The Mineral Industry of Burma

By Gordon L. Kinney [1]

Burma's 1975 mineral production remained essentially unchanged from that of 1974. Lack of modern equipment, prohibition of foreign investment, student unrest, and insurgent activity combined to prevent any really significant improvements in the mining sector. The high rate of inflation continued, with 1975 prices more than 300% above the 1969–70 level. The inflation was fueled by an expanded money supply, which was used to finance successive years of large budget deficits.[2]

The Ministry of Mines was reorganized in April 1975. The new organization comprised the Minister's Office, Planning and Inspection Department, Geological Survey and Exploration Department, and five state-owned mineral corporations. The major producing mines were under these corporations, but the Myanma Oil Corporation Refinery and Petroleum Products Sales Corporation were moved to the jurisdiction of the Ministry of Industry. Small-scale, family-operated mines are still privately owned, with most of the output being sold to the Government.

The Government intends to step up production of minerals during the second 4-year plan (to start in 1975–76) and envisions an annual 4% growth. During this period, Burma also hopes to achieve self-sufficiency in crude oil production and to begin exporting small amounts.

Overall economic growth in 1975 was slow, the gross domestic product (GDP) increased 3.5% for the year at constant 1969–70 prices. Although this was well short of the targeted 6+% growth rate, and a little below the previous year's 4%, it was more than the 2.7% average annual growth rate for the past decade. Considering that Burma had an estimated population growth of 2.2% per annum, real gains in the per capita GDP were not encouraging. Gross national product (GNP) was reported at about $3 billion.[3]

Metallic ores production in 1975 remained little changed from that of 1974. Industrial minerals increased in most cases in 1975, but as their unit values were generally low, the increases did little to bolster the overall economy.

Burma was nearly self-sufficient in petroleum, and as such was less affected by increases in world prices than most developing countries. However, hopes of achieving self-sufficiency in 1975 were not realized. Crude oil output, just over 900,000 tons, decreased more than 12%. Offshore petroleum exploration failed to discover commercial amounts of oil or gas.

Owing to lack of domestic funds and international investments, Burma has had to accept technical aid and foreign grants in the form of small projects. The United Nations helped the Bawdwin lead-zinc mine with exploration some years ago, and the West Germans planned to assist in "doubling output" at the mine. Insurgency problems and the kidnapping of a West German technician in March 1975, who was subsequently released, brought the project to a virtual halt. The United Nations Development Program (UNDP) started a $1.8 million, 3-year tin exploration program in the Tenasserim region and is to help drill the Monywa copper deposits.

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[1] Physical scientist, Division of International Data and Analysis.
[2] Mining Journal (London). Mining Annual Review, 1976. Pp. 395–396.
[3] Far Eastern Economic Review (Hong Kong). Asia Yearbook, 1976. Pp. 122–128.

PRODUCTION

The Burmese Government reported that value of mineral production (less petroleum) in fiscal 1975–76 was $36.7 million[4] at constant 1972 prices. Most of this can be attributed to lead, zinc, tin, and tungsten. Value of oil production during the same year was more than twice that of mineral output.[5]

[4] U.S. Embassy, Rangoon, Burma. State Department Airgram A–008, Feb. 9, 1976.
[5] U.S. Embassy, Rangoon, Burma. State Department Airgram A–041, May 11, 1976.

Table 1.—Burma: Production of mineral commodities

(Metric tons unless otherwise specified)

