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THAILAND

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The Mineral Industry of Thailand

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In 2012, Thailand's mineral production increased by 8.2%, its manufacturing production increased by 6.9%, and its gross domestic product (GDP) increased by 6.5% compared with that of 2011, respectively. In late 2011, Thai economic expansion was interrupted suddenly by the worst flood that the country had encountered in 70 years—the industrial areas in Bangkok and its surrounding Provinces were seriously affected. The economic recovery began in the second quarter of 2012 following the previous year's decline (Bank of Thailand, 2013a).

Minerals in the National Economy

Thailand is one of the world's leading producers of cement, feldspar, gypsum, and tin. The country's identified mineral resources were being produced for domestic consumption and export. Thailand's manufacturing sector produced automobiles and automotive parts, cement, integrated circuits, and jewelry (table 1; Bank of Thailand, 2013b, p. 9; Carlin, 2013; Crangle, 2013; Tanner, 2013; U.S. Central Intelligence Agency, 2013; van Oss, 2013).

Government Policies and Programs

Thailand's economy in recent years was affected by both domestic and international financial circumstances. The Government policies that followed the world financial crisis in 2008 helped move the country's economy to positive growth in 2010, and the Thai economy continued to have strong growth in the first three quarters of 2011 until the flooding in the fourth quarter. In 2012, the Government initiated $11.7 billion worth of infrastructure projects to modify the manufacturing infrastructure after the flood and prevent similar economic damage in the future. The Government also applied a nationwide minimum daily wage and implemented policies to increase the country's exports and lower business and employee taxes (Bank of Thailand, 2013b, p. 51–59; U.S. Central Intelligence Agency, 2013).

The Ministry of Industry is the principal Government agency that oversees the country's mineral sector. The Ministry's Department of Primary Industry and Mines (DPIM) administers the Minerals Act and issues mining regulations. The DPIM also provides technical assistance to the metallurgical, mineral processing, and mining industries. The Department of Mineral Resources (DMR) drafts national mineral policies and provides technical assistance for geologic prospecting and mineral exploration. The DMR conducts geologic mapping, manages mineral resources, performs mineral analyses, and administers the country's mineral resources information center (Department of Mineral Resources, 2012).

Structure of the Mineral Industry

Table 2 is a list of major mineral industry facilities in Thailand. Most of the nonfuel mineral mining and mineral processing companies in Thailand were privately owned and operated. The Electricity Generating Authority of Thailand (EGAT) and several coal mining companies owned and operated most of the county's major coal exploration and mining businesses. The Petroleum Authority of Thailand (PTT), PTT Exploration and Production Public Co. Ltd. (PTTEP) and its joint ventures, and major multinational oil companies owned most of the country's petroleum and natural gas exploration projects and exploitation businesses. Thailand's mineral industry was engaged in mining and processing of metallic and industrial minerals and exploring for crude oil and natural gas (table 2).

Mineral Trade

In 2012, Thailand's exports were valued at about $226 billion compared with $219 billion in 2011, which was an increase of 3%. Imports were valued at about $218 billion compared with $202 billion in 2011, which was an increase of 8%. Thailand exported industrial commodities, including automobiles and automotive parts, computer parts, electrical appliances, electronics, machinery, and equipment, mainly to China (12%), the United States (11.5%), Japan (10%), Hong Kong (6%), and Malaysia (5%). Thailand imported raw materials and fuels for its domestic manufacturing industry mainly from Japan (20%), China (15%), the United Arab Emirates (6%), and Malaysia and the United States (5% each) (U.S. Census Bureau, 2012a, b; Bank of Thailand, 2013b, p. 11–17; U.S. Central Intelligence Agency, 2013).

Historically, Thailand's trading partners were several European countries, Japan, and the United States. Thailand's traditional export markets were the members of the Association of Southeast Asian Nations (ASEAN)—Indonesia, Malaysia, the Philippines, Singapore, and Vietnam. In addition, the countries of Burma, Cambodia, and Laos had gradually become more important to the Thai economy as high-potential export and investment destinations. The numbers of Thai export markets and trade partners were continuing to increase to include Australia, China, India, the Middle East, and South Africa (Bank of Thailand, 2013b, p. 11–17; U.S. Central Intelligence Agency, 2013).

In 2012, Thailand's imports from the United States were valued as about $11 billion, and included semiconductors valued at $1.3 billion; gold, $500 million; petroleum products, $319 million; and steelmaking materials, $148 million. Thailand's exports to the United States were valued at about $26 billion, and included crude oil valued at $813 million; iron and steel products, $195 million; tin, $38 million; and bauxite and aluminum, $11 million. Thailand also exported manufacturing products to the United States, including $4.7 billion worth of computer accessories, peripherals, and parts; $2.4 billion worth of telecommunications equipment; and $1.4 billion worth of metal jewelry, such as watches and rings (U.S. Census Bureau, 2012a, b).

