

The Mineral Industry of Burma

By Donald C. Wininger¹

Burma's mineral industry had a disappointing year during 1973. Ore production from the Bawdwin nonferrous metal mine near Lashio recorded a substantial increase over 1972 output; however, production of refined lead and silver from this mine again declined owing to the continuing decline in the ore grade. Production of tin and tungsten increased over that of 1972. A 53% increase in output from the Mawshi tin-tungsten mine accounted for much of the increase.

The Burmese Government's decision to invite foreign participation in offshore oil exploration, on a profit-sharing basis, was the highlight of 1973. At yearend, a decision was expected shortly on which firms would be awarded contracts. Meanwhile Myanma Oil Corp. (MOC) continued its own exploratory drilling program, drilling four more holes offshore without any finds.

In July, new commodity and project agreements were signed with Japan. The project agreement provided for a long-term loan of \$26.9 million² to finance construction of a new oil refinery at Syriam with a throughput capacity of about 1 million tons per year. This would roughly double existing Burmese refining capacity.

The Government reorganization of April 1972 provided for six agencies under the Ministry of Mines as follows: Myanma Oil Corp. (MOC); Myanma Bawdwin Corp.

(MBC), to operate Bawdwin and other mines producing lead, zinc, and silver; Myanma Tin and Wolfram Corp.; Myanma Mineral Development Corp. (MDC), to supervise production of copper, antimony, and other minerals not falling under the previous two agencies; Mineral Industrial Raw Materials Corp., to produce limestone, barite, industrial clays, and related items; and the Geological Survey and Exploration Department. These agencies are responsible for general control and supervision of the mining sector, as well as direct operation of the larger and more productive mines. Smaller, mainly tin, mines operate on a tribute system, with miners, registered by the Government, working largely by hand and delivering their output to government purchase depots at fixed prices. In practice, however, much of the output is probably smuggled into Thailand, where it can be sold more conveniently and usually at higher prices.

Minerals occupy a prominent place in Burmese economic planning. However, the mineral sector has not received a corresponding share of capital investment. In fiscal year 1972-73 (October through the following September) 6.1% of the Government capital expenditure was designated for the mining sector as follows: MOC, \$14.7 million; MBC, \$3.5 million; and MDC and others, \$5.4 million.

PRODUCTION

According to official Burmese national budget estimates,³ "mineral" output totaled \$46.9 million in fiscal year 1971-72 and probably about the same level in 1972-73. Crude oil and limestone are included, but not the value added from mineral and metal processing. Thus, products like salt, cement, refined oil, and processed metals are excluded either totally or in part.

¹ Physical scientist, Division of Nonmetallic Minerals—Mineral Supply.

² Where necessary, values have been converted from Burma Kyat (K) to U.S. dollars at the rate of K4.8138=US\$1.00. In the open market, the Kyat is worth much less.

³ Ministry of Planning and Finance. Report to the People by the Government of the Union of Burma on the Financial, Economic and Social Conditions for 1973-74.

Table 1.—Burma: Production of mineral commodities

(Metric tons unless otherwise specified)