Commodity [1]	1973	1974	1975 [p]
METALS			
Antimony, mine output, metal content [e]	[r] 140	170	220
Copper:			
Mine output, metal content [e]	74	71	86
Matte, gross weight	165	159	191
Iron and steel:			
Crude steel [e]	20,000	20,000	25,000
Semimanufactures [e]	30,000	30,000	35,000
Lead:			
Mine output, metal content [e]	10,100	9,300	9,960
Smelter:			
Refined lead	9,814	9,008	9,754
Antimonial lead (18%–20% antimony)	279	359	251
Manganese ore, gross weight	279	[e] 280	--
Nickel:			
Mine output, metal content	21	22	19
Speiss, gross weight	83	87	77
Silver, mine output ---thousand troy ounces--	[r] 754	722	775
Tin, mine output:			
Metal content of tin concentrate	249	270	545
Metal content of tin-tungsten concentrate	362	252	37
Total	611	522	582
Tungsten, mine output:			
Metal content of tungsten ores	266	168	221
Metal content of tin-tungsten concentrate	248	173	34
Total	514	341	255
Zinc, mine output, metal content	3,874	3,001	4,115
NONMETALS			
Barite [2]	[e] 15,000	[e] 15,000	15,444
Cement, hydraulic ---thousand tons--	193	172	228
Clays: [2]			
Ball clay	378	203	NA
Bentonite	337	508	914
Fire clay [3]	1,719	1,930	3,617
Industrial white clay	1,538	2,134	2,489
Feldspar [2]	91	660	762
Fluorspar	(4)	(4)	--
Graphite [2]	183	305	87
Gypsum [2]	11,325	30,085	39,260
Precious and semiprecious stones: [2]			
Jadeite ---kilograms--	6,973	8,808	7,598
Unspecified ---carats--	52,528	NA	76,000
Salt ---thousand tons--	[r] 171	125	[e] 140
Sand: [2]			
Glass sand, brown	6,300	NA	5,283
Glass sand, white			2,711
Stone: [2]			
Dolomite	1,207	406	473
Limestone, crushed and broken ---thousand tons--	600	530	687
Quartz	55	360	386
Talc and related materials, soapstone [2]	[r] 421	305	[e] 300
MINERAL FUELS AND RELATED MATERIALS			
Coal	14,450	16,811	24,588
Gas, natural:			
Gross production ---million cubic feet--	12,000	[r e] 11,400	[e] 11,500
Marketed production ---do---	[r] 5,400	4,705	5,600
Petroleum:			
Crude ---thousand 42-gallon barrels--	7,514	7,581	6,700

See footnotes at end of table.

Table 1.—Burma: Production of mineral commodities—Continued
(Metric tons unless otherwise specified)

Commodity [1]		1973	1974	1975 [p]
MINERAL FUELS AND RELATED MATERIALS—Continued				
Petroleum—Continued				
Refinery products:				
Gasoline	thousand 42-gallon barrels	1,394	1,597	1,506
Jet fuel	do	249	223	166
Kerosine	do	1,677	1,686	1,440
Distillate fuel oil	do	1,960	1,691	1,463
Residual fuel oil	do	1,549	1,020	1,489
Other	do	442	519	619
Refinery fuel and losses	do	955	763	307
Total	do	8,226	7,499	6,990

[e] Estimate. [p] Preliminary. [r] Revised. NA Not available.
[1] In addition to the commodities listed, Burma also produces pottery clay, 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 fiscal year beginning April 1 of that stated.
[3] Includes fire clay powder.
[4] Revised to none.

TRADE

Burma's overall foreign trade increased from about $297 million in fiscal 1974–75 to an estimated $428 million in fiscal 1975–76. The large gain, however, reflects price increases more than an increase in volume. Mineral export levels remained relatively unchanged except for silver, which declined about 25% to 560,000 troy ounces.

Burmese Government figures show that mineral exports were valued at $12.9 million for 1975, up about 17%. Exports were mainly to People's Republic of China, North Korea, India, Singapore, the United Kingdom, and Italy.

Table 2.—Burma: Exports and reexports of mineral commodities

(Metric tons unless otherwise specified)