Production

In 2012, Thailand's tin output decreased by 56% to 124 metric tons (t) from 282 t in 2011, crude oil production decreased by 27% to 37.2 million barrels (Mbbl) from 50.9 Mbbl in 2011, and natural gas production decreased by 25% to 21.8 million cubic meters from 29.1 million cubic meters in 2011. Manganese production of 6,300 t was about 34 times the 187 t in 2011, gold production increased by 75% to 4,200 kilograms (kg) from 2,400 kg in 2011, and silver production increased by 60% to 31,000 kg from 19,000 kg in 2011. Manufactured iron (iron sheet) production increased by 20% to 0.6 million metric tons (Mt) from 0.5 Mt in 2011, and steel manufacturing (steel bar and shape steel) production increased by 6.7% to 1.6 Mt from 1.5 Mt in 2011. Cement production increased by 11% to 41.0 Mt from 36.6 Mt in 2011 (Bank of Thailand, 2013c, p. 6–8).

Commodity Review

Metals

Copper.—Thailand-registered Puthep Co. Ltd., which was a joint venture of Padaeng Industry Public Co. Ltd. of Thailand (51%) and PanAust Ltd. of Australia through its wholly owned subsidiary PNA Pty Ltd. (49%), owned and explored the Puthep copper project in Loei, northern Thailand. In mid-2012, PanAust and Padaeng began to divest the project. The joint venture also evaluated the effect of the changes in the copper price and mining costs on the results of previous studies, which were completed 2 years earlier (PanAust Ltd., 2013).

Gold.—Kingsgate Consolidated Ltd. of Australia owned and operated the Chatree gold mine in central Thailand. In fiscal year 2012 (which ran from the beginning of July 2011 to the end of June 2012), the company produced about 4,200 kg of gold and about 31,000 kg of silver. The company mined 5.7 Mt of ore during the year. Because the milled ore had a higher grade than the planned head grade, gold production increased by 75% from the 2,400 kg produced in 2011. Kingsgate's new processing plant had an ore processing capacity of more than 5 million metric tons per year (Mt/yr), but operation of the new plant was delayed by 63 days in 2012 (Kingsgate Consolidated, Ltd., 2013 p. 3).

Zinc.—Padaeng was engaged in mining, milling, and smelting zinc and producing zinc alloys. Padaeng owned the only zinc mine in Thailand—the Mae Sod Mine, which is located in the Mae Sod district of Tak Province. Padaeng's smelter was located in the Muang district of Tak Province, the roaster plant was located in Rayong Province, and the head office was located in Bangkok. In 2012, the Mae Sod Mine produced less zinc silicate ore output than in previous years, and the Tak smelter processed increased volumes of secondary raw material, such as zinc carbonate and sulfide and nonsulfide zinc. to meet the mill's zinc production demand. Therefore, despite the decrease in zinc ore and primary zinc metal output, Padaeng produced 53,000 t of zinc ingots, 44,000 t of zinc alloy, and 101,000 t of zinc cathodes. Padaeng increased its domestic zinc sales to about 91,000 t, or by 13% compared with those of 2011, and increased its zinc exports to about 16,000 t, or by 14% (Padaeng Industry Public Co. Ltd., 2013, p. 19–24).

Industrial Minerals

Gypsum.—Thailand's gypsum deposits occur in both the northern and southern areas of the country; however, mining was concentrated in the southern part of the country because of the south's proximity to the country's seaports. Siam Cement Group and Thai Gypsum Products were the two major suppliers to the Thai gypsum market. Thai Gypsum Products had the capacity to produce 75 million square meters per year of gypsum products, and the company exported about 40% of its output. In recent years, Thai Gypsum Products focused on the development and production of new gypsum products and introduced a thermal insulation board and thermal tile to its line of products. BuilderSmart Public Co. Ltd. (BSM), which received 51% of its revenue from gypsum products, refocused on its export markets, mainly India and Myanmar. BSM's exports aimed to increase the company's revenue to $31.5 million within the next 2 years and to increase its net profit by 50% each year (Global Gypsum, 2013).

