



# 2012 Minerals Yearbook

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## BURMA

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# THE MINERAL INDUSTRY OF BURMA

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In April 2012, Burma (also known as Myanmar) started seeing the easing and, in some cases, the suspension of decades of sanctions imposed by Western countries after more than 50 years of military rule in Burma. The countries that agreed to suspend sanctions were the United States, Australia, Canada, the European Union (EU), and Japan. The decision was made as Burma's Government started to implement democratic reforms. With the suspension of sanctions, companies from the countries mentioned above were allowed to start investing in Burma. The United States suspended the sanctions in July 2012 (Pawlak and Moffett, 2012; Spetalnick, 2012).

In 2012, Burma produced a variety of mineral commodities, including cement, coal, copper, lead, natural gas, petroleum, petroleum products, precious and semiprecious stones, tin, tungsten, and zinc. On November 11, 2012, a 6.8-magnitude earthquake struck the country. The epicenter was located in central Burma near the town of Shwebo, 60 kilometers (km) northwest of Burma's second largest city, Mandalay. Damage to many buildings was reported, including hospitals, monasteries, and schools, mainly in the villages of Male, Mandalay, Mogok, and Shwebo. Reports also indicated that miners were trapped in a gold mine in the Singgu area in Mandalay. On March 24, 2011, a previous earthquake of 6.9 magnitude had struck the eastern part of the country just north of Tachileik town in Shan State close to the border with Laos and Thailand. Production of such commodities as brine salt and some semiprecious stones dipped during the period following the 2011 earthquake, but the mineral industry in general was not affected (table 1; U.S. Geological Survey, 2011, 2012; Tun, 2012b).

Bangladesh, Burma, and India were involved in maritime boundary disputes concerning 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 their boundary delimitation. 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 (International Tribunal for the Law of the Sea, 2010).

In September 2011, representatives from Bangladesh and Burma met with the ITLOS in Germany for a final round of pleadings regarding the maritime boundary. The final ITLOS judgment of March 14, 2012, dealt with the delimitation in three parts—the territorial sea, the exclusive economic zones and continental shelf within 200 nautical miles, and the continental shelf beyond 200 nautical miles. ITLOS rendered its judgment in relation to the territorial sea by drawing an equidistant line from the countries' baselines. For the exclusive economic zones and continental shelf within 200 nautical miles, the tribunal

decided to draw a provisional equidistant line that adjusts to the concavity of the coast of Bangladesh. For the delimitation of the continental shelf beyond 200 nautical miles, the tribunal concluded that it should not differ from that of within the 200 nautical miles and should continue in the same direction beyond the limit of Bangladesh (International Law Observer, 2012; International Tribunal for the Law of the Sea, 2012).

## Government Policies and Programs

During fiscal year 2012–13, which started on April 1, Burma began implementing a reform of its exchange rate system. The reform consisted of a managed float of the currency with the objective of ending the fixed-rate currency system, unifying or consolidating the existing dual exchange rate system, and stabilizing domestic prices by creating an interbank money market. In recent years, on average, the official exchange rate of one U.S. dollar (US\$) bought a little more than six Burmese kyat (MMK); on the other hand, the unofficial exchange rate was about US\$1=MMK800. The official rate was typically used for Government revenue and for imports by some state-owned enterprises. The foreign currency exchange is regulated by the Foreign Exchange Management Act of 2012 (FEMA), which was enacted by Burma's Parliament in November 2012. FEMA allows for a transparent trading of the currency by lifting some trading restrictions. Under the exchange rate reform, foreign banks are to be allowed to form joint ventures in Burma beginning in 2014. In addition, banks from member countries of the Association of Southeast Asian Nations (ASEAN) will be allowed to open branch offices in the country. By 2015, ASEAN countries are planning to integrate and stimulate southeastern countries' economies by forming an economic block to facilitate immigration, increase trading of products, and improve the economy of the region overall (Raybould, 2012; Szep and Tun, 2012).

The Myanmar Foreign Investment Law of 2012 was signed into law on November 2, 2012, and promulgated on January 31, 2013. The new investment law offers tax breaks for the first 5 years of operation, allows foreign firms to fully own ventures, allows registered investors to execute leases of up to 5 years in duration, and provides for the possibility of two 10-year extensions on existing leases. Tax relief of up to 50% may be granted to foreign manufacturing companies on profits made from exports under the condition that the profits are reinvested in the business within 1 year. Joint ventures between foreign investors and Burmese nationals and (or) the Government are allowed with any stake ratio agreed to between the parties. (Previously, foreign investors were required to supply a minimum of 35% of the capital for joint ventures.) Under certain circumstances and restrictions, foreign investors are not required to have a local partner, which allows foreign investors to own a 100% interest in their businesses (Finch, undated; Tun, 2012a).