Commodity	1972	1973	Principal destinations, 1973
METALS			
Antimony ore and concentrate	404	582	Belgium-Luxembourg 491; Japan 91.
Copper matte	184	--	
Lead metal, unwrought:			
Refined	8,583	7,500	People's Republic of China 4,000; Japan 3,475.
Antimonial	228	--	
Nickel matte and speiss	166	--	
Silver, unwrought ----thousand troy ounces	905	722	Japan 492; United Kingdom 129; Netherlands 101.
Tin ore and concentrate	1,015	2,365	Belgium-Luxembourg 1,965; United Kingdom 232.
Tungsten:			
Straight tungsten concentrate	492	955	Japan 305; Singapore 305; West Germany 254.
Mixed tin-tungsten concentrate	258	342	United Kingdom 218; Netherlands 124.
Zinc ore and concentrate	3,191	6,487	All to Belgium-Luxembourg.
Other metals including alloys, all forms	--	3	All to United Kingdom.
NONMETALS			
Cement	40	(1)	NA.
Gem stones other than diamond:			
Jade:			
Uncut ----------thousand carats	98	96	Hong Kong 93.
Cut but not set ----------do	1,525	3,227	Hong Kong 1,934; People's Republic of China 551; Switzerland 502.
Precious and semiprecious stones, n.e.s.:			
Uncut ----------do	(1)	--	
Cut but not set ----------do	r 4	10	Hong Kong 5.
Salt	24,826	4,015	All to Singapore.
Other nonmetals, n.e.s	r 8	26,626	Malaysia 12,529; India 7,441.
MINERAL FUELS AND RELATED MATERIALS			
Coal, anthracite and bituminous	6	--	
Petroleum refinery products thousand 42-gallon barrels	441	196	Japan 91.

r Revised. NA Not available.
1 Less than ½ unit.

Table 3.—Burma: Imports of mineral commodities [1]

(Metric tons unless otherwise specified)

Commodity	1972	1973	Principal sources, 1973
METALS			
Aluminum:			
Oxide and hydroxide	11	18	United Kingdom 17.
Metal including alloys:			
Unwrought	362	3	Mainly from Japan.
Semimanufactures	173	480	U.S.S.R. 228; Japan 89.
Arsenic trioxide, pentoxide, acids	49	--	
Chromium oxides and hydroxides	3	1	All from West Germany.
Copper:			
Copper sulfate	52	1	Do.
Metal including alloys:			
Unwrought	72	3	Mainly from United Kingdom.
Semimanufactures	304	286	Japan 185.
Iron and steel metal including alloys:			
Pig iron, including cast iron	1,202	2,957	West Germany 2,845.
Ferroalloys	4	46	All from Belgium-Luxembourg.
Steel, primary forms	14,682	13,264	U.S.S.R. 8,026; North Korea 5,228.
Semimanufactures	62,405	31,923	Japan 15,790.
Lead metal including alloys, all forms	38	4	Mainly from West Germany.
Manganese, oxides	173	102	All from Japan.
Mercury ----76-pound flasks	108,582	1,045	Japan 747; Denmark 255.
Nickel metal including alloys, all forms	20	6	Mainly from West Germany.
Silver metal including alloys, all forms troy ounces	670	147	United Kingdom 144.
Tin:			
Oxides	1	--	
Metal including alloys, unwrought and semimanufactures	1	3	Japan 2.
Titanium oxides	71	37	West Germany 29.
Tungsten metal including alloys, all forms	(2)	--	
Zinc:			
Oxides	34	160	People's Republic of China 120.
Metal including alloys, all forms	350	543	Japan 535.
Other:			
Ores and concentrates, n.e.s	2	1	All from Hong Kong.
Oxides, hydroxides and peroxides of metals, n.e.s	55	247	Japan 239.
Base metals including alloys, all forms	(2)	13	Belgium-Luxembourg 11.
NONMETALS			
Abrasives, natural, n.e.s --value, thousands	$1	$58	West Germany $22.
Asbestos	1,143	756	People's Republic of China 110.
Boric acid	24	1	All from Japan.
Bromine	(2)	(2)	All from United Kingdom.
Cement	820	2,024	United Kingdom 1,074.
Chalk	25	1	All from United Kingdom.
Clays and clay products:			
Crude clays, n.e.s.:			
Kaolin (china clay)	774	29	Japan 23; India 6.
Other	96	88	Japan 74.
Products:			
Refractory --------value, thousands	$605	$149	West Germany $55; Japan $52.
Nonrefractory ----------do	$59	$63	People's Republic of China $40.
Diamond, industrial ----------do	(2)	--	
Diatomite and other infusorial earth --do	$5	--	
Fertilizer materials:			
Manufactured:			
Nitrogenous	55	27	All from West Germany.
Phosphatic	30,115	11,248	All from Tunisia.
Ammonia	31	115	Netherlands 73; France 23.
Graphite, natural	6	11	India 7.
Gypsum ----------value, thousands	$2	(2)	All from United Kingdom.
Iodine	2	(2)	All from West Germany.
Mica, all forms	1	13	United Kingdom 9.
Precious and semiprecious stones, except diamond:			
Natural ----------carats	234	33	NA.
Salt	188	40	All from Pakistan.
Sodium and potassium compounds, n.e.s.:			
Caustic soda	8,667	6,001	Netherlands 4,388; People's Republic of China 1,163.
Caustic potash, sodium and potassic peroxides	9	1	Mainly from West Germany.
Stone, sand and gravel:			
Quartz and quartzite	11	17	All from United Kingdom.
Sand, excluding metal-bearing	28	425	Japan 422.