Mineral Fuels

Natural Gas and Petroleum.—Chevron Corp. of the United States operated the Platong II natural gas project in the Gulf of Thailand. Platong II is located in shallow waters 193 kilometers (km) from the southern coastline of Thailand. Chevron invested $3.1 billion in this project and expected to reach production of 9.3 million cubic meters per day of natural gas and 18,000 barrels per day of natural gas liquids when the project is completed. Platong II was aimed at increasing the country's domestic natural gas production by more than 10% to meet Thailand's growing energy demand; it would increase Chevron's net natural gas production from the Gulf of Thailand by more than 20%. Chevron operated and held a 69.9% interest in the Platong II project; Mitsui Oil Exploration Co. Ltd. of Japan held a 27.4% interest in the project, and PTTEP held the remaining 2.7% (Chevron Corp., 2011).

Outlook

The joint venture of PanAust and Padaeng was to continue its Puthep project asset sale in 2013 and to shift the investment to other projects that would be more profitable. Kingsgate expects that the gold production at the Chatree Mine in fiscal year 2013 will be in the range of between 3,700 kg and 4,100 kg. Kingsgate planned further exploration for gold in the Chatree Mine leasing area in hopes of substantially extending the mine's life. Chevron acquired production rights in the Pakarang oil and gas field, which covers 118 square kilometers in the Gulf of Thailand, and is expected to invest about $605 million to develop the project. The World Bank upgraded Thailand's income categorization from a lower-middle income economy to an upper-middle income economy in July 2011 owing to the country's progress in economic development. According to the Bank of Thailand, the country's GDP is forecast to grow by 4.9% in 2013, and the country's exports will gradually improve (Dow Jones & Company, Inc., 2012; Bank of Thailand, 2013b; Kingsgate Consolidated Ltd., 2013; Padaeng Industry Public Co. Ltd., 2013; PanAust Ltd., 2013).

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TABLE 1
THAILAND: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2008	2009	2010	2011	2012
METALS						
Antimony:						
Ore, gross weight		--	--	--	25 r	28
Metal, smelter e		422 3	555 3	500	500	500
Copper, metal, refined, secondary e		438	490 3	490 3	500	500
Gold, mine output, Au content	kilograms	2,721	5,400	4,125	2,372	4,158
Iron and steel:						
Iron ore:						
Gross weight		1,586,250 r	528,899 r	969,937	285,566 r	103,009
Fe content e		779,000 r	259,000 r	475,000 r	140,000 r	50,000
Crude steel	thousand metric tons	5,211	3,646	4,145	4,000 e	4,000 e
Lead, metal		73,303	55,504	55,500	55,000 e	55,000 e
Manganese ore:						
Metallurgical grade, gross weight, 46% to 50% MnO_2		111,000	64,930	50,450	398 r	13,435
Mn content		52,700	31,200	24,200 e	187 r	6,300
Silicon, metal, gross weight		--	--	NA	22,500 e	22,500 e
Silver, mine output, Ag content	kilograms	5,465	15,300	17,092	19,456 r	31,121
Tin:						
Concentrate, Sn content		215	166	291	282	124
Metal, primary e		21,860 3	19,423 3	20,000	20,000	20,000
Tungsten concentrate, W content e		-- r	-- r	-- r	40 r	83
Zinc:						
Ore:						
Gross weight		118,728 r	184,505	146,470	148,391 r	95,671
Zn content		17,811	34,000	25,529	25,000 r, e	31,000
Metal, primary		107,753	104,695	100,000 e	68,203	53,000
Alloy, Zn content		70,000	31,000	30,000 e	35,163	44,000

See footnotes at end of table.

