2010 Minerals Yearbook

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The Mineral Industry of Burma

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In 2010, Burma, also known as Myanmar, produced a variety of mineral commodities, including cement, coal, copper, lead, natural gas, petroleum, petroleum products, precious and semiprecious stones, tin, tungsten, and zinc. During 2010, Bangladesh, Burma, and India were involved in maritime boundary disputes over their respective sovereignty in the Bay of Bengal. For many years, these countries had attempted to negotiate and delimit their claims in the disputed area. In December 2009, Bangladesh and Burma accepted the jurisdiction of the International Tribunal for the Law of the Sea (ITLOS) for the settlement of the dispute concerning their maritime boundary delimitation. Although accepting ITLOS jurisdiction, the countries had not agreed on a bilateral solution regarding the delimitation principle to be used, and negotiations continued between the countries. ITLOS is an independent judicial body established by the United Nations Convention on the Law of the Sea (UNCLOS) that has jurisdiction to arbitrate disputes arising out of the interpretation and application of the Law of the Sea. UNCLOS establishes a legal framework to regulate ocean space and its resources and uses. In meetings held in January 2010, Bangladesh and Burma agreed to delimit the area by combining the equidistance and equity demarcation principles. In October, Burma and India reached an informal understanding to cooperate with each other on the settlement of their maritime dispute with Bangladesh (Durham University, 2010; International Tribunal for the Law of the Sea, 2010; Priyo.com, 2010).

In November, Italian-Thai Development Plc. (ITD), which was a construction company based in Thailand, announced that it had entered into a contract agreement with the Government of Burma for the construction of a deep-sea port and industrial estate at a cost of $8.6 billion. The port was to be located in Dawei, Tanintharyi Division, which is located about 186 kilometers (km) west of Thailand's capital city of Bangkok. The industrial facilities will include a cement plant, a coal-fired powerplant, highways, an industrial center, and pipelines for oil and gas. When completed, the port and industrial zone will be an export link to Europe and the Middle East (Kate, 2010).

Government Policies and Programs

The Government of Burma seeks to encourage the participation of foreign and local investors in part to draw in industry experts who have the knowledge to develop the country's mineral industry. The Union of Myanmar's Mineral Law went into effect in September 1994, and the rules related to the law were implemented in December 1996. The Ministry of Mines is the Government entity responsible for implementing the Government's mineral policy and for enforcing the laws, rules, and regulations related to the mining sector. The Ministry evaluates and processes all licenses applications for the prospecting for and the production and beneficiation of minerals in accordance with the Mineral Law and regulations; it also monitors production operations and promotes investment in the mineral sector. According to the Mineral Law, any naturally occurring minerals found on or under Burmese soil and on Burma's Continental Shelf belong to the state (Ministry of Mines, undated a, b).

Production

During 2010, Burma's mineral industry reported sharp increases and decreases in the production of minerals compared with that of 2009. In the metals mining sector, the production of tin (in tin concentrate) and tungsten (in tungsten concentrate) decreased by 27.8% and 50%, respectively; however, the production of tin (in tin-tungsten concentrate) and tungsten (in tin-tungsten concentrate) increased by about 94% each. The production of cement and gypsum decreased by 20.3% and 16.9%, respectively, compared with that of 2009. In the mineral fuels sector, coal production decreased by 11% whereas, the production of petroleum refinery products and natural gas increased by 17.2% and 7.5%, respectively (table 1).

Mineral Trade

Burma's total trade value for 2010 was $13.74 billion,[1] of which exports totaled $8.86 billion, and imports, $4.88 billion. The total value of exports in 2010 increased by 32% compared with the total value in 2009 of $6.71 billion, and that of imports increased by 11.1% compared with the total value in 2009 of $4.39 billion (Central Statistical Organization, 2010a, p. 1, 50; 2010b, p. 1, 50).

In 2010, the value of natural gas exports was about $2.91 billion, which was equivalent to 32.8% of total exports and an increase of 22.3% compared with the value in 2009 of $2.38 billion. Exports of base metals and ores were valued at $55.4 million, which represented 0.62% of total exports and an increase of about 35.4% compared with the value in 2009 of $40.9 million. The main mineral commodities imported by Burma in 2010 were base metals and manufactured goods, which represented 9.2% of total imports and were valued at $448.2 million compared with $408.7 million in 2009 (an increase of about 9.7%); cement imports represented 1.8% of total imports and were valued at $88.5 million compared with $45.2 in 2009 (an increase of 95.6%); and coal and coke imports represented less than 1% of total imports and were valued at $3.81 million compared with $2.15 million in 2009 (an increase of about 77%) (Central Statistical Organization, 2010a, p. 5–7, 16; 2010b, p. 5–7, 16).