See footnotes at end of table.

Table 3.—Burma: Imports of mineral commodities [1]—Continued

(Metric tons unless otherwise specified)

Commodity	1972	1973	Principal sources, 1973
NONMETALS—Continued			
Sulfur:			
Elemental	1,264	1,979	West Germany 1,964.
Sulfuric acid	6	4	West Germany 2.
Other nonmetals, n.e.s.:			
Crude	252	12	West Germany 5; People's Republic of China 5.
Building materials of asphalt, asbestos and fiber cement and unfired nonmetals, n.e.s	2	2	Mainly from Japan.
MINERAL FUELS AND RELATED MATERIALS			
Carbon black	142	--	
Coal and briquets:			
Anthracite and bituminous	126,755	64,460	All from India.
Lignite and lignite briquets	--	12,340	Do.
Coke and semicoke	508	2,032	All from West Germany.
Hydrogen, helium and rare gases	14	8	Japan 7.
Petroleum:			
Crude ---thousand 42-gallon barrels	1,304	--	
Refinery products:			
Gasoline, motor and aviation --do	19	--	
Kerosine and jet fuel ---do	106	350	Singapore 176; Iran 129; People's Republic of China 45.
Residual fuel oil ---do	57	115	Singapore 114.
Lubricants ---do	100	131	Singapore 56; United Kingdom 22.
Mineral jelly and wax ---do	1	1	Mainly from Japan.
Other:			
Nonlubricating oils, n.e.s --do	8,705	5,245	Iran 5,070.
Petroleum asphalt and pitch do	191	243	Japan 212.
Unspecified ---do	(2)	(2)	Mainly from United Kingdom.
Mineral tar and other coal-, petroleum-, or gas-derived crude chemicals	36	7	All from United Kingdom.

NA Not available.

[1] Imports for consumption only; does not include imports into bond.

[2] Less than ½ unit.

COMMODITY REVIEW

METALS

Antimony.—Production of mine antimony, while modest in value, has been increasing. Gross production of ore reportedly surpassed 1,000 tons in 1975. There are no modern mills or refining facilities in the country. Although individual miners have been able to sell their product to the Government if it assays over 50% antimony, much of the ore is probably lower in grade. In addition, Burma produces and exports a few tons of antimonial lead (assaying possibly 20% antimony) annually, derived as a byproduct of the Namtu lead-zinc smelter. Burma could significantly increase its antimony production by investing in a beneficiation plant.

Copper.—The copper picture was beginning to look brighter, with the development of low-grade porphyry deposits near Monywa moving nearer to reality. A pilot plant with a 50-ton-per-day ore-crushing capacity was built with Japanese aid and began operation in 1975. A Japanese drilling program completed in 1974 apparently confirmed the economic feasibility of a copper smelter. Reserves from two separate occurrences are reported to total more than 60 million tons of ore grading at least 0.7% copper. As a result, the Burmese Government was actively seeking investment capital to develop the deposit and to construct a smelter. However, the Japanese have since lost interest in the project, at least for the time being. West Germany may consider switching funds earmarked for modernizing the Bawdwin mine to the Monywa project. In addition, loan funds might be available from West Germany for refinery construction if West German firms could be guaranteed an option to bid on the refinery output.[6]

Burma has currently been producing only about 200 tons of copper matte annually as a byproduct of the Bawdwin lead-zinc output.