TABLE 1—Continued
THAILAND: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2008	2009	2010	2011	2012
INDUSTRIAL MINERALS						
Barite		9,180	51,895	33,465	67,703 r	64,499
Cement, hydraulic	thousand metric tons	31,651	33,562	36,496	36,602 r	41,047
Clays:e						
Ball clay		1,499,993 3	1,000,000	1,000,000	1,000,000	1,000,000
Kaolin, marketable:						
Beneficiated, washed		162,215 3	160,000	160,000	160,000	160,000
Nonbeneficiated, unwashed		479,443 3	500,000	500,000	500,000	500,000
Filler		6,061 3	6,000	6,000	6,000	6,000
Diatomite		4,075	5,600 r	7,100 r	38,130 r	8,500
Feldspar		670,618	718,692 r	641,900 r	1,041,152 r	1,100,619
Fluorspar, crude, metallurgical grade		26,118	86,365	2,222	5,093 r	9,602
Gypsum	thousand metric tons	8,500	8,679	9,985	8,955 r	6,259
Perlite		7,000 e	13,500 r	14,700 r	26,500 r	41,400
Phosphate rock, crude		3,675	658 r	35,783 r	3,300 r	1,990
Sand, silica, glass[e]		495,848 3	500,000	500,000	500,000	500,000
Stone:						
Calcite[e]		823,706 3	750,000 3	750,000	750,000	750,000
Dolomite[e]		1,353,763 3	1,200,000 3	1,200,000	1,200,000	1,200,000
Granite:						
Dimension stone	cubic meters	10,579	6,352 r	6,123 r	5,267 r	4,820
Industrial rock	thousand metric tons	5,190	5,210 r	5,259 r	5,648 r	6,339
Limestone	do.	142,118 r	132,521 r	135,022 r	145,599 r	147,657
Marble, dimension stone and fragment	cubic meters	664,930	735,216 r	779,234 r	509,237 r	311,839
Marl for cement manufacture only		41,720	98,000 r	68,000 r	65,000 r	100,000
Quartz		3,290	12,954 r	49,064 r	152,576 r	401,710
Shale for cement manufacture only	thousand metric tons	3,767 r	4,181 r	4,000	4,593 r	4,792
Travertine		3,640	2,910 r	1,760 r	900 r	900 e
Talc		3,264	504 r	672 r	2,304 r	5,856
MINERAL FUELS AND RELATED MATERIALS						
Coal, lignite	thousand metric tons	18,095	16,360	17,907	21,324 r	12,072
Natural gas, gross production	million cubic meters	27,576	26,362	29,583	29,059 r	21,766
Petroleum:						
Crude	thousand 42-gallon barrels	52,805	56,302	55,906	50,976 r	37,164
Natural gas condensate	do.	31,157	30,625	31,730	30,693 r	21,169
Refinery products[e]	do.	219,000 r	229,000 r	229,000 r	229,000 r	229,000

[e]Estimated; estimated data are rounded to no more than three significant digits. [r]Revised. do. Ditto. NA Not available. -- Zero.
[1]Table includes data available through October 29, 2013.
[2]In addition to the commodities listed, Thailand produced gemstones and pyrophyllite, but available information is inadequate to make reliable estimates of output.
[3]Reported figure.

Sources: Department of Mineral Resources, Mineral Statistics of Thailand; Department of Primary Industries and Mines; Ministry of Energy, Energy Policy and Planning Office; and U.S. Geological Survey Minerals Questionnaires, 2008–2012.

