Corp.,	Rapu-Rapu polymetallic project,	
	25%	located in Albay Province	

Do., do. Ditto.

¹Proposed increase to 20,000 metric tons by 2009.