Lead, Zinc, and Silver.—Lead, zinc, and silver production continued to come mainly

[6] U.S. Embassy, Rangoon, Burma. State Department Airgram A-050, June 4, 1976.

from the Government-owned Bawdwin Mines Corporation enterprise near the Chinese border northeast of Mandalay. The fiscal 1974–75 output of ore was reported at around 160,000 tons,[7] but metal content continued to drop as high-grade ores were mined out. Present grade runs about 7% lead and 4% zinc, plus good values for by-product silver, copper, antimony, and nickel. Production of refined lead was 9,754 tons, an 8% increase over 1974. The mine at Bawdwin and the old smelter at Namtu, 11 kilometers east of the mine, continued to operate at a loss owing to obsolete and wornout equipment. The planned conversion of the mine to open pit exploitation of lower grade ore has been shelved. The $26 million funding was not given final approval by the West German Credit Bureau for Reconstruction because of unstable security conditions in the northern Shan State area. Instead only $2 million will be used to "modernize" the mine, while the remainder may be redirected into more stable projects, mainly the development of the Monywa copper deposits and possible construction of a zinc smelter. Zinc concentrate is sold as such, since no zinc smelting facilities exist in the country. Output of zinc in concentrate was up 37% over the 1974 level. Construction of a domestic zinc smelter would have the added advantage of allowing the reclaiming of thousands of tons of zinc-rich tailings and slags which have been accumulated at the Bawdwin mine over the last 50 years.

Nickel and Chromium.—A nickel–chromium deposit was examined in 1975 by the UNDP's geological survey and exploration program. The ore body, located near Tiddim in the Chin Hills, apparently was considered unsuitable for commercial exploitation.

Tin and Tungsten.—Production of tin concentrate (gross weight) totaled over 760 tons, and gross weight, of mixed tin–tungsten concentrates, mostly coming from the Mawchi mine in Kayah State, totaled nearly 800 tons. Exports of tin-in-concentrate were around 600 tons. Total exports of tin concentrate in all forms were reportedly over 1,200 tons in calendar 1975. These production figures were probably understated because of a significant movement of smuggled, unreported, and inaccurately reported concentrate produced in the Tenasserim coastal region. In the first 9 months of 1975, the tin smelter in Penang, Malaysia, reported handling at least 3,000 tons of Burmese tin concentrate (gross weight). This large discrepancy between reported Burmese tin exports and Malaysian imports was more than the total official Burmese exports for the year. Some of the ore probably originated across the border in Thailand and was smuggled by boat to Penang. However, a large share of the ore may also have been Burmese, illegally mined and shipped under false certificates of origin.

The UNDP has begun a $1.8 million, 3-year exploration project in the Tenasserim region. It will attempt to detail the tin–tungsten deposits and reserves, both onshore and offshore. Insurgency problems were complicating the work in this region.

A West German loan to Burma continued the expansion and modernization of the Myanma Tin and Tungsten Corporation's open pit mining operation. The mine was undergoing expansion to an operating rate of 1,000 tons per year of tin concentrate. Krupp Industries of West Germany was doing the work.

Tungsten production for the year was over 1,200 tons of concentrate (gross weight) in all forms, including the Mawchi production mentioned above. Exports of tungsten concentrate remained steady at about 500 tons. Exports of mixed concentrate added almost 900 tons more, but the proportion of tungsten to tin in these mixtures was not reported. Continued Soviet aid to the Mawchi mine was aimed at increasing production to 1,800 tons of mixed concentrate per year.[8]

NONMETALS

Cement.—Cement production increased 56,000 tons to 228,000 tons in 1975 in response to last year's shortages. Exports, begun only in 1974, were stopped during 1975. Gypsum, used in the manufacture of cement, was mostly imported before 1972. Gypsum production has since risen steadily. Nearly 40,000 tons of gypsum were mined near Hsipaw in Shan State, a 30% increase over 1974 output and nearly 3½ times the 1973 level. Soviet financial assistance aided in developing the gypsum deposit.