TABLE 2
THAILAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Antimony	metric tons	Amco Thai Mining Co. (Hibino Metal Industry)	Antimony smelter, Ban Pin, Phrae Province	555
Do.		Other companies	Located in different Thai Provinces	NA
Barite		Asian Mineral Resources Co. Ltd.	Loei, Mae Hong Son, Nakhon Si Thammarat, and Satun Provinces	60
Do.		P&S Barite Mining Co. Ltd.	Loei and Nakhon Si Thammarat Province	60
Cement		Asia Cement Co. Ltd.	Pra Phutthabath, Saraburi Province	4,800
Do.		Jalaprathan Cement Co. Ltd. (Cement Francais S.A., 37%; Veatprapat Holding Co. Ltd., 19%; others, 44%)	Takli and Nakhorn, Sawarn Province, and Cha-Am, Petchburi Province	2,350
Do.		Samukee Cement Ltd.	Pakchong, Nakhon Ratchasima Province	125
Do.		Saraburi Cement Co. Ltd. (CEMEX Asia Holdings Ltd., 99%)	Chalerm Phrakiat, Saraburi Province	700
Do.		Siam Cement Industry Co. Ltd. (Bureau of the Crown Property, 30%; Thai Security Depository Co. Ltd., 6.94%; CPB Equity Co. Ltd., 5.6%; other financial institutions and the general public, 57.46%)	Kaeng Khoi, Phabhudhabat, and Khao Wong, Saraburi Province; Chae Hom, Lampang Province; Thung Song, Thammarat Province; and Ta Luang, Ayutthaya Province	23,200
Do.		Siam City Cement Co. Ltd. (SCCC) (Holcim Ltd., 33.7%; Rattanarak family, 27%; other investors, 39.3%)	Kaeng Khoi, Saraburi Province	14,500
Do.		TPI Polene Co. Ltd.	do.	9,900
Coal, lignite		Electricity Generating Authority of Thailand (EGAT) (Government, 100%)	Mae Moh, Lampang Province	20,000
Do.		Lanna Lignite Public Co. Ltd.	Ban Pakha, Lamphun Province	1,000
Copper		Thai Copper Industries Public Co. Ltd. (TCI)	Rayong Industrial Park, Rayong Province	165
Feldspar, concentrate		Asia Mineral Processing Co. Ltd.	Nakhon Si Thammarat and Trang Provinces	500
Fluorspar, concentrate		Asian Mineral Resources Co. Ltd.	Mae Hong Son Province	14
Gas, natural	million cubic meters per day	Esso Exploration and Production Khorat Inc.	Namphong, Khon Kaen Province	4
Do.	do.	TOTAL Exploration and Production (Thailand)	Bongkot in the Gulf of Thailand	15
Do.	do.	Unocal Thailand Ltd.	Baanpot, Erawan, Funan, Kaphong, Pladang, Satun, Pailin, and Trat, all in the Gulf of Thailand	33
Do.	do.	Chevron Corp.	Platong II project	NA
Gold	kilograms	Akara Mining Ltd. (Kingsgate Consolidated Ltd., 100%)	Chatree, Phichit Province	5,000
Gypsum		Vanich Gypsum Co. Ltd.	Khlong Prab, Mai Riang. Thoong Yai Mai in Nakhon Si Thammarat and Surat Thani Provinces	8,500
Do.		Siam Cement Group	NA	NA
Do.	thousand square meters	Thai Gypsum Products Public Co. Ltd.	NA	75,000
Do.		Lotus Mines Co. Ltd.	Nakornsawan	NA
Do.		General Mining and Trading Co. Ltd.	Talad, Muang	NA
Iron ore, gross weight		P.T.K. Mining Co. Ltd.	Phu Ang, Loei Province	720
Lead, in concentrate		Kanchanaburi Exploration and Mining Co. Ltd.	Song Toh, Nong Phai, and Bo Ngam in Kanchanaburi Province	55
Petroleum, crude, including condensate	thousand 42-gallon barrels per day	Chevron Corp.	Benjamas and Tantawan, offshore in the Gulf of Thailand	35
Do.	do.	PTT Exploration and Production Public Co. Ltd. (PTTEP)	Arthit, Songkhla, Gulf of Thailand	20
Do.	do.	Thai Shell Exploration and Production Co. Ltd.	Sirikit in Kamphaenghet Province	24
Do.	do.	TOTAL Exploration and Production (Thailand)	Bongkot, offshore in the Gulf of Thailand	12
Do.	do.	Unocal Thailand Ltd.	Baanpot, Erawan, Funan, Gomin, Jakrawan, Kaphong, Pailin, Platon, Satun, Surat, and Trat Plamuk, offshore in the Gulf of Thailand	38

See footnotes at end of table.

TABLE 2—Continued
THAILAND: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Silicon, metal (gross weight)	metric tons	G.S. Energy Co., Ltd.	Ratchaburi Silicon Plant	25,000
Steel, rolled		The Bangkok Iron and Steel Works Co. Ltd.	Phrapradaeng, Samutprakarn Province	120
Do.		Bangkok Steel Industry Public Co. Ltd.	do.	300
Do.		Tata Steel (Thailand) Plc (Tata Steel Ltd., 67.11%; McDonald Investment, 6.5%; other investors, 26.39%)	Map Ta Phut, Rayong Province; Sriracha, Chonburi Province; and Ban Mon, Saraburi Province	1,700
Do.		Namheng Steel Co. Ltd.	Lopburi Province	300
Do.		Sahaviriya Group Corp. Ltd.	Bang Saphan, Prachuap Khiri Khan Province	2,400
Do.		Siam United Steel Co. Ltd.	Rayong Province	1,000
Do.		G-Steel Plc (formerly Siam Ystrip Mill Plc)	Map Ta Phut, Rayong Province	600
Tantalum, metal powder and oxides	metric tons	H.C. Starck (Thailand) Co. Ltd. (H.C. Starck GmbH, 94.98%, and others, 5.02%)	do.	250
Tin:				
Concentrate		Numerous small companies	Nakhon Si Thammarat, Phangnga, Phuket, and Rayong Provinces	3
Refined		Thailand Smelting and Refining Co. Ltd. (Thaisarco) (Amalgamated Metal Corp., 75.25%, and other, 24.75%)	Phuket, Phuket Province	30
Tungsten, in concentrate	metric tons	SC Mining Co. Ltd. (Som Chai family, 100%)	Ban Pin, Phrae Province	650
Zinc:				
In concentrate		Padaeng Industry Public Co. Ltd. (Bali Ventures Ltd, 21.7%; Thai Ministry of Finance, 13.81%; RAK Minerals & Metals Investments, 12.5%; and others, 52%)	Mae Sod district, Tak Province	65
Refined		do.	Smelter in Muang district, Tak Province; roaster plant in Rayong Province	115

Do., do. Ditto. NA Not available