The Government of Burma was seeking to encourage the participation of foreign and local investors in part to draw in industry experts who have the knowledge of how 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, for planning, and for enforcing the laws and regulations related to the mineral sector. The Ministry evaluates and processes all license applications for the prospecting for and 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 2012, the availability of data on Burma's mineral industry statistics was limited compared with that of previous years. The data shown in table 1 for year 2012 are estimates based on data for 2011 unless otherwise stated. In the metals mining sector, production increases listed for copper, lead, and zinc were reported; the decreases listed for manganese and tin were estimated (table 1).

## Mineral Trade

The latest period for which comprehensive data reported by the Government of Burma through its Central Statistical Organization were available was from January to September 2011. For reference purposes only, Burma's total foreign trade turnover for the first 9 months of 2011 was \$14.11 billion,<sup>1</sup> of which exports totaled \$7.05 billion and imports totaled \$7.07 billion. The currency exchange system in Burma changed in April 2012 (Central Statistical Organization, 2011, p. 1, 50).

In 2011, Thailand remained Burma's primary export partner, followed by China, India, Hong Kong, and Singapore. China remained Burma's major import source, followed by Singapore and Thailand (Central Statistical Organization, 2011, p. 9–10, 18–19).

## Structure of the Mineral Industry

The mineral sector in Burma includes mining and mineral processing industries, which are mainly Government owned. Table 2 is a list of Burma's major mineral industry facilities.

## Commodity Review

### Metals

**Copper.**—On March 19, 2012, the Chinese company China North Industries Corp. (NORINCO) announced the

<sup>1</sup>Where necessary, values have been converted from Burmese kyat (MMK) to U.S. dollars (US\$) at the rate of MMK5.38=US\$1.00 for 2011.

commencement of the construction phase of the Monywa copper project. The Monywa copper project, which was Burma's main copper asset, was located in the town of Monywa in Sagaing Region in the northwestern part of the country. The copper project, which was estimated to have a life of 30 years, consisted of the Letpadaung Mine (L Mine), the Sabetaung Mine (S Mine), the Sabetaung South Mine (SS Mine), and the Kyisintaung Mine (K Mine). The L Mine was scheduled to start operations in March 2012, but owing to protests from local villagers, operations were suspended. On July 24, Wanbao Mining Copper Co. Ltd. (Wanbao) and its local partner Union of Myanmar Economic Holdings (UMEHL) revised their profit-sharing agreement with the Ministry of Mines. Under the new contract, the Government would earn 51% of the project's profits and the remaining 49% would belong to Wanbao and UMEHL. Wanbao's obligations included spending \$1 million each year on corporate social responsibility, \$2 million on environmental protection and conservation, and 2% of earnings on local development once the project is in operation. The company planned to hire about 3,500 workers for the L Mine, and 1,300 workers for the S and K Mines combined. Additional details on the terms of the contract were not available (MCC8 Group Co. Ltd., 2012; Burmanet.org, 2013).

**Nickel.**—On August 13, China ENFI Engineering Corp. (ENFI) announced that it had put into operation the first ferronickel furnace in the Tagaung Taung nickel project, which is located in Thabeikying, Mandalay Region, in central Burma. The furnace was under a trial production phase during 2012. The plant, which had a design capacity of 25,000 metric tons per year of nickel, was operated by China Nonferrous Metal Mining Co. Ltd. (CNMC) under a production-sharing contract with state-owned Mining Enterprise No. 3; ENFI had been in charge of the design phase of the project (Csteellnews.com, 2012).

**Zinc.**—On December 31, South East Asia Metals Co., Ltd. (SEAMET) (which was a subsidiary of Padaeng Properties Co., Ltd. of Thailand), and Mayflower Mining Enterprises Ltd. (MME) agreed to terminate exploration operations in the area near the town of Mawkhi in Burma. Exploration activities did not identify any commercially recoverable zinc resource. Since July 2012, however, Padaeng had intensified its search for other zinc deposits in the country and identified several zones that would require further exploration to assess the resource potential (Padaeng Industry Public Co., Ltd., 2012, p. 25, 66).

## Industrial Minerals

**Cement.**—Based on industry estimates, Burma has the capacity to produce approximately 3.46 million metric tons per year (Mt/yr) of cement, although most of the facilities lack the ability to operate at full capacity mainly because of unreliable energy sources and a lack of proper infrastructure. In 2011, four cement plant proposals were approved for development by the Myanmar Investment Commission (MIC). Three out of the four projects were still under construction in 2012; no information was available on the construction status of the fourth facility. The MIC is under the Ministry of National Planning and Economic Development and is the Government agency responsible for evaluating domestic and foreign

investment proposals. Each of the four projects was planned to have the capacity to produce 1,000 metric tons per day of cement. Two of the plants were to be located in central Burma at Pyinyaung, Mandalay Region, and were owned by Htoo Cement Co. Ltd. and Shwe-Taung Cement Co. Ltd., respectively.