Thailand was Burma's main export partner in 2010 followed by Hong Kong, China, and India. The total value of Burmese

[1]Where necessary, values have been converted from Myanmar kyat (K) to U.S. dollars (US$) at the rate of K5.51=US$1.00 for 2010.

exports to Thailand was $3.3 billion (about 37% of the country's total exports); Hong Kong, $1.6 billion (18% of total exports); China, $1.1 billion (12% of total exports); and India, $969 million (10.9% of total exports). Burma's major import partners were China (33.4% of total imports), Singapore (23.1%), and Thailand (12.1%), and the imports from these countries were valued at $1.6 billion, $1.1 billion, and $592 million, respectively (Central Statistical Organization, 2010a, p. 9–10, 18–19; 2010b, p. 9–10, 18–19).

In 2010, foreign direct investment in Burma totaled $16.14 billion distributed among 15 projects, including 10 in the oil and gas sector, 2 in power generation projects, and 1 in the mining industry; the rest were related to the agricultural and manufacture sector. Burma's main investor was China, which invested about $10.48 billion in the mining, oil and gas, and power sectors; in addition, Thailand, the Republic of Korea, and Malaysia invested about $2.95 billion, $2.42 billion, and $237 million in the oil and gas sector, respectively. In May 2010 alone, a total of $8.173 billion (a record high for the country) was invested by China as new foreign direct investment in four projects. These ventures were two hydropower projects to be developed in the Than Lwin River in Kachin State, an oil and gas pipeline to be developed by China National Petroleum Corp. (CNPC) that would run from Rakhine State (Burma) to Yunnan Province (China), and the development of the Letpadaung copper deposit located in Monywa, Sagaing Division, to be developed by China North Industries Corp. (NORINCO) of China. Total foreign direct investment in Burma in 2010 increased sharply compared with that of 2009. In 2009, total foreign direct investment consisted of five projects for a total of $92.25 million (Central Statistical Organization, 2010a, p. 52–59; 2010b, p. 52–59; Kean and Thu, 2010; Xinhuanet.com, 2010).

Structure of the Mineral Industry

Table 2 is a list of Burma's major mineral industry facilities.

Commodity Review

Metals

Copper.—In June, NORINCO announced that the company had signed an agreement to begin the development of the Monywa copper mine located in central Burma; however, the company did not disclose details on the terms of the cooperation contract for the Monywa copper mine project. The project hosted the only copper mine in the country and, until 2007, it was operated by Myanmar Ivanhoe Copper Co. Ltd., which was a 50/50 joint venture between Ivanhoe Mines Ltd. of Canada and the local Mining Enterprise No. 1 (Ivanhoe Mines Ltd., 2010; Shwe, 2010; Wade, 2010a).

Nickel.—In July, Taiyuan Iron and Steel Co. (TISCO) of China signed an agreement with China Nonferrous Metal Mining Group Co. Ltd. (CNMC) of China through its wholly owned subsidiary CNMC Nickel Co. in Burma to jointly develop the Tagaung Taung nickel project. According to the terms of the agreement, TISCO would provide the financing for CNMC Nickel to develop the project, which the company renamed CNMC TISCO Nickel Co. Also according to the agreement, 40% of the shares would be held by TISCO and 60% would be held by CNMC Nickel. The Tagaung Taung project, which is located in Thabeikying, Mandalay Division, included a mine and a smelter. The project was expected to be in operation for 20 years starting in late 2011. The estimated investment in the project was $800 million, and the mine had a nickel ore reserve estimated to be 30 million metric tons (Mt) containing about 700,000 metric tons (t) of nickel. The mine was expected to produce about 85,000 metric tons per year (t/yr) of ferronickel and 22,000 t/yr of nickel (People's Daily Online, 2010; Steel Orbis, 2010; Yam, 2010).