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[7] Latest available Bawdwin Mines figures.
[8] U.S. Embassy, Rangoon, Burma. State Department Airgram A–041, May 11, 1976.

MINERAL FUELS

Coal.—Burma has no anthracite but does mine modest amounts of lower rank coal from the Kalewa coalfield in the northwest. Production is being pushed as an import substitute. In 1975 it reached 24,588 tons, an increase of 46% over that of 1974. The coal was primarily used to generate electric power. Output could increase further, with the reported opening of new mines in 1976.

Petroleum.—Plans for attaining petroleum self-sufficiency by yearend 1975 fell short of success because of forced cutbacks in production onshore. The bottleneck was in the transport of oil from the producing fields to the refineries. There were five major producing fields in Burma during 1975 with the Mann Field yielding about one-half of the total. Production at Mann was cut back from 12,000 to 8,000 barrels per day pending completion of a 20-mile-long pipeline to a new barge jetty at Malun in 1976. Bottlenecks in the Irrawaddy River water transport system were being alleviated by the construction of new oil barges and the purchase of additional barges from abroad. Total domestic crude production for the calendar year was 6.7 million barrels (about 900,000 tons). By December, production was running around 16,600 barrels per day, down more than 21% from 1974. The much-heralded Letpando oil strike proved a disappointment as additional drilling did not bring in the production increases predicted last year. A large part of the exploration budget was currently being used to complete the exploration and define the reserves at the field. Additional exploration drilling was being conducted at Padaukkone near Thayetmyo, and at Natui near Pakokku.[9]

Several other crude pipelines were under construction or planned. A 10-inch-diameter line was reported under construction from the Letpando Field to the Chauk refinery. This should forestall transport problems once production begins at the field. A 136-mile, 10-inch-diameter line was being considered from the Mann Field to Prome. This would eliminate the necessity of barging oil to the Prome railhead and allow the major fields to produce at capacity.

The four foreign oil consortia, Esso, Martaban, AODA, and Total, described in detail in last year's chapter continued their offshore drilling program. Results have been discouraging for both the private and government drilling programs since only noncommercial occurrences of natural gas were found in 3 of 19 holes drilled in the Gulf of Martaban. Several oil shows off the Arakan coast were noncommercial because of insufficient reservoir rock. The Arakan drilling was complicated by very high thermal gradients in the sediments. All of the completed offshore wells were plugged and abandoned. The Government was reportedly considering offering for lease some of the remaining 12 offshore blocks.

Refining.—Burma had two small refineries, a 7,000-barrel-per-day plant at Chauk near the oilfields, and a 20,000 barrel-per-day operation at Syriam near Rangoon. Both ran at below capacity during 1975 because of the transport problems described above. As a result, targeted production for fiscal 1975–76 was well below the previous year's output for motor gasoline, kerosine, and diesel fuel. Only furnace oil was scheduled for a substantial increase. Despite the transport problems and resulting domestic shortages, petroleum imports were kept to a bare minimum. The only major entry was a shipment of special base oils and additives for the lube plant. Small amounts of coke and paraffin were exported.

Burma has the potential to again become an exporter of crude oil. Completion of pipeline and water transport improvements could allow a modest surplus of crude oil which would furnish a small but very much needed source of foreign exchange.

Natural Gas.—A modest amount of natural gas was produced in conjunction with oilfield operations. It was consumed mainly by local urea fertilizer plants. Demand will increase with completion of the Kyangin cement mill, under construction in 1975, and the Myanaung gas turbine powerplant, which reportedly went into operation in late 1975. A new gasfield at Shwepyitha near Prome was expected to come onstream to handle this increased demand. Actual marketed gas for 1975 increased 19%, to 5.6 billion cubic feet.

[9] U.S. Embassy, Rangoon, Burma. State Department Airgram A-008, Feb. 9, 1976.