Another plant was proposed to be built between the towns of Hopone and Taungyi in Shan State by Kanbawza Cement Ltd.; this plant was expected to be commissioned in early 2013. The fourth plant was proposed to be built in Naungcho in northern Shan State (about 100 km east of Mandalay) by Ngwey Yi Pale Mining Co. Several other cement project proposals were under consideration by the MIC (International Cement Review, 2012b).

On February 7, Siam City Cement Plc. (SCCC) of Thailand announced that it was still considering the construction of a cement plant in Burma after it carried out a feasibility study to determine the viability of the project. No new details were released as to the location or the capacity of the project. PT Semen Gresik of Indonesia was also considering building a cement plant in Burma with a capacity of 2.5 Mt/yr. No details were released as to when the company was planning to start construction (International Cement Review, 2012a; Myanmar Business Network, 2012).

## Outlook

Burma's economic future seems promising, as many economic reforms were approved and implemented during 2012. In the near future, an increase in foreign direct investment is expected in the wake of the exchange rate reform that started in 2012, and the easing and (or) temporary suspension of sanctions by the United States, Australia, Canada, the EU, and Japan, which will allow companies to invest in Burma. The country is in a political and economic transition that is opening opportunities for business competition.

As the economy of the country gets stronger and investments increase, an appreciation in the Burmese currency (kyat) is also expected. The floating of currency could encourage investors to consider Burma as a serious investment partner as the Government continues its program of reforming and modernizing the economy and creating an atmosphere favorable for foreign investment. As Burma's economy grows, the other economies in the Southeast Asia region are also expected to grow, especially as the effort led by ASEAN to create an economic block to integrate and stimulate the region's economies materializes by 2015.

The exploration for and production of metals and industrial minerals is expected to increase as new developments and expansion projects progress and mines and plants start being commissioned in the next few years. This increase will be particularly noticeable in the cement production sector, as much foreign direct investment has been approved by the Government for the construction of new plants. The increase in cement demand will likely be directly influenced by the Government's infrastructure plans, which include the construction of oil and gas pipelines to China, highways and transportation projects, and a number of deep-sea ports. The development of other mining projects will also be subject to the continuing demand for mineral commodities from neighboring countries and world market prices.

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TABLE 1  
 BURMA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons unless otherwise specified)

Commodity <sup>2</sup>	2008	2009	2010	2011 <sup>e</sup>	2012 <sup>e</sup>
<b>METALS</b>					
<b>Copper:</b>					
Mine output, Cu content	--	3,500	9,000 <sup>r</sup>	9,000 <sup>r</sup>	19,000
Metal, refined	--	3,500	9,000 <sup>r</sup>	9,000 <sup>r</sup>	19,000
<b>Lead:</b>					
Mine output, Pb content <sup>c,3</sup>	1,000	5,000	7,000	8,700 <sup>4</sup>	9,800 <sup>4</sup>
Metal, refined	202	200	--	--	200 <sup>4</sup>
Manganese, mine output, Mn content	142,600	242,900	299,900	234,400 <sup>4</sup>	114,500 <sup>4</sup>
Nickel, mine output, Ni content <sup>c</sup>	10	10	--	800	5,000 <sup>p</sup>
Silver, mine output, Ag content <sup>3</sup>	--	249	--	--	--
kilograms					
<b>Tin, mine output, Sn content:<sup>5,6</sup></b>					
Of tin ores and concentrates	800	1,000	4,000	11,000	10,600
Metal, refined <sup>e</sup>	30	30	30	30	30
Total	830	1,030	4,030	11,000 <sup>r</sup>	10,600
<b>Tungsten, mine output, W content:<sup>3</sup></b>					
Of tungsten concentrate	5	4	2	--	--
Of tin-tungsten concentrate	131	83	161	140 <sup>e</sup>	140
Total	136	87	163	140 <sup>e</sup>	140
Zinc, mine output, Zn content <sup>c,3</sup>	7,000	6,000	8,600 <sup>r</sup>	9,300 <sup>r,4</sup>	10,000
<b>INDUSTRIAL MINERALS</b>					
Barite	5,679	7,623	8,975	30,000	30,000
Cement, hydraulic	675,788	669,941	534,034	538,000	540,000
Gypsum	82,224	97,518	81,051	50,000	50,000
<b>Precious and semiprecious stones:</b>					
Jade	30,896,440	25,427,237	38,990,035	45,000,000	45,000,000
kilograms					
Ruby	1,868,696	1,674,579	1,612,070	870,000	900,000
do.					
Sapphire	1,129,039	795,228	1,311,327	1,500,000	1,500,000
do.					
Spinel	572,308	296,956	618,730	620,000	620,000
do.					
Salt, brine	54,355	133,358	97,136	100,000	100,000
<b>Stone:</b>					
Dolomite	4,264	4,390	3,119	2,000	2,000
Limestone, crushed and broken <sup>c</sup>	4,000	4,000	3,200	3,200	3,000
thousand metric tons					
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Coal, lignite	249,442	245,418	217,650	300,000	300,000
Gas, natural, marketed	12,445	11,555	12,425	12,500	12,500
million cubic meters					
<b>Petroleum:</b>					
Crude	7,242	6,881	6,806	6,400	6,500
thousand 42-gallon barrels					
Refinery products <sup>7</sup>	4,661	4,139	4,851	5,000	5,000
do.					