Zinc.—In 2009, the Government of Burma extended a 5-year mining concession to a local company, the Mayflower Mining Enterprises Ltd. (MME), to explore for zinc. By September, South East Asia Metals Co., Ltd. (SEAMET), which was a subsidiary of Padaeng Properties Co., Ltd. of Thailand, signed an agreement with MME in which SEAMET obtained the operating rights to the mining concession owned by MME. Under the concession operation agreement, SEAMET paid $1 million in September 2009 and a subsequent payment of $500,000 in October 2010. Initial mining operations at the property started in late 2010, and exploration activities in search for new deposits were scheduled for 2011. The project is located in Burma, however, no further details were available regarding the exact location of the zinc project. Padaeng Properties was involved in the exploration, mining, and smelting of zinc in Thailand and neighboring Southeast Asian countries (Padaeng Industry Public Co., Ltd., 2010, p. 6, 25, 62).

Industrial Minerals

Cement.—In November, Siam City Cement Plc. (SCCC) of Thailand announced that it was considering the construction of a cement plant in Burma following a feasibility study that was conducted earlier. The proposed cement plant would be located in the Dawei District and would potentially be built in partnership with ITD. ITD, which had an agreement with the Government of Burma to construct a deep-sea port and industrial estate, was looking for investment partners and had negotiated a license to operate a cement plant. If SCCC decides to go forward with the plant, the company projected a facility with an annual capacity of 1 Mt, with the potential to expand in the near future (Bangkok Post, 2010; DemocracyForBurma.com, 2010).

Gemstones.—In 2010, production of gemstones in Burma increased substantially compared with that of the previous year, despite Western sanctions, such as the Tom Lantos Block Burmese JADE (Junta's Anti-Democratic Efforts) Act of 2008 (Pub. L. 110–286), which prohibited the importation of gemstones and hardwoods from Burma to the United States. The production of semiprecious stones, such as spinel, increased by 108.4% in 2010 compared with production in 2009; sapphires, by 65%; and jade, by 53.3%; production of rubies, on the other hand, decreased by 3.7% (table 1).

Mineral Fuels

Oil and Gas.—In 2010, ONGC Videsh Ltd. (OVL) [a subsidiary of Oil and Natural Gas Corp. (ONGC) of India] had a predominant presence in Burma's oil and gas sector owing to its participation in five projects in the country—Block A–1; Block A–3; the series of Blocks AD–2, AD–3, and AD–9; the Shwe Offshore Pipeline Joint Venture Co. (PipeCo-1); and the Onshore Pipeline Co. PipeCo-2). In exploration Blocks A–1 and A–3, which are located along the Rakhine coast of the Bay of Bengal, OVL had a 17% interest along with the following companies—Daewoo International Corp. of the Republic of Korea (operator, 51%), Myanmar Oil and Gas Enterprise (MOGE) (a state-owned company) (15%), and GAIL India Ltd. and Korea Gas Corp. (KOGAS) of the Republic of Korea (8.5% each) in each of the blocks. Block A–1 was classified as containing commercial quantities of natural gas, which were discovered in two fields (the Shwe and the Shwe Phyu). In Block A–3, commercial quantities of natural gas were discovered in the Mya field. In November 2009, both blocks entered into the development phase, and the consortium partners approved a joint field-development plan for their respective gasfields (the Mya, the Shwe, and the Shwe Phyu). The plan consisted of the construction, the commissioning, the engineering, the installation, and the procurement of the facilities, which was in progress in 2010. For 2011, the consortium planned to start drilling an offshore well in the Mya gasfield in February and expected it to be completed later in the year. The company expected to start gas production in all three fields by mid-2013 (ONGC Videsh Ltd., 2011).

In the PipeCo-1, OVL also had a 17% share, along with its partners Daewoo (as the operator, 51%), MOGE (15%), and GAIL and KOGAS (8.5% each). This project was to be developed in conjunction with Blocks A–1 and A–3 and included the construction of an offshore pipeline measuring 110 kilometers (km) that would connect the Shwe offshore platform with an onshore point in the nearby Island of Ramree and an onshore gas terminal. The company was expecting the project to be finished by the first quarter of 2013. OVL had an 8.34% interest in the PipeCo-2 project, and a 50.9% shareholder interest in CNPC's South-East Asia Pipeline Co., Ltd. (SEAP); the other shareholders were Daewoo, 25.04%; MOGE, 7.365%; and GAIL and KOGAS, 4.1735% each. The project consisted of an onshore pipeline measuring 870 km designed for the transmission and distribution of gas from the Island of Ramree to a point on the border between Burma and China. The PipeCo-2 project was scheduled for completion by the first quarter of 2013, and would start the transmission of gas in mid-2013 (ONGC Videsh Ltd., 2011).