Commodity ¹	1971	1972	1973 ^p
METALS			
Antimony, mine output, metal content -----	128	131	143
Copper: -----			
Mine output, metal content ^e -----	80	80	75
Matte, gross weight -----	175	179	165
Iron and steel: ^e -----			
Crude steel -----	21,000	20,000	20,000
Semimanufactures -----	25,000	30,000	30,000
Lead: -----			
Mine output, metal content ^e -----	9,000	^r 9,000	10,500
Smelter: -----			
Refined lead -----	^r 8,774	8,431	9,902
Antimonial lead (18%-20% antimony) -----	309	331	279
Manganese ore, gross weight -----	112	279	279
Nickel: -----			
Mine output, metal content -----	24	26	21
Speiss, gross weight -----	94	104	83
Silver, mine output -----thousand troy ounces-----	685	587	754
Tin, mine output: -----			
Metal content of tin concentrate -----long tons-----	345	319	351
Metal content of tin-tungsten concentrate -----do-----	327	265	405
Total -----do-----	672	584	756
Tungsten, mine output: -----			
Metal content of tungsten ores -----	154	266	218
Metal content of tin-tungsten concentrate -----	228	184	282
Total -----	382	450	500
Zinc, mine output, metal content -----	^r 4,004	4,017	3,993
NONMETALS			
Barite -----	22,963	25,970	15,850
Cement, hydraulic -----thousand tons-----	197	214	226
Clays: -----			
Ball clay -----	² 13,506	14,428	10,343
Bentonite -----	² 347	1,305	841
Fire clay -----	² 1,411	³ 2,477	³ 2,708
Industrial white clay -----	² 1,431	3,505	3,018
Pottery clay -----	2,256	NA	NA
Feldspar -----	² 713	799	311
Fluorspar -----	² 201	225	^e 200
Graphite -----	152	217	183
Gypsum -----	12,193	14,895	15,647
Precious and semiprecious stones: -----			
Jadeite -----kilograms-----	2,444	2,750	6,973
Rubies and sapphires -----carats-----	18,000	NA	NA
Unspecified -----do-----	NA	NA	52,528
Salt -----thousand tons-----	161	158	193
Sand: -----			
Glass sand, brown -----	² 4,822	3,093}	6,300
Glass sand, white -----	² 2,279	4,491}	
Stone: -----			
Dolomite -----	² 654	² 914	1,207
Limestone, crushed and broken -----thousand tons-----	609	596	599
Quartz -----	² 274	221	55
Talc and related materials, soapstone -----	215	^e 220	128
MINERAL FUELS AND RELATED MATERIALS			
Coal -----	19,711	21,456	14,450
Gas, natural: ² -----			
Gross production -----million cubic feet-----	^e ^r 8,600	11,300	^e 12,000
Marketed production -----do-----	2,333	3,900	5,400
Petroleum: -----			
Crude -----thousand 42-gallon barrels-----	6,652	7,466	7,514
Refinery products: -----			
Gasoline -----do-----	1,414	1,480	1,395
Jet fuel -----do-----	243	234	249
Kerosine -----do-----	2,246	1,623	1,678
Distillate fuel oil -----do-----	2,226	2,180	1,962
Residual fuel oil -----do-----	1,609	1,500	1,550
Other -----do-----	709	679	267
Refinery fuel and losses -----do-----	193	790	1,125
Total -----do-----	8,640	8,486	8,226

^e Estimate. ^p Preliminary. ^r Revised. NA Not available.¹ In addition to the commodities listed, Burma also produces common sand, gravel, other varieties of crude construction stone, and other varieties of gem stones, but available information is inadequate to make reliable estimates of output levels.² Data are for year ending June 30 of that stated.³ Includes fire clay powder.

TRADE

Burma's overall foreign trade increased from \$238 million in fiscal year 1971-72 to about \$240 million in 1972-73. Although total exports showed a slight increase, total imports declined somewhat. In fiscal 1971-72, Burma exported \$5.9 million in base metals and ores and \$0.8 million in silver. In 1972-73, base metal exports were \$5.3 million, and silver exports were about \$1.2 million.

Burma's imports of mineral and related products dropped somewhat from the \$18 million in 1971-72. The largest item has been base metals and manufactures. Coal and coke imports showed the greatest change in 1972-73.

The latest specific commodity data on mineral exports and imports are shown in the 1972 Minerals Yearbook preprint on Burma.

COMMODITY REVIEW

METALS

Antimony.—Until 1970, the only antimony produced in Burma had been a few hundred tons of antimonial lead annually, analyzing 18% to 20% antimony, by the lead smelter in Namtu. Early in 1970, small-scale extraction of antimony ore and concentrate was resumed, due primarily to extremely high prices and government assistance by MDC. An intensive search for antimony led to the discovery of various deposits. A refining plant was constructed and placed into operation near Moulmein by MDC during 1973.⁴

Copper.—Full-scale geophysical prospecting at the Monywa copper mine was scheduled to begin in January 1973, by the Metallic Minerals Exploration Agency of Japan. Preliminary prospecting indicated reserves might be on the order of 50 to 60 million tons of ore averaging 0.7% to 1.5% copper. In 1973, 165 tons of copper matte was produced as a byproduct of refined lead from the Bawdwin mine.