<sup>e</sup>Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. <sup>p</sup>Preliminary. <sup>r</sup>Revised. do. Ditto. -- Zero.

<sup>1</sup>Table includes data available through February 21, 2014.

<sup>2</sup>In addition to the commodities listed, bentonite clay, copper matte, construction aggregates, diamond, feldspar, gold, iron and steel, lead (antimonial), nitrogen (ammonia), sand and gravel, and silica sand are produced, but available information is inadequate to make reliable estimates of output.

<sup>3</sup>Data are for the production by the state-owned mining enterprises under the Ministry of Mines.

<sup>4</sup>Reported figure.

<sup>5</sup>Production of tin, mine output, Sn content production as reported by the Government was, in metric tons, 2008—499; 2009—518; 2010—374; 2011—350, and 2012—350 (estimated).

<sup>6</sup>Data compiled from the United Nations Comtrade database for tin ores and concentrates imported from Burma by China, Malaysia, and Thailand.

<sup>7</sup>Includes diesel, distillate fuel oil, gasoline, jet fuel, kerosene, and residual fuel oil.

Sources: Ministry of Mines and Central Statistical Organization (Yangon), Statistical Yearbook 2009; Selected Monthly Economic Indicators, May 2008, January 2009, January 2010, December 2010, and September 2011.

TABLE 2  
BURMA: STRUCTURE OF THE MINERAL INDUSTRY IN 2012

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>c</sup>
Cement		AAA Cement International Co. Ltd.	Cement plant in Kyaukse, Mandalay Region	180,000.
Do.		Dragon Cement	Cement plant in Pinlaung, Shan State	180,000.
Do.		Mandalay Cement Industries Co. Ltd.	Cement plant in Kyaukse, Mandalay Region	135,000.
Do.		Max Cement	Cement plant in Aung Nan Cho Village, Lewe Naypyidaw Township, Mandalay Region	150,000.
Do.		Myanma Ceramic Industries	Cement plant in Kyangin, Ayeyarwady	363,000.
Do.		do.	Cement plant in Kyaukse, Mandalay Region	120,000.
Do.		do.	Cement plant in Thayet, Magway Region	170,000.
Do.		Myanmar Economic Co. Myaing Galay 1	Cement plant in Hpa An, Kayin State	240,000.
Do.		Myanmar Economic Co. Myaing Galay 2	do.	1,200,000.
Do.		Naypyidaw Development Committee	Cement plant in Naypyidaw Township, Mandalay Region	150,000.
Do.		Tiger Head Cement (Myanmar)	Cement plant in Kyaukse, Mandalay Region	90,000.
Do.		Union of Myanmar Economic Holdings Ltd. Sin Min 1	do.	330,000.
Do.		Union of Myanmar Economic Holdings Ltd. Sin Min 2	do.	NA.
Do.		Yangon City Development Committee	Myodaw cement plant in Thazi, Mandalay Region	150,000.
Coal		Mining Enterprise No. 3 (ME-3)	Kalewa coal mine near Kalewa, Sagaing Region	13,000.
Copper		Mining Enterprise No. 1, Myanmar Yang Tse Copper Ltd.	Monywa copper project, S&K Mine, and Monywa solvent extraction electrowinning plant 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	75,600.
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	7,300.
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	4,600.
Do.	do.	Myanmar Petroleum Resources Ltd. and Myanma Oil and Gas Enterprise (MOGE)	Mann oilfield, south of Yangon	40.

See footnotes at end of table.

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

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity <sup>e</sup>
Nickel		China Nonferrous Metal Mining Group Co. Ltd. of China and Taiyuan Iron and Steel Co. (TISCO) of China	Tagaung Taung nickel ore project (mine and smelter) at Thabeikying, Mandalay Region	20,000 (nickel); 85,000 (ferronickel).
Petroleum:				
Crude	thousand 42-gallon barrels	Myanmar Petroleum Resources Ltd. and Myanma Oil and Gas Enterprise (MOGE)	Mann oilfield, south of Yangon	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	9,130.
Steel		POSCO, 70%	POSCO steel plant at Yangon	30,000.

<sup>e</sup>Estimated. Do., do. Ditto. NA Not available.