In 2007, OVL (operator, 100%) acquired three offshore deepwater exploration Blocks AD–2, AD–3, and AD–9, which were awarded by the Government of Burma to promote cooperation in the hydrocarbon sector with neighboring India. The blocks were located on the Rakhine coast, and covered an area that ranged between 7,800 square kilometers (km²) and 9,900 km². During 2010, two dimensional seismic surveys and interpretations were performed in the blocks. Additional interpretations and data-gathering activities were scheduled to continue in 2011 (ONGC Videsh Ltd., 2011).

In 2010, MOGE announced the commencement of a new pipeline to transmit gas from the Yadana field (located in the Gulf of Martaban) to the city of Yangon to increase the amount of gas for local consumption. The gas extracted from the Yadana field would reach the gas grid through pipes that connect to two powerplants located in Bangkok, Thailand. The main operator of the Yadana gasfield was France-based Total Exploration and Production Myanmar (Total E&P Myanmar) (31.24%). The other partners included Chevron Corp. of the United States (28.3%), Thailand-based PTT Exploration and Production Public Co. Ltd. (PTTEP) (25.5%), and MOGE (15%) (Total Myanmar, 2010).

Burma and China had been cooperating in the construction of two transmission pipelines; the portion in Burma was started in June 2010 and consisted of 1 pipeline for oil and another one for gas. The oil pipeline, which would be fed with crude oil from tankers from Africa and the Middle East to a port in Burma, would be piped to China. The 771-km oil pipeline had a designed capacity to transport 22 million metric tons per year (Mt/yr) of crude oil and was expected to be commissioned in 2012. The gas pipeline project, which would measure 793 km, had a planned capacity to transmit 12 billion cubic meters per year of gas and would start deliveries to China once it was commissioned in 2012–13. Company participation in this project included CNPC (50.9%) and MOGE (49.1%). Both pipelines would start in Kyauk Phyu Port and Oil Terminal located in Rakhine State, continue towards the northeastern city of Mandalay, and end in the southwestern cities of Kunming and Ruili in the Yunnan Province of China. In September, CNPC started the construction of China's end of the two pipelines in the city of Kunming. At the end of 2010, CNPC started the construction of a 200,000-barrel-per-day refinery in the city of Anning, near Kunming. The refinery, which was expected to be completed by yearend 2013, would process the oil transmitted through the Burma pipeline (Oil & Gas Journal, 2010a, b; Petroleum Economist, 2010; Reuters.com, 2010).

In June 2010, Daewoo and KOGAS announced an investment partnership signed with the Government of Burma to jointly exploit the Block A–7 and Block B–2 gasfields located in the Shwe gas project. Block B–2, which was located in the northwest of the country in the Sagaing Division, was the first onshore block targeted by a Korean company. The project was a joint one with MOGE and Silver Wave Energy Group of Russia (Wade, 2010b).

Outlook

The exploration for and production of metals and industrial minerals is expected to increase as the development of the projects that started in 2010 progresses and mines and plants start being commissioned in the next few years. The development of these projects is also subject to the continuing demand for mineral commodities from neighboring countries and on world market prices. The supply of natural gas for domestic use is expected to increase in the next 2 years following major pipeline projects coming onstream and recent gasfield discoveries made in 2009 and 2010.

In the near future, an increase in business ties between Burma and neighboring countries, such as China, India, and the

Republic of Korea, is likely to continue, particularly because these countries have been working alongside Burma, especially on projects in the oil and gas sector. The continuing openness of the country to promote its mineral industry and encourage more foreign direct investment has contributed to the increase in investments and interest of other countries in investing in Burma. This was especially evidenced during 2010 when the country signed multimillion dollar contracts with several companies.

References Cited

Bangkok Post, 2010, Siam City Cement eyes Burma prospects: Bangkok, Thailand, November 15. (Accessed February 15, 2011, at http://www.bangkokpost.com/business/economics/206412/.)

Central Statistical Organization, 2010a, Selected monthly economic indicators: Nay Pyi Taw, Myanmar, Central Statistical Organization, January, 74 p.

Central Statistical Organization, 2010b, Selected monthly economic indicators: Nay Pyi Taw, Myanmar, Central Statistical Organization, December, 73 p.