Iron and Steel.—The small Ywama steel plant, which has an electric furnace and rolling mills, remained the country's only steel producer. Scrap iron for furnace feed came from domestic sources, but a shortage seemed imminent. The steel plant, rated at 40,000 tons of products annually, has been running at about half capacity. Bars and rods were the main products, followed by wire nails, galvanized iron, and barrel sheets. Plans have been made to build additional facilities for wire netting, roller extension, tubes, and sheets, although funds were not in sight. Burma also had plans to build an integrated steel industry, a project which was even more uncertain.

Lead, Zinc, Copper, Silver, and Nickel.—

The Government-owned Bawdwin enterprise in northern Shan, operated by MBC, continued to be Burma's sole significant producer of nonferrous metals. The zinc concentrate produced was sold as such, mostly to Japan, whereas lead and other materials were sent to Namtu for smelting before marketing abroad.

The average grade of ore at Bawdwin apparently continued to decline. Output of ore from the mine increased; however, the quantity of lead and silver recovered declined. The old Namtu smelter with surplus capacity reportedly produced 9,902 tons of refined lead in 1973, indicating a 17% increase over that of 1972.

The small Bawsaing mine in the Taunggyi District, also under MBC, was being expanded to produce about 1,000 tons each of sulfide lead ore, carbonate lead ore, and lead slag annually. In January 1973, a team of Austrian experts arrived to assist with exploration for additional lead deposits around Bawsaing. Preliminary reports indicate that the region probably has large reserves of cerussite (lead carbonate) ore.⁵

The new Yadana Theingi mine in the Nawngkhio District, northern Shan State, was being expanded to produce over 40,000 tons of silver-lead-zinc ore annually. A powerplant, a mill, and a 32-mile road from the mine to Ohnmathi on the Mandalay-Lashio highway have been constructed.

Tin and Tungsten.—MDC continued to control most of the country's tin and tung-

⁴ World Mining. V. 26, No. 3, March 1973, p. 114.

⁵ U.S. Embassy, Rangoon, Burma. State Department Airgram A-85 (1973 Minerals Industry Report—Burma), July 16, 1973, pp. 1-16.

sten mines. Concentrates were produced separately or in mixed form, and combined annual output of the two related minerals has been less than 2,200 tons of concentrates during the last 5 years. Although statistics are conflicting, Burma has been producing, in terms of metal content, approximately 400 to 760 tons of tin and 300 to 500 tons of tungsten yearly. Most production has come from the Tavoy and Mergui Districts in the Tenasserim Division near the Thai border. In 1973 the Mawshi tin-tungsten mine probably accounted for about half of the total production. The Government mining corporations are supposed to supply the small miners with implements and provide technical assistance, but few services are actually available. The Government also buys concentrates at relatively low prices, an action which probably causes much of the production to be smuggled into Thailand.

Under the 4-year technical assistance agreement between MDC and the Soviet Union to rehabilitate the Mawshi tin-tungsten lode mine, a Soviet team of experts began work on the production stage, but the project was delayed during 1973 by security problems in the area.

NONMETALS

Cement.—Burma's two cement plants are operated by the Industrial Development Corp. The Thayetmyo plant, has two wet-process rotary kilns and an annual capacity of about 180,000 tons. The Kyangin plant has a capacity of about 800 tons per day. A third plant with a capacity of 240,000 tons yearly was under construction in Kyangin.

Fertilizer Materials.—Burma has two urea plants located near the Chauk oilfields in central Burma where they can utilize the local natural gas deposits. Total output of urea in 1973 was 112,000 tons, or about 85% of capacity. Power constraints have hindered greater output. A portion of the output was exported.