DemocracyForBurma.com, 2010, Siam City Cement (SCCC) is looking to build a cement plant in Burma: DemocracyForBurma.com, November 18. (Accessed February 15, 2011, at http://democracyforburma.wordpress.com/2010/11/18/siam-city-cement-sccc-is-looking-to-build-a-cement-plant-in-burma/.)

Durham University, 2010, Bangladesh and Myanmar fix deadlines in maritime boundary case: Durham, United Kingdom, February 3. (Accessed August 26, 2011, at http://www.dur.ac.uk/ibru/news/boundary_news/?itemno=9459&rehref=Fibru%2Fnews%2F&resubj=Boundary+news%20Headlines.)

International Tribunal for the Law of the Sea, 2010, Dispute concerning delimitation of the maritime boundary between Bangladesh and Myanmar in the Bay of Bengal: WorldCourts.com, January 28, Case no. 16, 3 p. (Accessed June 21, 2011, at http://www.worldcourts.com/itlos/eng/decisions/2010.01.28_Bangladesh_v_Myanmar.pdf.)

Ivanhoe Mines Ltd., 2010, Attempts by anti-Myanmar activists to link Ivanhoe Mines with reported Monywa Copper Mine developments are dishonest and nonsensical: Ivanhoe Mines Ltd., June 30, 1 p. (Accessed August 26, 2010, at http://www.ivanhoemines.com/i/pdf/IVN_response_to_Mizzima_and_CFOB.pdf.)

Kate, D.T., 2010, Italian-Thai to build $8.6 billion deep-sea port under deal with Myanmar: Bloomberg.com, November 3. (Accessed November 9, 2010, at http://www.bloomberg.com/news/2010-11-04/italian-thai-to-build-8-6-billion-deep-sea-port-under-deal-with-myanmar.html.)

Kean, Thomas, and Thu, Kyaw, 2010, New Chinese foreign investment commitments exceed $8 billion: Myanmar Times [Yangon, Burma], August 16. (Accessed November 22, 2011, at http://www.mmtimes.com/2010/business/536/biz001.html.)

Ministry of Mines [Burma], [undated a], Department of Mines: Ministry of Mines. (Accessed September 9, 2010, at http://www.mining.com.mm/imis/Mines/d_mines.asp.)

Ministry of Mines [Burma], [undated b], Government policy and legislation on investment in minerals: Ministry of Mines. (Accessed September 9, 2010, at http://www.mining.com.mm/imis/Mines/pltim.asp.)

Oil & Gas Journal, 2010a, CNPC begins work on oil, gas pipelines in Myanmar: Oil & Gas Journal, June 4. (Accessed June 8, 2010, at http://www.ogj.com/articles/2010/06/cnpc-begins-work-on.html.)

Oil & Gas Journal, 2010b, CNPC starts construction of refinery, pipeline system: Oil & Gas Journal, September 13. (Accessed September 14, 2010, at http://www.ogj.com/articles/2010/09/cnpc-starts-construction.html.)

ONGC Videsh Ltd., 2011, Assets—Myanmar: New Delhi, India, ONGC Videsh Ltd. (Accessed November 18, 2011, at http://www.ongcvidesh.com/Assets.aspx.)

Padaeng Industry Public Co., Ltd., 2010, Annual report 2010: Bangkok, Thailand, Padaeng Industry Public Co., Ltd., 94 p. (Accessed August 30, 2011, at http://www.padaeng.com/pdf/Annual/2010_AnnaulReport.pdf.)

People's Daily Online, 2010, China's largest stainless steel maker invests in Myanmar nickel mine: People's Daily Online [Beijing, China], July 30. (Accessed August 4, 2010, at http://english.peopledaily.com.cn/90001/90778/90861/7087532.html.)

Petroleum Economist, 2010, China's energy strategy advances in Myanmar: Petroleum Economist, August, v. 77, no. 8, p. 17.

Priyo.com, 2010, India, Myanmar to settle maritime boundary disputes with Bangladesh: Priyo.com, October 25. (Accessed August 26, 2011, at http://www.priyo.com/story/2010/oct/25/9975-india-myanmar-settle-maritime-boundary-disputes-bangladesh?quicktabs_1=1.)

Reuters.com, 2010, Factbox—Pipelines from Myanmar to China: Thomson Reuters, February 3. (Accessed November 18, 2011, at http://www.reuters.com/article/2010/02/03/us-china-myanmar-pipelines-idUSTRE6120MQ20100203.)

Shwe, T.M., 2010, Chinese arms maker's copper mine deal raises queries over Canadian stake: Mizzima.com, June 27. (Accessed September 9, 2010, at http://www.mizzima.com/news/regional/4065-chinese-arms-makers-copper-mine-deal-raises-queries-over-canadian-stake.html.)

Steel Orbis, 2010, TISCO and CNMC ink deal to develop Myanmar nickel project: Steel Orbis, July 30. (Accessed September 3, 2010, at http://www.steelorbis.com/steel-news/latest-news/tisco-and-cnmc-ink-deal-to-develop-myanmar-nickel-project-546912.htm.)

Total Myanmar, 2010, Total in Myanmar a sustained commitment: Paris, France, Total Myanmar. (Accessed November 18, 2011, at http://burma.total.com/en/publications/sustained_commitment.pdf.)

Wade, Francis, 2010a, China weapon giant to mine Burma: Democratic Voice of Burma, June 24. (Accessed November 18, 2011, at http://www.dvb.no/news/china-weapons-giant-to-mine-burma/10433.)

Wade, Francis, 2010b, S Korea ups stake in Burma gas: Democratic Voice of Burma, June 15. (Accessed September 10, 2010, at http://www.dvb.no/news/s-korea-ups-stake-in-burma-gas/10259.)

Xinhuanet.com, 2010, S Korea investment in Myanmar rises sharply in four months: Xinhuanet.com, September 6. (Accessed November 22, 2011, at http://news.xinhuanet.com/english2010/business/2010-09/06/c_13480601.htm.)

Yam, Polly, 2010, China Taiyuan says to invest in CNMC's Myanmar nickel project: Thomson Reuters, August 2. (Accessed September 3, 2010, at http://af.reuters.com/article/metalsNews/idAFTOE67107W20100802.)

TABLE 1

BURMA: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity[2]		2006	2007	2008	2009	2010
METALS						
Copper:						
Mine output, Cu content		19,500	13,900 r	-- r	3,500 r	12,000 e
Matte, gross weight[e, 3]		80	80	80	80	80
Metal, refined		19,500	13,900 r	-- r	3,500 r	12,000 e
Gold, mine output, Au content[e]	kilograms	100	100	100	100	100
Iron and steel:[e, 3]						
Pig iron		1,500	1,500	1,500	1,500	1,500
Direct-reduced iron		-- r	-- r	-- r	-- r	--
Steel, crude		25,000	25,000	25,000	25,000	25,000
Lead:						
Mine output, Pb content[e, 4]		2,000	2,000	3,000 r	7,500	7,000
Metal:						
Refined		537	165	202	200	--
Antimonial lead (93% Pb)		NA	NA	NA	NA	NA
Manganese, mine output, Mn content[e]		50	50	50	50	50
Nickel:[e]						
Mine output, Ni content		10	10	10	10	10
Speiss (matte), gross weight[3]		10	10	10	10	10
Silver, mine output, Ag content[4]	kilograms	684	218	--	249	--
Tin, mine output, Sn content:[5, 6]						
Of tin ores and concentrates		450 r	8,000 r	800 r	1,000 r	4,000 r
Metal, refined[e]		30	30	30	30	30
Total		480	8,030	830	1,030	4,030
Tungsten, mine output, W content:[4]						
Of tungsten concentrate		4	4	5	4	2
Of tin-tungsten concentrate		193	179	131	83	161
Total		197	183	136	87	163
Zinc, mine output, Zn content[4]		8,000 r	10,000	7,000 r	6,000 r	7,000
INDUSTRIAL MINERALS						
Barite		2,930	6,813	5,679	7,623	8,975
Cement, hydraulic		570,031	608,192	675,788	669,941	534,034
Clays, bentonite[e, 3]		904	971	1000	1,000	1,000
Feldspar[e, 3]		10,000	10,000	10,000	10,000	10,000
Gypsum		68,651	75,116	82,224	97,518	81,051
Nitrogen, N content of ammonia[e]		30,000	30,000	30,000	30,000	30,000
Precious and semiprecious stones:						
Jade	kilograms	20,646,832	20,003,409	30,896,440	25,427,237	38,990,035
Diamond[e]	carats	5	5	5	5	5
Rubies	do.	1,685,481	1,394,939	1,868,696	1,674,579	1,612,070
Sapphires	do.	422,806	608,008	1,129,039	795,228	1,311,327
Spinel	do.	908,555	843,680	572,308	296,956	618,730
Salt[e, 7]	thousand metric tons	35	35	35	35	35
Stone:						
Dolomite		4,460	4,674	4,264	4,390	3,119
Limestone, crushed and broken[e]	thousand metric tons	3,500	3,800	4,000	4,000	3,200
MINERAL FUELS AND RELATED MATERIALS						
Coal, lignite		331,445	283,703	249,442	245,418	217,650
Gas, natural, marketed	million cubic meters	12,501	13,315	12,445	11,555	12,425
Petroleum:						
Crude	thousand 42-gallon barrels	7,675	7,625	7,242	6,881	6,806
Refinery products[8]	do.	4,867	4,885	4,661	4,139	4,851