Gem Stones.—Uncut Burmese jade continued to be of importance in world jewelry circles. Annual output usually ranges from 52,300 to 93,300 kilograms of uncut jadeite. Since many mines are in insurgent territory near the border, additional jade presumably was produced and smuggled out of the country. Burma also produces ruby, sapphire, spinel, other "precious

stones," and cultured pearls. The pearl industry was nationalized in 1964, when the Japanese part of a joint venture was dissolved. Jade and precious stone producers were first required to sell to MDC. By 1970, both these industries had become totally nationalized.

Both the Ninth Annual Gem, Jade and Pearls Emporium held in February 1973 and a special emporium held in August had record sales, mainly of jade, far in excess of those at any previous auction held in Burma. The increase primarily reflected soaring world prices for jade, rather than an increase in the quantity or quality of jade or precious stones available. Gems were not included in the special emporium. Jade sales at the Ninth Emporium totaled \$4.3 million, more than twice the previous record set in 1971. Pearl and gem sales, though not records, reflected a considerable improvement over the three previous auctions, and totaled \$1.2 million and \$281,000 respectively. At the special emporium in August, jade sales totaled \$5.3 million; however, pearl sales were again disappointing at only \$470,000.⁶

Salt.—Burma produces all the salt it needs, which amounted to about 193,000 tons during 1973. Early in 1970 Burma Salt Industries, the sole operator harvesting salt from brine pits located along the Indian Ocean coast, started a modernization program. The company has placed a \$1 million order with Allis-Chalmers Manufacturing Co. for tractor scrapers, crawler dozers, and graders to build pits, dikes, and channels, which will displace the elephants and bullocks formerly employed.

MINERAL FUELS

Coal.—The Kalewa coalfield in the northwest, sole producer in Burma, produced only 14,450 tons of low-grade coal during 1973, compared with 21,456 tons during 1972. Burma's imports of coal are about 200,000 tons annually.

Petroleum.⁷—Burma decided in April to begin negotiations with foreign oil companies for their participation in offshore oil exploration on a profit-sharing basis. The Burmese offshore area was divided

⁶ U.S. Embassy, Rangoon, Burma. The 1973 Burma Gem, Jade, and Pearl Emporia. State Department Airgram A-115, Sept. 18, 1973, pp. 1-2.

⁷ U.S. Embassy, Rangoon, Burma. State Department Airgram A-012 (Annual Petroleum Report—Burma), Feb. 1, 1974, pp. 1-8.

into 25 blocks averaging 3,853 square miles each, and by the close of discussions in early July, 38 companies or groups of firms had submitted formal proposals covering all 25 blocks. In October, representatives of 19 companies and groups were invited back to Rangoon for further discussions. MOC provided revised terms and conditions and a draft of a proposed contract, asking for final proposals from the companies in December.

Crude production continued to rise but was again wholly attributable to the Mann Field near Minbu, which now accounts for roughly half Burma's total crude production. All the other fields continued to decline. Natural gas production rose slightly, but since neither of the two gas turbine power stations under construction has yet come into service, the major increase in demand for natural gas has not yet materialized.

Output of refined products was essentially the same as in fiscal year 1971-72. The cutoff of crude imports, as well as production difficulties at the two old refineries, held production well below the 1970-71 level. Even with the import of nearly 200-

000 tons of refined products, there were frequent local shortages. A contract was signed with the Mitsui group (Toyo Engineering Corp.) for the construction of an addition to the Syriam refinery. The new refinery, to be financed by a Japanese Government loan, is to have a capacity of about 30,000 barrels per day, more than double that of the two existing refineries. By the end of 1973, construction had not yet started except for preliminary site work.

Offshore exploration was carried on by MOC during the year using Reading & Bates' catamaran drilling ship, *E. W. Thornton*. Four more holes were sunk during 1973, but none showed anything more than natural gas traces. A fifth hole was lost at 6,000 feet before completion.

MOC also continued an active onshore exploration program during the year, but made no new finds. Test wells in the Rangoon area produced no petroleum, and another at Mozee Island, on the Arakan coast not far from the Bangladesh border, had no better success, as the formation sought proved to be below the 9,000-foot level which the drilling rig could reach.