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [p]Preliminary. [r]Revised.

NA Not available. -- Zero.

[1]Table includes data available through November 18, 2011.

[2]In addition to the commodities listed, construction aggregates, sand and gravel, and silica sand are produced, but available information is inadequate to make reliable estimates of output.

[3]Data are for fiscal year ending March 31 of the following year.

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

[4]Data are for the production by the state-owned mining enterprises under the Ministry of Mines.
[5]Production of tin, mine output, Sn content, in metric tons, reported by the Government was 2006—566; 2007—499; 2008—499; 2009—518; and 2010—374.
[6]Data compiled from the United Nations Comtrade trade data database for tin ores and concentrates imported from Burma by China, Malaysia, and Thailand.
[7]Brine salt production, in metric tons, reported by the Government was 2006—84,208; 2007—71,323; 2008—54,355; 2009—133,358; and 2010—97,136.
[8]Includes diesel, distillate fuel oil, gasoline, jet fuel, kerosene, and residual fuel oil.

Sources: Ministry of Mines and Central Statistical Organization (Yangon), Statistical Yearbook 2008; Selected Monthly Economic Indicators, January 2007, May 2008, January 2009, January 2010, December 2010; World Bureau of Metal Statistics, December 2009.

TABLE 2
BURMA: STRUCTURE OF THE MINERAL INDUSTRY IN 2010

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Cement		Union of Myanmar Economic Holdings Ltd.	Hsinmin cement plant in Kyaukse, Mandalay Division	146,000
Coal		Mining Enterprise No. 3	Kalewa coal mine in Sagaing Division, near Kalewa	13,000
Copper		Mining Enterprise No. 1	Monywa copper project, S&K Mine, and Monywa refinery, in Monywa region, central Burma	40,000
Fertilizer, N content		Myanma Petrochemical Enterprise (Government, 100%)	No. 1 fertilizer plant at Sales, 190 kilometers southwest of Mandalay	94,900
Do.		do.	No. 2 fertilizer plant at Kyun Chaung, central Burma	75,555
Do.		do.	No. 3 fertilizer plant at Kyaw Zwar, central Burma	219,000
Natural gas	million cubic meters	Total E&P Myanmar, 31.2%; Chevron Corp., 28.26%; PTT Exploration and Production Public Co. Ltd. (PTTEP), 25.5%; Myanma Oil and Gas Enterprise (MOGE), 15%	Yadana gasfield in Moattama, Gulf of Martaban	7,227
Do.	do.	Petronas Carigali Myanmar Inc., 40.91%; Myanma Oil and Gas Enterprise (MOGE), 20.45%; PTT Exploration and Production Public Co. Ltd. (PTTEP), 19.32%; Nippon Oil Exploration (Myanmar) Ltd., 19.32%	Yetagun gasfield in Tanintharyi, Gulf of Martaban	4,635
Do.	do.	Myanmar Petroleum Resources Ltd. and Myanma Oil and Gas Enterprise (MOGE)	Mann oilfield, south of Yangon	37
Petroleum:				
Crude	thousand 42-gallon barrels	do.	do.	876
Refined	do.	Myanma Petrochemical Enterprise (Government, 100%)	No. 1 refinery at Thanlyin (near Yangon)	9,490
Do.	do.	do.	No. 2 refinery at Chauk, central Burma	2,190
Do.	do.	do.	No. 3 refinery at Thanbayakan, central Burma	9,125
Steel		Pohang Iron and Steel Co. (POSCO) (70%)	Pohang Iron and Steel Co. (POSCO) steel plant in Yangon	30,000

Do., do. Ditto.